Final Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program

February 2009

Volume I: Final Programmatic Environmental Impact Statement

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National Oceanic and Atmospheric Administration (NOAA)
National Marine Fisheries Service (NMFS)
Office of Protected Resources

Cooperating Agency:
U.S. Department of Agriculture (USDA)
Animal and Plant Health Inspection Service (APHIS)

Programmatic Environmental Impact Statement
for the Marine Mammal Health and Stranding Response Program

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Abstract

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has the authority, delegated from the Secretary of Commerce, to take stranded marine mammals under Section 109(h) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1379) and to establish and manage the Marine Mammal Health and Stranding Response Program (MMHSRP) under Title IV of the MMPA (16 U.S.C. 1421 *et seq.*). The MMHSRP includes: the National Marine Mammal Stranding Network; the Marine Mammal Unusual Mortality Event Program; the National Marine Mammal Tissue Bank and Quality Assurance Program; marine mammal health biomonitoring, research, and development; the Marine Mammal Disentanglement Network; the John H. Prescott Marine Mammal Rescue Assistance Grant Program; and information management and dissemination. This Final Programmatic Environmental Impact Statement (FPEIS) analyzes the potential environmental impacts of implementing the MMSHRP activities contained in the proposed action and alternatives.

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ABBREVIATIONS AND ACRONYMS

AAZV	American Association of Zoo Veterinarians
ABR	Auditory Brainstem Response
ADFG	Alaska Department of Fish and Game
AEP	Auditory Evoked Potential
APHIS	Animal and Plant Health Inspection Service
ASHPO	American Samoa Historic Preservation Office
AVMA	American Veterinary Medical Association
BLM	Bureau of Land Management
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CI	Co-Investigator
CIMS	Chesapeake Information Management System
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNMI	Commonwealth of the Northern Mariana Islands
CPR	Cardio Pulmonary Resuscitation
CSC	Coastal Service Center
DDT	Dichloro-Diphenyl-Trichloroethane
DEA	Drug Enforcement Administration
DIN	Dissolved Inorganic Nitrogen
DIP	Dissolved Inorganic Phosphorus
DOC	Department of Commerce
DOI	Department of the Interior
DPS	Distinct Population Segment
EA	Environmental Assessment

EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ERM	Effects Range Median
ERL	Effect Range Low
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FLMNH	Florida Museum of Natural History
FOSC	Federal On-Scene Coordinator
FR	Federal Register
GEPA	Guam Environmental Protection Agency
GMP	Gulf of Mexico Program
HAB	Harmful Algal Bloom
HAS	Hawaii Audubon Society
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSWRI	Hubbs-SeaWorld Research Institute
IATA	International Air Transport Association
ICS	Incident Command System
LOA	Letter of Agreement
m	Meter
mg/L	Milligrams per liter
MMC	Marine Mammal Commission
MMHSRA	Marine Mammal Health and Stranding Response Act
MMHSRP	Marine Mammal Health and Stranding Response Program

MMPA	Marine Mammal Protection Act
MSDS	Material Safety Data Sheet
NAO	NOAA Administrative Order
NCCR	National Coastal Condition Report II
NEPA	National Environmental Policy Act
NERR	National Estuarine Research Reserve
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMMTB	National Marine Mammal Tissue Bank
NMS	National Marine Sanctuary
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRDC	Natural Resources Defense Council
NRHP	National Register of Historic Places
NWHICRER	Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve
NWR	National Wildlife Refuge
OCNMS	Olympic Coast National Marine Sanctuary
OSHA	Occupational Safety and Health Administration
OSP	Optimum Sustainable Population
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCCS	Provincetown Center for Coastal Studies

PEIS	Programmatic Environmental Impact Statement
PFMC	Pacific Fishery Management Council
PI	Principal Investigator
PIT	Passive Integrated Transponder
POP	Persistent Organic Pollutant
POTWs	Publicly Owned Treatment Works
PR1	Office of Protected Resources, Permits, Conservation and Education Division (NMFS)
ROD	Record of Decision
SA	Stranding Agreement
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Officer
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
TOC	Total Organic Carbon
UME	Unusual Mortality Event
U.S.C.	United States Code
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHF	Very High Frequency
VIDPNR	Virgin Islands Department of Planning and Natural Resources
WDFW	Washington Department of Fish and Wildlife
WGMMUME	Working Group on Marine Mammal Unusual Mortality Events

Executive Summary

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has prepared this final Programmatic Environmental Impact Statement (PEIS) pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations 1500-1508), and the NOAA environmental review procedures (NOAA Administrative Order 216-6).

ES.1 Proposed Actions

With the passage of the Marine Mammal Protection Act (MMPA) in 1972, Congress gave jurisdiction over marine mammals in U.S. waters to the Federal government. All cetaceans and all pinnipeds, except walrus (*Odobenus rosmarus*), were placed under the jurisdiction of the Department of Commerce, of which NMFS is a part. The Department of the Interior, U.S. Fish and Wildlife Service was given authority over walrus, sea otters (*Enhydra lutris*), sirenians (manatees [*Trichechus spp.*] and dugongs [*Dugong dugon*]), and polar bears (*Ursus maritimus*).

In 1992, the Marine Mammal Health and Stranding Response Program (MMHSRP) was formalized with the passage of Title IV, an amendment to the MMPA entitled The Marine Mammal Health and Stranding Response Act. This Act charged the Secretary of Commerce to develop a marine mammal health and stranding response program with three goals:

1. Facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;
2. Correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters; and
3. Coordinate effective responses to unusual mortality events by establishing a process in the Department of Commerce in accordance with Section 404.

The MMHSRP developed the following four Proposed Actions to encompass the activities of the MMHSRP:

1. Issuance of the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release* (Policies and Best Practices) as final guidance.
2. Issuance of a new Endangered Species Act (ESA)/MMPA permit to the MMHSRP. The new permit would include current and future response activities for endangered species,

disentanglement activities, biomonitoring projects, and import and export of marine mammal tissue samples. The permit would be issued no later than July 1, 2009 and would expire in five years.

3. Continuation of current MMHSRP operations, including response, rehabilitation, release, and research activities, with renewal and authorization of Stranding Agreements (SAs) and Scientific Research Authorizations and other NMFS activities referenced in Section 1.3.1.
4. Continuation of the Prescott Grant Program.

The action area for the Proposed Actions and alternatives includes all areas where MMHSRP activities may occur. The action area encompasses the coastal zone and Exclusive Economic Zone of the U.S., its territories, and possessions, and adjacent marine waters. The coastal zone includes coastal waters, adjacent shorelands, intertidal areas, salt marshes, wetlands, and beaches. The action area also includes the marine mammal rehabilitation facilities of the stranding network.

ES.2 Purpose and Need

The purposes of the Proposed Actions are to respond to marine mammals in distress, including those stranded, entangled, and out of habitat, and to answer research and management questions about marine mammal health. Stranded and distressed marine mammal response is conducted for many reasons including NMFS' legislative mandate and the need to obtain data for management and scientific purposes. Marine mammals are also sentinels of ecosystem health and may provide valuable links to human health. Response to marine mammals is also conducted out of a concern for animal welfare and ocean stewardship.

NMFS is charged with the national oversight and collaboration of the MMHSRP, and creating policies that will work for the majority of participants. The MMHSRP has identified several needs for effectively carrying out the mandates of Title IV:

1. Operational efficiency - To operate the MMHSRP effectively and efficiently, maximizing the benefits from opportunistic events while making the best use of limited resources;
2. Quality data - To collect data on marine mammal health and health trends in an organized and consistent manner to meet current and future information needs for appropriate conservation and management; and
3. Safety - To implement policies to ensure that MMHSRP activities are conducted humanely and in a manner that protects the safety of volunteers and the public to the maximum extent possible.

ES.3 Alternatives

The alternatives to implement the Proposed Actions are grouped into the following six topics: SAs and response; carcass disposal; rehabilitation activities; release activities; disentanglement; and biomonitoring and research activities. A No Action Alternative, Status Quo Alternative, and Preferred Alternative are designated under each issue. The No Action Alternative for each issue is based upon NMFS not undertaking the coordination and operation of the MMHSRP. Current SAs would not be renewed and new SAs would not be issued. The Policies and Practices manual and the ESA/MMPA permit would not be issued. As current SAs expired, the current National Stranding Network would cease to exist. Once the current ESA/MMPA permit expires on June 30, 2009, the current disentanglement network would no longer function.

Table ES-1 summarizes the alternatives considered in the PEIS and which of the four Proposed Actions the alternatives would impact.

Table ES-1. Alternatives Considered in Detail

Alternative	Description	Proposed Action(s) Impacted
Stranding Agreements and Response		
Alternative A1	No Action- SA's expire, stranding response would end.	**1, 2, 3, 4**
Alternative A2	Status Quo- Current SAs would be renewed, current stranding response activities continue. Final SA criteria would not be issued.	
Alternative A3	SAs issued to any applicants after review, new SA template would not be utilized. Final SA criteria would not be issued. Current and future activities included.	
Alternative A4 (Preferred)	Final SA criteria would be implemented, new SA template would be utilized, current and future activities included.	
Alternative A5	Final SA criteria would be implemented, new SA template would be utilized, and response to threatened, endangered, or rare animals would be required.	
Carcass Disposal		
Alternative B1	No Action- SA's expire, no carcass disposal would occur, carcasses would be left where stranded.	**1, 3**
Alternative B2	Status Quo- Current methods of carcass disposal continue.	
Alternative B3 (Preferred)	Status Quo with the recommendation to transport chemically euthanized animal carcasses off-site.	

Table ES-1. Alternatives Considered in Detail (continued)

Alternative	Description	Proposed Action(s) Impacted
Rehabilitation Activities		
Alternative C1	No Action- Current SAs would expire, stranding response would cease, and animals would not be rehabilitated.	**1, 2, 3, 4**
Alternative C2	Status Quo- Current rehabilitation activities would continue. Final Rehabilitation Facility Standards would not be implemented.	
Alternative C3 (Preferred)	New SAs would be issued, rehabilitation activities continue. Final Rehabilitation Facility Standards would be implemented.	
Alternative C4	New SAs would be issued, rehabilitation activities would continue. Rehabilitation of threatened, endangered, and rare animals would be required; response to other animals would be optional. Final Rehabilitation Facility Standards would be implemented.	
Release of Rehabilitated Animals		
Alternative D1	No Action- Current SAs would expire, stranding response and rehabilitation would cease, and therefore there would be no animals to release.	**1, 2, 3, 4**
Alternative D2	Status Quo- Current release activities would continue. Adaptive changes to release activities would not be permitted. Final release criteria would not be implemented.	
Alternative D3 (Preferred)	New SAs would be issued, release activities continue. Final release criteria would be implemented and would include adaptive management of release activities.	
Disentanglement Activities		
Alternative E1	No Action- No disentanglement network.	**1, 2, 3, 4**
Alternative E2	Status Quo- Disentanglement network would continue current activities, no modifications or new members added	
Alternative E3 (Preferred)	Disentanglement network would continue current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.	
Biomonitoring and Research Activities		
Alternative F1	No Action- Biomonitoring and research activities would not occur.	**2, 3**
Alternative F2	Status Quo- New ESA/MMPA permit would continue current biomonitoring and research activities.	
Alternative F3 (Preferred)	New ESA/MMPA permit would be issued to include current and future biomonitoring and research activities.	

ES.4 Environmental Impacts and Mitigation

The environmental impacts of the alternatives were analyzed for the following resources:

- Biological resources: protected and sensitive habitats, submerged aquatic vegetation (SAV) and macroalgae, sea turtles, marine mammals, threatened and endangered species, fish, birds, and other wildlife;
- Water and sediment quality;
- Human health and safety;
- Cultural resources; and
- Socioeconomics.

Table ES-2 summarizes the impacts on these resources from each of the alternatives. While potential adverse and beneficial effects on all of the chosen resource areas could occur, effects on marine mammals and human health and safety would be considered the most important. Mitigation measures have been developed to avoid, minimize, or eliminate the potential adverse effects on the affected resources from the proposed alternatives.

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Table ES-2. Summary Matrix of Impacts

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Stranding Agreements & Response					
Alternative A1- No Action No Action- SA's expire, stranding response would end.	Moderate, adverse effects on marine mammals, as stranded animals would be removed from the population. Valuable information on marine mammal health would not be collected. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Minor, short-term adverse effects as the public interact with stranded animals. Beneficial effects as response personnel no longer needed.	Moderate, long-term beneficial direct effects on stranding network members, as there would be reduction, if not an elimination, of costs. Minor to moderate indirect adverse effects to SA holders whose activities attract external funding. Potential adverse effects if stranded animals reduce the visual and aesthetic such that other beach uses decrease while the stranded animal is decomposing. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Alternative A2- Status Quo Status Quo- Current SAs would be renewed, current stranding response activities continue. Final SA criteria would not be issued.	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, shellfish, and birds from equipment use or leaks on beaches/nearshore waters and the presence of responders. Minor to moderate, adverse effects on marine mammals would be expected from response activities and if new SAs are not issued.	Minor, short-term adverse effects on surrounding sand and nearshore waters could occur from equipment leaks and euthanasia solution or other environmental contaminants in tissue, blood, and other body fluids.	Potential minor, adverse effects on submerged cultural resources or resources buried in sand from equipment and vehicle use on beaches and nearshore waters. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.	Minor, short-term adverse effects on the public (interacting with a stranded animal) and stranding responders (*e.g.*, physical injury and zoonotic diseases).	Minor to moderate, long-term adverse effects to stranding network members from operating costs associated with these activities. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Alternative A3 SAs issued to any applicants after review, new SA template would not be utilized. Final SA criteria would not be issued. Current and future activities included.	Same effects on biological resources as Alternative A2. Some beneficial impacts could come from allowing new SA holders to be added, given that they have the proper experience with marine mammal response, as geographic coverage would increase and new rehabilitation facilities may be added.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A2.	Minor to moderate, long-term adverse effects on network members from operating expenses. New involvement with response activities would help offset expense of these activities. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding.
Alternative A4 (Preferred) Final SA criteria would be implemented, new SA template would be utilized, current and future activities included.	Same effects on biological resources as Alternative A2. Beneficial impacts from use of new techniques and tools during response activities and ability to add new SA holders. Long-term beneficial effects on marine mammals would be expected to occur with the implementation of SA criteria.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A2, with one exception. SA criteria would ensure that responders are experienced and have the knowledge to avoid or minimize health and safety risks.	Alternative A4 is similar to Alternative A3, but under Alternative A4 the Final SA criteria would be implemented. Moderate to major, adverse effects to the current SA holders would be expected to occur, as existing SA holders may need more training or may need to alter existing practices in order to meet the new criteria. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.

Table ES-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Stranding Agreements & Response					
Alternative A5 Final SA criteria would be implemented, new SA template would be utilized, and response to threatened endangered or rare animals would be required.	Same effects from stranding response activities as Alternative A2, with two exceptions. Beneficial effect on threatened endangered or rare animals and an adverse effect on other species. Same effects from the implementation of SA criteria as Alternative A4.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A4.	Minor to major, long-term adverse effects to SA holders similar to those described in Alternatives A3 and A4, but they would also depend on the proportion of stranded marine mammals that are not rare, threatened, or endangered and whether or not the network member chooses to continue responding to those animals. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Carcass Disposal					
Alternative B1- No Action No Action- SA's expire, no carcass disposal would occur, carcasses would be left where stranded.	Potential adverse effects could occur from leaving carcasses on the beach to naturally decompose. Animal carcasses may contain contaminants, which could negatively impact the surrounding environment. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	Potential adverse effects could occur from leaving carcasses on the beach to naturally decompose. Animal carcasses may contain contaminants, which could negatively impact the surrounding water and sediment quality.	No effects on cultural resources.	Minor, short-term adverse effects as the public interact with stranded animals. Contaminated or chemically euthanized carcasses could potentially contaminate the groundwater and/or nearshore water. Beneficial effect on personnel involved in carcass disposal as they would no longer be exposed to risks.	Negligible adverse impacts in terms of lost revenues, restaurants, and parks in the immediate vicinity of the carcass(es), if the public chose to avoid the area. Potential beneficial effects if people come to see stranding event
Alternative B2- Status Quo Status Quo- Current methods of carcass disposal continue.	Minor to moderate, short- and long-term adverse effects, as animal carcasses may contain persistent environmental contaminants or euthanasia solution, which could negatively impact the surrounding environment. Other adverse effects from burial, equipment use, spills of hazardous materials or wastes from equipment or vessels. Disposal at sea might allow contaminants to re-enter the marine environment, but would provide a benefit by serving as a food sources for marine organisms.	Minor, short-term adverse effects on water and sediment quality could occur from equipment leaks; euthanasia solution or other contaminants in tissue, blood, and other body fluids; spills of hazardous materials or wastes from vessels. Burial and equipment use may have a negligible impact on erosion.	Potential minor, long-term, adverse effects on submerged cultural resources or resources buried in sand from beach burial and equipment and vehicle use on beaches and nearshore waters. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.	Minor and major, short- and long-term adverse effects as the public interacts with a stranded animal. Contaminated or chemically euthanized carcasses left on the beach or buried could potentially contaminate the groundwater and/or nearshore water, making it unhealthy for humans to swim near the carcass site. Workers involved in disposal could be exposed to zoonotic diseases, contaminants, and euthanasia solution.	Negligible adverse impacts in terms of lost revenues, restaurants, and parks in the immediate vicinity of the carcass(es), if the public chose to avoid the area. Potential beneficial effects if people come to see stranding event
Alternative B3 (Preferred) Status Quo with the recommendation to transport chemically euthanized animal carcasses off-site.	Same effects as Alternative B2, with one exception. Chemically euthanized carcasses would not be buried on-site, minimizing some of the adverse effects.	Same effects as Alternative B2.	Same effects as Alternative B2.	Same effects as Alternative B2 with one exception. Recommended that chemically euthanized animal carcasses not be buried on the beach, which would remove the health and safety risks associated with beach burial	Effects would be the same as those described under Alternative B2, except that chemically euthanized carcasses would be moved off-site and the cost would be incurred by the stranding network member. Adverse effects would be negligible, minor, or major, depending on the number of carcasses.

Table ES-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Rehabilitation Activities					
Alternative C1- No Action No Action- Current SAs would expire, stranding response would cease, and animals would not be rehabilitated.	Moderate, long-term, adverse effects as marine mammals would not be taken into rehabilitation and most would likely die from injuries or disease. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to rehabilitation personnel would end.	Potential major, long-term, adverse effects on facilities that focus primarily on rehabilitation activities. Facilities may cease operation, unless their activities could be shifted. Larger facilities that engage in other activities may experience a minor, long-term positive effect in terms of the reduced operating costs from the elimination of rehabilitation activities.
Alternative C2- Status Quo Status Quo- Current rehabilitation activities would continue. Final Rehabilitation Facility Standards would not be implemented.	Minor to major, short- and long-term, beneficial and adverse effects on marine mammals. Potential adverse effects from sampling, anesthesia, disease, euthanasia, and not implementing the Rehabilitation Facility Standards No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	Minor adverse effects due to use of open ocean/bay net pens and temporary pools and contamination from wastes, pathogens, etc. Rehabilitation facilities would have necessary permits for wastewater discharges.	Potential minor to major adverse effects on from the use of temporary pools and net pens, depending on where they are sited. Net pens may disturb or damage submerged cultural resources.	Minor, short-term, direct adverse effects on rehabilitation personnel, including physical injuries, exposure to chemicals, and exposure to zoonotic diseases.	Current rehabilitation facilities would continue to bear minor to major, long-term adverse effects. Rehabilitation facilities would operate as they currently do and therefore continue to incur supply, equipment, personnel, and maintenance expenses.
Alternative C3 (Preferred) New SAs would be issued, rehabilitation activities continue. Final Rehabilitation Facility Standards would be implemented.	Same effects as Alternative C2, with one exception. Rehabilitation Facility Standards would decrease the risk of disease transmission ensure a healthy environment, maximize the success of rehabilitation, and increase the potential for release to the wild. Would reduce animal pain and suffering.	Same effects as Alternative C2.	Same effects as Alternative C2.	Same effects as Alternative C2, with one exception. Health and safety standards in the rehabilitation facility standards would have a beneficial effect.	Minor to major, adverse effects on rehabilitation facilities. Facilities would need to upgrade to comply with the minimum facility standards. Level of impact would depend on each facility, if they need to upgrade, and how much they would need to upgrade to meet the minimum standards.
Alternative C4 New SAs would be issued, rehabilitation activities would continue. Rehabilitation of threatened endangered and rare animals would be required; response to other animals would be optional. Final Rehabilitation Facility Standards would be implemented.	Same effects as Alternative C3, with a few exceptions. Adverse effects on animals that are not rare, threatened or endangered. These animals often serve as models for other species and this would be an indirect adverse affect on rare, threatened, and endangered species.	Same effects as Alternative C2.	Same effects as Alternative C2.	Same effects as Alternative C3.	Alternative C4 would adversely affect rehabilitation facilities in the same manner as Alternative C3. Alternative C4 could adversely affect facilities to a lesser extent, however, since under the rehabilitation of non-rare and non-ESA species would only be optional.
Release of Rehabilitated Animals					
Alternative D1- No Action No Action- Current SAs would expire, stranding response and rehabilitation would cease, and therefore there would be no animals to release.	Adverse effects as marine mammals would not be released back to the wild, which negatively impacts all species, but especially threatened or endangered species. Beneficial effect on wild populations, as there would not be the risk of introducing a diseased animal that could potentially infect other marine mammals. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to release personnel would end.	Beneficial effects as the end of release activities would eliminate the expenses related to these activities.

Table ES-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Release of Rehabilitated Animals					
Alternative D2- Status Quo Status Quo- Current release activities would continue. Adaptive changes to release activities would not be permitted. Final release criteria would not be implemented.	Minor, short- and long-term, adverse and beneficial effects on marine mammals. Release activities (tagging, marking, and transport) may have adverse effects. Released animal could carry a zoonotic disease and infect wild population. Adverse effects on all biological resources from equipment use, spills of hazardous materials or wastes from equipment or vessels.	Minor, short-term, direct adverse effects could occur from spills of hazardous materials or wastes from release vessels or leaks from equipment into sand or surrounding waters.	Minor, long-term, adverse effects on cultural resources buried in sand from equipment and vehicle use on beaches.	Minor, short-term, direct adverse effects on release personnel, including physical injuries and exposure to chemicals.	Minor to moderate, adverse effects as continued expenses would be incurred from release activities. Facilities that release more animals, larger species of marine mammals, or those that need to travel greater distance to release animals would incur a greater share of expenses.
Alternative D3 (Preferred) New SAs would be issued, release activities continue. Final release criteria would be implemented and would include adaptive management of release activities.	Same effects as Alternative D2, with one exception. Release criteria would be implemented and may reduce the effects on marine mammals.	Same effects as Alternative D2.	Same effects as Alternative D2.	Same effects as Alternative D2	Minor to moderate, adverse effects as costs may increase at each facility in order to comply with the release criteria. Possible addition of facilities could help offset the release activities and their costs.
Disentanglement Activities					
Alternative E1- No Action No Action- No disentanglement network.	Major, long-term adverse effects on marine mammals from ending the Disentanglement Network as animals would have increased pain and suffering and would most likely die. No significant effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds. Gear on an entangled animal may be shed and become marine debris, which could potentially harm biological resources.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to responders would end. Potential adverse impacts on public health if individuals attempt to disentangle an animal.	Minor to moderate, beneficial effects on current participants could occur from the elimination of expenses incurred from disentanglement activities.
Alternative E2- Status Quo Status Quo- Disentanglement network would continue current activities, no modifications or new members added	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, birds, and marine mammals from spills of hazardous materials or wastes from vessels. Minor to major, short- and long-term, beneficial and adverse effects on marine mammals. Disentanglement would continue; new responders could not be added. Animal adverse reactions to close approaches, physical/chemical restraint, or be injured during the process.	Minor, short-term, adverse effects could occur from spills of hazardous materials or wastes from release vessels.	No effects on cultural resources.	Adverse effects on responders, including physical injuries, exposure to chemicals, potentially death. Potential adverse impacts on public health if individuals attempt to disentangle an animal.	Minor to moderate, adverse effects would continue to be borne by participants engaged in disentanglement activities.

Table ES-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Disentanglement Activities					
Alternative E3 (Preferred) Disentanglement network would continue current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.	Same effects as Alternative E2, except that new responders and techniques could be added and Disentanglement Guidelines/training would be in place to reduce adverse effects.	Same effects as Alternative E2.	No effects on cultural resources.	Same effects as Alternative E2. There would be less risk under this alternative, as modifications new tools and techniques and the Disentanglement Guidelines/training could reduce safety risks.	No impacts to East Coast participants. Minor to moderate, adverse effects would be borne by West Coast participants due to modifications of current operations and training expenses.
Biomonitoring & Research Activities					
Alternative F1- No Action No Action- Biomonitoring and research activities would not occur.	Adverse effects on marine mammals as important health information would no longer be collected. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks from research activities would end.	No effects on socioeconomics.
Alternative F2- Status Quo Status Quo- New ESA/MMPA permit would continue current biomonitoring and research activities.	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, birds, and marine mammals from spills of hazardous materials or wastes from vessels or leaks from equipment into sand or surrounding waters. Protected and sensitive habitats and SAV and macroalgae could be damaged by vessels/researchers. Sea turtles/birds and their nests could be disturbed/ damaged. Fish may be caught in nets or disturbed. Minor to major, short- and long-term, adverse effects on marine mammals from close approach, tagging, marking, restraint, handling, capture, transport, sampling, and other activities. Long-term beneficial effects from collection of health information.	Minor, short-term, direct adverse effects could occur from spills of hazardous materials or wastes from release vessels or leaks from equipment into sand or surrounding waters.	Adverse effects would not likely occur. Potential effects on submerged cultural resources or resources buried in sand from equipment and vehicle use on beaches and vessel use in nearshore waters.	Minor, short-term, direct adverse effects on research personnel, including physical injuries, exposure to chemicals, and exposure to zoonotic diseases.	Minor to moderate, adverse effects could occur depending on the nature of biomonitoring and research activities and the ongoing personnel and research expenses.
Alternative F3 (Preferred) New ESA/MMPA permit would be issued to include current and future biomonitoring and research activities.	Same effects as Alternative F2, with other adverse effects from new research activities. The increase in research activities would have a beneficial affect on marine mammals, as more health information would be collected.	Same effects as Alternative F2.	Same effects as Alternative F2.	Same effects as Alternative F2.	Minor to moderate, adverse effects could occur depending on the nature of new biomonitoring and research activities and the ongoing personnel and research expenses.

FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM

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1. Purpose and Need for the Proposed Actions

1.1 Introduction

This final Programmatic Environmental Impact Statement (PEIS) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and the National Oceanic and Atmospheric Administration (NOAA) environmental review procedures (NOAA Administrative Order [NAO] 216-6). It describes a reasonable range of alternatives and the existing environmental conditions. The final PEIS contains a detailed analysis of the environmental consequences of the alternatives. This chapter describes the Marine Mammal Health and Stranding Response Program (MMHSRP) and the underlying purpose and need for the proposed actions.

1.2 Establishment and Overview of the MMHSRP

1.2.1 Establishment of the MMHSRP

Public response to marine mammals in distress, particularly those that are on the beach or "stranded," has occurred in various forms for decades. Historically, private organizations were founded to respond to stranded marine mammals. Many efforts were also conducted by museums to obtain marine mammal specimens for their collections. Aquaria with marine mammals in captivity also responded and provided veterinary care to stranded and injured marine mammals, particularly cetaceans. Prior to the 1970s, response was extremely localized, relatively inconsistent, and occurred with minimal Federal involvement. Communication between different groups responding to strandings was minimal, and accounts of single strandings were not integrated into any sort of meaningful analysis or overall picture that reflected animal stranding patterns or distributions.

With the passage of the Marine Mammal Protection Act (MMPA) in 1972, Congress gave jurisdiction over marine mammals in U.S. waters to the Federal government. All cetaceans and all pinnipeds, except walrus (*Odobenus rosmarus*), were placed under the jurisdiction of the Department of Commerce and is now specifically housed in the National Marine Fisheries Service (NMFS), NOAA. The Department of the Interior, U.S. Fish and Wildlife Service (USFWS) was given authority over walrus, sea otters (*Enhydra lutris*), sirenians (manatees [*Trichechus spp.*] and dugongs [*Dugong dugon*]), and polar bears (*Ursus maritimus*). The MMPA protected marine mammals from capture or harassment, and NMFS implementing regulations prohibited the possession of parts from carcasses

except by those specifically authorized to do so. This was a significant driving force in the development of a formal regional stranding network.

The U.S. Marine Mammal Commission (MMC) sponsored a workshop in 1977 which brought scientists together to discuss marine mammal strandings. One recommendation from that workshop was to establish a framework for a national marine mammal stranding network with regional centers and a centralized data file, coordinated by NMFS. The network was formally established, and was organized, as independent volunteer organizations coordinated through each of the NMFS jurisdictional regions.

Throughout the 1980s, the stranding network continued to grow across the U.S. and worldwide. Information, mostly from stranded animals, began to accumulate on marine mammal mortalities caused by human interactions, such as fisheries, and marine mammal mass mortality events. In the late 1980s, a number of mass mortality events occurred in the U.S. and abroad, gaining significant public attention. A mass die-off of humpback whales (*Megaptera novaeangliae*) in the Northeast U.S. was linked to saxitoxin, resulting from a harmful algal bloom (HAB). Hundreds of bottlenose dolphins (*Tursiops truncatus*) stranded dead in the Southeast U.S. due to *Morbillivirus* infection. The investigation into these events encountered significant difficulties due to the lack of baseline data on marine mammal health and NMFS and Congressional efforts began to formalize the health and stranding program. Mounting evidence from these strandings and others showed high levels of anthropogenic contaminants, such as persistent organic pollutants (POPs), raising concerns about the overall health of marine mammal populations. Interest in marine mammal health and strandings continued to increase as the public raised concerns about deteriorating ocean conditions. Based on these growing concerns Congress passed the Marine Mammal Health and Stranding Response Act (MMHSRA) in 1992.

Under the MMHSRA, the MMHSRP was formalized with the passage of Title IV, an amendment to the MMPA. This Act charged the Secretary of Commerce to develop a marine mammal health and stranding response program with three goals:

1. Facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;
2. Correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters; and

3. Coordinate effective responses to unusual mortality events (UMEs) by establishing a process in the Department of Commerce in accordance with Section 404 of the MMPA.

In this legislation, there is specific language relative to stranding networks. First, a stranding was defined as "an event in the wild in which (A) a marine mammal is dead and is (i) on a beach or shore of the United States; or (ii) in waters under the jurisdiction of the United States (including any navigable waters); or (B) a marine mammal is alive and is (i) on a beach or shore of the United States and is unable to return to the water; (ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or (iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance" (16 United States Code [U.S.C.] 1421h). Secondly, the Department of Commerce is authorized by Section 112(c) of the MMPA to enter into agreements with individuals or groups to "take" marine mammals in response to a stranding event. "Take" means to "harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal" (16 U.S.C. 1362). Title IV also mandated the implementation of several other programs under the umbrella of the MMHSRP. These programs are described below.

1.2.2 Overview of the Current MMHSRP

Since the passage of Title IV, the MMHSRP has grown significantly. The current MMHSRP includes the following components:

- National Marine Mammal Stranding Network
- Marine Mammal UME Program
- National Marine Mammal Tissue Bank (NMMTB) and Quality Assurance Program
- Marine Mammal Health Biomonitoring, Research, and Development
- Marine Mammal Disentanglement Network
- John H. Prescott Marine Mammal Rescue Assistance Grant Program (a.k.a. the Prescott Grant Program)
- Information Management and Dissemination.

The National Marine Mammal Stranding Network consists of organizations nationwide who respond to stranded or entangled pinnipeds (except walrus) and all cetaceans within U.S. waters. These organizations are authorized to respond under the MMPA, utilizing the authority of either Section 112(c) or Section 109(h). Organizations operating under Section 112(c) authority have entered into

formal agreements with NMFS for stranding response. These agreements are known as Stranding Agreements (SAs), previously termed Letters of Agreement (LOAs). Organizations with SAs include non-profits, for-profits, institutions of higher education, museums, governmental agencies, and individuals. Section 109(h) of the MMPA allows Federal, state, and local government employees in the line of duty to take a stranded marine mammal in a humane manner (including euthanasia) if such taking is for: the protection or welfare of the mammal; the protection of public health and welfare; or the nonlethal removal of nuisance animals. Appendix F lists the current (2009) members of the NMFS National Stranding Network. The National Stranding Database was mandated under the MMPA (16 U.S.C. 1421f) to contain marine mammal health reference data and data on species that are subject to UMEs. The establishment of a data access policy was also mandated, to allow access to marine mammal tissues in the NMMTB, any analyses conducted on these tissues, and other marine mammal data in the database. Standardized datasheets to record stranding information have been developed and are revised periodically.

The Working Group on Marine Mammal Unusual Mortality Events (WGMMUME), mandated under the MMPA (16 U.S.C. 1421c), is a multidisciplinary panel of experts organized by NMFS to assist in determining criteria for UMEs. A UME is defined in the MMPA as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." The WGMMUME coordinates emergency responses and investigations into causes of mortality and morbidity. The Group also evaluates the environmental factors associated with UMEs, provides training and resources (when possible), and oversees the Marine Mammal UME Fund.

The development of the NMMTB at the National Institute of Standards and Technology was mandated by the MMPA (16 U.S.C. 1421f) and initiated by NMFS. Sources of tissues include: samples from UMEs; samples from marine mammals taken incidental to commercial fishing operations; samples from marine mammals taken for subsistence purposes; biopsy samples; and any other samples properly and legally collected. The MMHSRP was mandated to issue guidance "for analyzing tissue samples (by use of the most effective and advanced diagnostic technologies and tools practicable) as a means to monitor and measure overall health trends in representative species or populations of marine mammals…"(16 U.S.C. 1421f). The NMMTB provides a long-term archive for marine mammal tissue samples, so that future retrospective analyses can be conducted. The MMHSRP also coordinates and conducts field assessments of wild populations of marine mammals, particularly in areas where there is a health question or concern, such as a previous mass stranding, UME, die-off, or outbreak.

Analogous to the stranding network, response to entangled marine mammals was conducted at a local level on an ad hoc basis for several decades. NMFS Headquarters and the NMFS Northeast Region began the formalization of the Marine Mammal Disentanglement Network in 1997, when a contract was issued to the Provincetown (Massachusetts) Center for Coastal Studies (PCCS) to respond to entangled large whales along the East Coast. The Disentanglement Network is a partnership between NMFS, PCCS, the U.S. Coast Guard (USCG), state agencies, and other entities. The Disentanglement Network is responsible for monitoring and documenting whales that have become entangled in fishing gear, as well as conducting rescue operations. PCCS has established protocols for all aspects of response, including animal care and assessment; vessel and aircraft support; and media and public information. PCCS has also developed response equipment and currently trains other members of the stranding and disentanglement networks. Personnel from the Hawaiian Islands Humpback Whale National Marine Sanctuary also provide disentanglement training. Today, over 500 civilian and governmental volunteers have received training as first responders for entangled whales. Appendix F lists the current members of the Disentanglement Network.

The Prescott Grant Program was established under the Marine Mammal Rescue Assistance Act of 2000. NMFS was authorized to disburse funds to eligible members of the National Stranding Network for: the recovery or treatment of marine mammals; the collection of data from living or dead stranded marine mammals for scientific marine mammal health research; and facility operation costs. Since 2001, Congress has annually appropriated $4.0 million to the Program, and 187 awards totaling over $16.5 million have been disbursed to stranding network members. Projects funded by the Prescott Grant Program have resulted in an increase in stranding response, data collection, and scientific analyses. Additional information on the Prescott Grant Program is presented in Section 1.3.2.4.

1.3 Purpose and Need for the Actions

1.3.1 Purpose for the Actions

The purposes of the proposed actions are to respond to marine mammals in distress, including those stranded, entangled, and out of habitat, and to answer research and management questions about marine mammal health. Stranded and distressed marine mammal response is conducted for many reasons, including NMFS' legislative mandate and the need to obtain data for management and scientific purposes. Marine mammals are also sentinels of ecosystem health and may provide

valuable links to human health. Response to marine mammals is also conducted out of a concern for animal welfare and ocean stewardship. Each of these reasons will be discussed below.

NMFS is charged under Title IV of the MMPA with collecting, disseminating, and investigating correlates of data on marine mammal health and investigating UMEs. Due to the scope and nature of marine mammal strandings in U.S. waters, NMFS has delegated responsibility for stranding response to local persons, organizations, and institutions through MMPA Section 112(c) agreements. These groups are required to share basic information from the response with NMFS to fulfill the statutory mandates. Data collected from stranded animals may be basic (Level A), intermediate (Level B), or detailed (Level C). Level A data includes information such as location, animal disposition, and morphological data. Level B data is supplementary on-site information, such as weather and tide conditions, animal behavior prior to and during stranding, and samples collected for life history and blood studies. Level C data includes all information collected during a necropsy examination. This information is used to develop baselines for animal biology and health; recognize trends and their potential relationships to various environmental factors; and gain knowledge necessary for improved species and habitat management (Geraci and Lounsbury 2005). NMFS also conducts many research projects to assess marine mammal health on wild free-ranging animals, including remote sampling (biopsy, breath, etc.) and captures. These research projects allow the MMHSRP to utilize controlled experimental designs (*i.e.,* number of samples, age classes, sex, location) and collect samples from off-shore species that are rarely reported stranded on beaches.

NMFS has an interest in collecting data from stranded and wild animals to monitor marine mammal population status and health. Data from stranding events and health-related research projects are utilized in marine mammal stock assessment reports. Reports of interactions between fisheries and marine mammals, particularly if the interaction may have played a role in the mortality of the marine mammal, are also very important data for fishery management.

Information obtained from stranded, sampled, and captured marine mammals is also important in expanding a basic biological understanding of many species. Geographic locality of strandings and rates of occurrence can reflect species distribution and abundance; seasonal patterns may also be interpreted. For some species that are cryptic and difficult to observe at sea *(e.g., Kogia sp.*), population distribution information from surveys may be incomplete or underestimated. Records of stranded animals may help fill in some of the gaps. By placing tracking devices on rehabilitated and captured marine mammals, movement and diving behavior can also be studied in species that have never otherwise been tagged, in addition to assessing the fate of the released animal. Recently

rehabilitated and tracked rare marine mammal species include Risso's dolphins (*Grampus griseus*) and rough-toothed dolphins (*Steno bredanensis*).

Samples collected from stranded marine mammals are used in a variety of scientific research projects. Life history studies utilizing tissues from stranded marine mammals can determine age (growth layer groups in teeth or bones), sexual maturity (dissection of ova or testes), and reproductive history (scars in the ovaries of females documenting ovulation and pregnancy). Other studies can determine food habits (through prey remains in stomachs and digestive tracts) and the relationship between traits and other variables (age at sexual maturity, length at sexual maturity, differences in food habits with geographic range, etc.). Field studies investigating similar attributes may require years or decades of dedicated survey or remote sensing efforts, and can only be performed on certain populations of individually identifiable marine mammal species. Scientific studies of stranded marine mammals have improved the understanding of genetic diversity and relatedness, contaminants and toxins in marine mammals, marine mammal diseases, and parasites. Most of the samples used in these studies are impossible to collect from free-ranging marine mammals, particularly offshore species which can be logistically difficult to locate and study. However, the MMHSRP is involved in several health research projects, and samples collected remotely via biopsies and other methods, or collected via health assessment captures may provide basic information about populations including genetic identification of individuals or stocks, feeding behavior, disease prevalence, toxicological information, and general population health.

Marine mammals are sentinels of ocean health. As top predators in the ocean ecosystem, marine mammals reflect their prey and their environment. Many environmental contaminants and biotoxins accumulate upwards in the food web, and can be detected at high levels in predators. Changes in the temporal and geographic distribution in pathogens, prey, and toxins may be detected in stranded marine mammals. These differences reflect changes in the severity, transport, concentration, and dispersion of these elements in the environment, creating a picture of environmental variability and change over space and time.

The health of marine mammals has also been linked to human health, both directly and as models. By examining strandings, threats that are shared by humans who utilize the marine ecosystem may be investigated. Marine mammals serve as models to examine the effects of biotoxins and disease on a mammalian system. Directly, many of the diseases that marine mammals have are considered "zoonotic," which means that they have the potential to spread between animals and humans. Some zoonotic diseases that have been detected in marine mammals include brucellosis, leptospirosis, *West*

Nile virus, Erysipelothrix rhusiopathiae, rabies, *Herpes virus*, and *Morbillivirus*. Marine mammals can directly serve as warning signals that these disease organisms are present in the marine environment, even if they have not been detected in other sampling or monitoring programs. Marine mammals also have a direct link with human health in those areas and cultures in which consumptive uses (*i.e*. harvest and eating) of marine mammals are practiced. In the U.S., this occurs primarily in Alaska Native communities.

A final rationale for stranding response is out of a greater concern for the ocean or the environment in general. Humans perceive themselves as caretakers of ocean resources, including marine mammals. There is a desire to responsibly manage these resources for the use and enjoyment of current and future generations. Those involved in stranding response derive a sense of accomplishment from helping marine mammals return to the wild, either immediately or after rehabilitation.

1.3.2 Need for the Actions

NMFS is charged with the national oversight and collaboration of the MMHSRP, and creating policies that will work for the majority of participants. The MMHSRP has identified several needs for effectively carrying out the mandates of Title IV:

1. Operational efficiency - To operate the MMHSRP effectively and efficiently, maximizing the benefits from opportunistic events while making the best use of limited resources;
2. Quality data - To collect data on marine mammal health and health trends in an organized and consistent manner to meet current and future information needs for appropriate conservation and management; and
3. Safety –To implement policies to ensure that MMHSRP activities are conducted humanely and in a manner that protects the safety of volunteers and the public to the maximum extent possible.

To meet the purpose and need, the MMHSRP developed the following four proposed actions:

1. Issuance of the Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release (a.k.a. Policies and Best Practices) as final guidance.
2. Issuance of a new Endangered Species Act (ESA)/MMPA permit to the MMHSRP. The new permit would include current and future response activities for endangered species, disentanglement activities, biomonitoring projects, and import and export of marine mammal tissue samples.

3. Continuation of current MMHSRP operations, including response, rehabilitation, release, and research activities, with renewal and authorization of SAs and Scientific Research Authorizations and other NMFS activities referenced in Section 1.3.1.
4. Continuation of the Prescott Grant Program.

1.3.2.1 Policies and Best Practices Manual

The Policies and Best Practices manual is a collection of protocols and guidance for stranding response, rehabilitation, and release activities. These documents, developed by NMFS (and USFWS for release activities), would be used to standardize practices of the National Stranding Network members, while allowing for regional flexibility. The manual is currently released as an interim draft and would be issued as final guidance after the NEPA analysis has been completed. Future development of these protocols and guidance may involve the issuance of regulations and subsequent NEPA analyses, but none are currently proposed. The five draft documents included in the manual are the:

- Evaluation Criteria for a Marine Mammal SA (New Applicants and Renewals) (a.k.a. SA criteria)
- National Template for Marine Mammal SAs
- Standards for Marine Mammal Rehabilitation Facilities (a.k.a. Rehabilitation Facility Standards)
- Standards for the Release of Rehabilitated Marine Mammals (a.k.a. release criteria)
- Marine Mammal Disentanglement Guidelines

These documents are summarized in Section 2 and their full text is located in Appendix C.

1.3.2.2 ESA/MMPA Permit

The NMFS Office of Protected Resources, Permits, Conservation and Education Division (PR1) issues the ESA/MMPA permit to authorize takes of marine mammals, including threatened and endangered species. The permit covers some of the MMHSRP's activities including emergency response activities for threatened and endangered species, health assessment studies, and other research projects.

The NMFS Permit No. 932-1489-10 (Appendix G), will expire on June 30, 2009 or with the issuance of the new permit, which is proposed to include new research and enhancement activities.

The current permit allows the MMHSRP Coordinator to:

- Collect, receive, preserve, label, and transport marine mammal cadavers, hard parts, tissue, and fluid samples for physical, chemical, or biological analyses, import, and export;
- Take stranded or distressed marine mammals and endangered or threatened species;
- Salvage specimens from dead marine mammals and endangered or threatened species;
- Conduct aerial surveys to locate imperiled marine mammals or survey the extent of disease outbreaks or die-offs;
- Harass marine mammals on land incidental to other MMHSRP activities authorized by the permit; and
- Develop and maintain cell lines from species under NMFS jurisdiction.

Takes of live marine mammals include those that are stranded, entangled, disentangled, injured, trapped out of habitat, extra-limital, in peril (*e.g.*, in vicinity of an oil spill), or are a nuisance. Takes of live animals also include those that are part of a population that is experiencing or has experienced a die-off, UME, or a repeat morbidity/mortality event. The permit does not authorize takes of USFWS marine mammal species, but fluid and tissue samples of USFWS species may be received if they were collected legally. Sources of legally obtained samples for research activities are listed in Appendix G.

As the Principal Investigator (PI), the MMHSRP Coordinator may add Co-Investigators (CIs) to conduct research and enhancement activities under this permit at their discretion. Addition of CIs typically occurs following a review of the proposed activities (including protocols and statistical analyses) and curriculum vitae of the investigator. Under the current ESA/MMPA permit, animals may be taken during close approach, capture, tagging, marking, biopsy sampling, collection of sloughed skin and feces, breath sampling, blood sampling, administration of drugs, euthanasia, and incidental harassment. General descriptions of these research methodologies are in Appendix H. Live threatened and endangered species may be taken during emergency response. This includes returning the animal back to the wild; treating a distressed condition; disentangling an animal on the beach or at sea; transporting the animal for return to the wild or a treatment/rehabilitation facility; or humanely euthanizing the animal.

For import and export of marine mammal specimens, the MMHSRP may be required to have import and export permits, if the species is listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I, II, or III. The CITES permits for import and

export are issued by the USFWS and are required to import and export samples, parts, carcasses, or live animal species (for treatment or release) listed in CITES Appendices. Species listed on CITES Appendix I require both an import permit and an export permit be issued for international shipments. Species listed on CITES Appendix II only require an export permit, unless the importing country has stricter measures than CITES. The only marine mammal listed under CITES Appendix III is the walrus. Either an export permit or a certificate of origin is required for each international shipment of walrus specimens.

Under the preferred alternative (Section 2.1.6.2), the new permit would be issued on or before July 1, 2009 and activities would be authorized for five years (the length allowed for a permit). ESA/MMPA permit activities beyond five years (in the event an extension is granted) would be covered under this PEIS and no further environmental review would be necessary, unless activities are beyond the scope of this document. Takes of live marine mammals under the new permit would also include animals that are: exhibiting abnormal behavior; in need of medical treatment; a potential harm or a health risk to a wild population or to human health; released from public display, rehabilitation facilities, research facilities, or capture/release projects. Live marine mammals may also be taken from rehabilitation facilities if they are neglected, abused, or have other humane issues. Samples legally obtained for research activities would be expanded to include samples from: live animals during surveillance; imported samples; confiscated animals (*e.g.* as part of enforcement action); or animals legally taken in other permitted research activities in the U.S. or abroad. New activities that would be listed under the new permit include, but would not be limited to, passive acoustic recording, active acoustic playbacks, and health assessment studies on cetaceans. The new permit would also allow USFWS species to be received, transferred, imported, exported, analyzed, and archived. The permit would be issued in conjunction with the USFWS Division of Management Authority in order to cover these activities. General descriptions of these research methodologies are in Appendix H.

1.3.2.3 MMHSRP Operations

The day-to-day operations of the MMHSRP include coordination and oversight of the National Marine Mammal Stranding Network and the Disentanglement Network. The MMHSRP authorizes response and rehabilitation activities through SAs, issued under Section 112(c) of the MMPA. SA authorizations have been delegated to the NMFS Regional Administrators. Issuance and periodic review of these SAs is undertaken by the MMHSRP through the Regional Stranding Coordinators, located in each NMFS jurisdictional region. Through SAs, NMFS authorizes persons, organizations,

or institutions to respond to reports of marine mammals that are stranded or in distress. Stranding data are collected and maintained in the National Database. The MMHSRP also coordinates UME investigations with the WGMMUME. The MMHSRP reviews the evaluation and decision to release rehabilitated animals. If rehabilitated animals are deemed non-releasable, the MMHSRP will oversee the transfer of these animals to public display or scientific research facilities.

The MMHSRP authorizes marine mammal disentanglement efforts under its ESA/MMPA permit (see Section 2.1.5). The MMHSRP also funds some of the disentanglement activities through contracts. The ESA/MMPA permit also authorizes stranding response to ESA-listed marine mammal species and a variety of marine mammal research projects (see Section 2.1.6 and Appendix H). The MMHSRP issues Authorization Letters to qualified researchers to allow the use of stranded marine mammal parts in scientific research projects. The MMHSRP oversees the collection and maintenance of marine mammal tissue samples in the NMMTB. The MMHSRP also issues grants and cooperative agreements through the Prescott Grant Program to stranding network participants and researchers utilizing samples from stranded marine mammals. All activities conducted utilizing federal funds are under the authority of the SA or Authorization Letter.

1.3.2.4 Prescott Grant Program

The MMHSRP partially funds some of the activities of the National Marine Mammal Stranding Network through the competitive Prescott Grant Program, which disburses up to $4 million per year to stranding network members and researchers. Some of this grant money is used to fund response and rehabilitation activities (transportation, equipment, supplies, and salary) and research activities utilizing samples or data from stranded marine mammals. These activities are authorized either by the recipient's SA, Regional Authorization letter to possess marine mammal parts from stranded animals, or separately issued ESA/MMPA scientific research permit.

The awarding of competitive grants is a multi-step process which addresses compliance with NEPA and other applicable laws and regulations several times. A complete application must contain enough information on the potential environmental impacts of the project for NOAA to make a NEPA compliance determination. These applications are evaluated through technical peer-review and internal NMFS merit review panels, who take into consideration the environmental information that was provided. After the funding decision has been made regarding which projects have been selected, the Prescott program will assess the activities contained within each proposal to ensure that they have been addressed in this PEIS. These activities may include stranding response,

rehabilitation, release, and scientific research activities that are authorized under the MMHSRP's ESA/MMPA permit. If the project falls entirely within the scope of the PEIS, no further environmental review will be conducted. If projects are selected for funding that include activities that are not assessed in this document (*e.g.*, facility construction or renovation), a separate environmental analysis will be prepared for that award. In addition, each award may have Special Award Conditions imposed upon it with respect to environmental compliance, if necessary.

A list of all projects previously funded by Prescott Grant funds, with recipient and title, is given in Appendix K. This grant program is subject to annual Congressional appropriation, which may be reduced or eliminated in any fiscal year, and recipients should consider Prescott Grant funds as supplemental to their operating budgets.

1.4 Action Area

The action area for the alternatives includes all areas where MMHSRP activities may occur. The action area encompasses the coastal waters and Exclusive Economic Zone (EEZ) of the U.S., its territories, and possessions, and adjacent marine waters. The coastal zone includes coastal waters, adjacent shorelands, intertidal areas, salt marshes, wetlands, and beaches. The action area also includes the marine mammal rehabilitation facilities of the stranding network (described in Section 2.1.3). In Section 3.2, Biological Resources, the discussion on marine mammals has been divided according to the six NMFS regions. This has been done to address the differences in marine mammal species and strandings within each region. The states and territories included in the NMFS Northeast, Southeast, Southwest, Northwest, Alaska, and Pacific Islands regions are listed in Table 1-1.

Table 1-1. Description of NMFS Regions

NMFS Regions	States/Territories
Northeast	ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, VA
Southeast	NC, SC, GA, FL, AL, MS, LA, TX, PR, VI
Southwest	CA
Northwest	OR, WA
Alaska	AK
Pacific Islands	HI, Guam, American Samoa, Commonwealth of the Northern Mariana Islands

1.5 Public Involvement Process

Public involvement is an integral part of the NEPA process. This section describes the public involvement activities conducted in connection with the draft and final versions of this PEIS.

1.5.1 Notice of Intent

The Notice of Intent (NOI) was published in the *Federal Register* (FR) on December 28, 2005 (70 FR 76777-76780). The NOI announced NMFS' decision to prepare a PEIS and conduct public scoping meetings. Scoping meetings were held in January and February of 2006 in each NMFS region. Comments on the scope of the PEIS and the Policies and Best Practices were received. The scoping process and a summary of public comments received can be found in the Scoping Report (Appendix D). Scoping comments were fully considered in the development of the draft PEIS.

1.5.2 Notice of Availability for the Draft PEIS

NMFS published the Notice of Availability (NOA) for the Draft PEIS on March 16, 2007 (72 FR 12610). NMFS held five public hearings (in San Francisco, CA; Seattle, WA; Boston, MA; St. Petersburg, FL; and Silver Spring, MD) to solicit and receive comments. NMFS advertised these meetings via a notice in the FR. Interested parties could also send written comments to mailing and e-mail addressed printed on the title page of the draft PEIS and in the NOA.

1.5.3 Summary of Major Comments on the Draft PEIS

NMFS originally provided 45 days (from March 16 to April 30, 2007) for interested parties to comment on the draft PEIS. This review period was subsequently extended by 30 days to May 30, 2007 (72 FR 21005). NMFS received 30 comments on the Draft PEIS, submitted by agencies, organizations, and members of the public. These comments are available online at *www.nmfs.noaa.gov/pr/health/eis.htm*. A complete table of these comments with NMFS' responses is provided in Appendix N. A summary follows:

- **Comments on the Alternatives.** Few comments were received on the alternatives. Those that were received supported the six preferred alternatives: Alternatives A4, B3, C3, D3, E3, and F3.
- **Comments on the Release of Rehabilitated Ice Seals.** Several comments expressed opposition to the release of rehabilitated ice seals into arctic and sub-arctic waters, due to the perceived risk to wild populations of pinnipeds and potential human health impacts.

- **Comments on the Policies and Best Practices.** The majority of comments received on the Policies and Best Practices were in regards to the Rehabilitation Facility Standards, with suggestions for altering the minimum standards. Comments on the SA Template, the SA criteria, the release criteria, and the Marine Mammal Disentanglement Guidelines were also received.
- **Comments on Appendix H- Research Methodologies under the ESA/MMPA Permit.** Most of the comments were suggestions for changes or additions to the research methodologies described in Appendix H.

1.5.4 Review of the Final PEIS

An NOA for the Final PEIS will be published in the FR. The public may comment on the document for 30 days after the NOA is published. After that time, a Record of Decision (ROD) will be prepared, detailing NMFS' decision regarding the MMHSRP and the alternatives.

1.6 Agency Cooperation and Consultation

NMFS invited the MMC, USFWS, U.S. Geological Survey (USGS), and the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) to be cooperating agencies in the PEIS process. The USFWS and USGS declined to be cooperating agencies. The USFWS and the MMC provided comments on the Draft PEIS during the public comment period. APHIS is a cooperating agency for this PEIS. Cooperating agency responsibilities are outlined in 40 CFR 1501.6. At a minimum, a cooperating agency would provide reviews of preliminary documents. Cooperating agency correspondence is included in Appendix B.

Section 7 of the ESA requires that all Federal agencies consult with NMFS or USFWS, as applicable, before initiating any action that may affect a listed species. The NMFS MMSHRP initiated consultation with the NMFS Office of Protected Resources, Endangered Species Division. The draft final Biological Opinion (February 2009) concluded that the MMHSRP is not likely to jeopardize the continued existence of Guadalupe fur seal (*Arctocephalus townsendi*), Steller sea lion (*Eumetopias jubatus*) (western and eastern populations), Hawaiian monk seal (*Monachus schauinslandi*), blue whale (*Balaenoptera musculus*), bowhead whale (*Balaena mysticetus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), killer whale (*Orca Orcinus*) (southern resident population), North Atlantic right whale (*Eubalaena glacialis*), North Pacific right whale (*Eubalaena japonica*), sei whale (*Balaenoptera borealis*), and sperm whale (*Physeter macrocephalus*). The proposed actions are not expected to incidentally take threatened or endangered

species. Prior to proceeding with the actions proposed in this PEIS, the Biological Opinion would be completed and considered by NMFS before issuing a ROD for these actions. NMFS would abide by any reasonable and prudent measures or terms and conditions that may be required under the Biological Opinion and would sum up these requirements as part of the consideration for any ROD taken on the proposed actions analyzed in this PEIS.

NMFS did not initiate formal consultation with the USFWS. Consultation for the MMHSRP actions will be conducted by regional USFWS offices. A consultation plan will be provided to NMFS and will include USFWS regional points of contact and procedures for when a consultation is required for these actions. Prior to proceeding with the actions proposed in this PEIS, the consultation plan would be completed and considered by NMFS before issuing a ROD for these actions. NMFS would abide by any reasonable and prudent measures or terms and conditions that may be required under the consultation plan and would include these in the ROD.

Consultation with NMFS is also required if a proposed action permitted, funded, or undertaken by a Federal agency could adversely affect Essential Fish Habitat (EFH). The MMHSRP has consulted with the NMFS Office of Habitat Conservation regarding EFH. The Office of Habitat Conservation concurred with the determination that the MMHSRP's activities would not adversely affect EFH.

The Coastal Zone Management Act requires Federal agency activities to be consistent, to the maximum extent practicable, with states' federally approved coastal management programs. NMFS has determined that the alternatives are consistent with the coastal management programs in the affected area. NMFS sent consistency determinations to the appropriate state coastal program administrators regarding its conclusion. NMFS received concurrence on its determinations from the following states: New Hampshire, Rhode Island, Connecticut, New York, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Hawaii. Concurrence was assumed for the following coastal management programs that did not provide a response to NMFS: Alaska, Washington, Oregon, California, Maine, Massachusetts, Maryland, New Jersey, Texas, and the Commonwealth of the Northern Mariana Islands (CNMI). Correspondence regarding coastal zone management consultation is included in Appendix B.

NMFS received comments from Connecticut, Florida, and Puerto Rico State Historic Preservation Officers (SHPO). All three of the SHPOs concurred with the findings in the PEIS regarding impacts to cultural resources from MMHSRP activities.

As stated previously, this PEIS will serve as the NEPA analyses for the MMHSRP's ESA/MMPA permit application. The final permit application was submitted to NMFS PR1 for review in December 2007. NMFS PR1 distributed the application to other NMFS scientists, the MMC, NMFS Office of Law Enforcement, and other appropriate Federal agencies. NMFS PR1 published a Notice of Receipt in the FR on March 17, 2008, which initiated a mandatory 30-day public comment period. NMFS PR1 will address any comments received on the application. NMFS PR1 will also comment on the PEIS to address any concerns relating to permit activities. Before issuance of the permit, NMFS PR1 will formally accept the Final PEIS, including the NMFS Biological Opinion, as the NEPA analysis for the permit application. A Notice of Issuance of the permit will then be published in the FR.

1.7 Organization of the PEIS

The principal sections of this PEIS are as follows:

Section 1: Purpose of and Need for the Proposed Actions. This section briefly discusses the MMHSRP, describes the proposed actions, defines the project scope, explains the public involvement process, and identifies the organization of the document.

Section 2: Alternatives. This section describes the alternatives and alternatives considered but eliminated from further consideration.

Section 3: Affected Environment. This section describes the existing environmental conditions of select resources in the area in which the alternatives would occur.

Section 4: Environmental Consequences. Using information from Section 3, this section identifies the potential environmental impacts on each resource area under the alternatives. Direct and indirect impacts that may result from the alternatives are identified on a broad scale as is appropriate for a PEIS.

Section 5: Mitigation. This section identifies mitigation measures developed to address the potential environmental impacts identified in Section 4.

Section 6: Cumulative and Other Impacts. This section discusses the potential cumulative impacts that could result from the impacts of the alternatives, combined with past, other present and reasonably foreseeable future actions. Unavoidable impacts, irreversible and irretrievable

commitment of resources, and the relationship between short-term uses and long-term productivity are also discussed.

Sections 7 and 8: These sections provide a list of this document's preparers and references.

Sections 9 and 10: These sections provide a glossary and index.

Appendices: This PEIS includes 14 appendices (Volumes II and III) that provide additional information.

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2. Alternatives

2.1 Introduction

This section discusses the alternatives to implement the proposed actions. As described in Section 1.3.2 (Need for the Actions), NMFS is considering four proposed actions and alternatives to implement the proposed actions. The alternatives are grouped into the following six topics: SAs and response; carcass disposal; rehabilitation activities; release activities; disentanglement; and biomonitoring and research activities. The description of each topic includes the proposed action(s) that those alternatives would affect. Activities and Policies and Best Practices documents are described under each issue, where appropriate, to clarify the actions taken under each alternative. A No Action Alternative, Status Quo Alternative, and Preferred Alternative are designated under each issue.

The No Action Alternative for each issue is based upon NMFS not undertaking the coordination and operation of the MMHSRP. Current SAs would not be renewed and new SAs would not be issued. The Policies and Best Practices manual and the ESA/MMPA permit would not be issued. The stranding and disentanglement networks would continue their current activities. As current SAs expired, the current National Stranding Network would cease to exist. Once the current ESA/MMPA permit expires on June 30, 2009, the current disentanglement network would no longer function.

2.1.1 Stranding Agreements and Response Activities

2.1.1.1 Response Activities

Response activities analyzed in this PEIS are only those that are conducted by groups operating under the authority of a SA, MMPA Section 109(h) (state and local governments), or another legal means. Response to a dead stranded marine mammal may include beach assessment, collection of the carcass, field or laboratory necropsy, carcass disposal, and/or retention of parts and specimens. This may include the use of heavy machinery on or close to the beach in order to retrieve or move animals.

Response to a live stranded marine mammal may include beach assessment, capture, relocation, transport to a rehabilitation facility, euthanasia, and/or release back to the wild. Pinnipeds on beaches are typically monitored for 24-48 hours before any response is taken to ensure that the animal truly is stranded and to avoid overcrowding at rehabilitation facilities. Solitary stranded animals are generally not refloated (*i.e.,* released from the beach). It is assumed that a solitary animal stranded because it is unhealthy and if the animal is refloated, it is likely to strand again. For mass strandings,

most of the animals are likely to be healthy and may be refloated from the stranding site. These animals would be marked with some form of identification, in case they restrand.

Live animal response may also include the administration of chemical agents (sedatives, antibiotics, euthanasia solution) or other veterinary intervention on the beach. All euthanasia procedures would follow the American Veterinary Medical Association (AVMA) guidelines (AVMA 2001) and/or the American Association of Zoo Veterinarians (AAZV) guidelines (AAZV 2006). While conducting a beach response, the stranding network member may cordon off or close areas of the beach to public access. All dead and live stranded animals are assessed for signs of human interaction. Human interactions include vessel interactions (*e.g.*, propeller lacerations and blunt trauma), entanglements in fishing gear or marine debris, ingestion of gear and debris, and gun shots. Training is provided to the National Stranding Network on human interaction documentation to ensure consistency in reporting and aid in management decisions.

Hazing of marine mammals may occur if an animal is in the vicinity of an oil or hazardous material spill, HABs, or sonar. Animals may also be hazed to deter a potential mass stranding. For all marine mammals, including threatened and endangered species, hazing is authorized under the MMHSRP's ESA/MMPA permit. Hazing methods include, but are not limited to, the use of acoustic and visual deterrents, vessels, exclusion devices, and capture and relocation. Active and passive acoustic deterrents may be used to deter cetaceans. Pingers, which are typically used in the commercial fishing industry, produce high-frequency pulses of sound to deter animals. Passive deterrents include devices that provide a reflection of echolocation signals. Pinniped acoustic deterrents include bells, firecrackers, or starter pistols. Visual deterrents for pinnipeds include flags, streamers, and flashing lights. Vessels can be used to herd animals back out to open water or away from a hazardous situation. Exclusion devices for pinnipeds may include nets or fencing. Please see Appendix H for more detailed information on hazing methods.

2.1.1.2 Stranding Agreement Template and Criteria

While NMFS has issued SAs for many years, they have been in a variety of formats with a large amount of variability between regions. They have also differed significantly in the level of detail regarding the authorized activities of the agreement holder. The National Template for Marine Mammal SAs (see Appendix C) was developed to standardize the SA nationwide, while maintaining flexibility in certain areas to address differences in the NMFS regions. All sections that are in black are proposed to be implemented nationwide; the shaded sections are flexible and may be implemented

on a region-by-region basis. Flexible areas include reporting timelines for Level A data and additional reporting requirements (Level B and C data). The Template codifies the rights and responsibilities of both NMFS and the Stranding Network Participant. Different sections apply to different roles of stranding responders, and may be used independently or in conjunction with each other. For instance, a network member that only conducted dead animal response and necropsy activities would have Article III in their SA but not Article IV, V or VI, whereas a network member that responded to live and dead animals, and transported and rehabilitated live animals would have all Articles but VI, which corresponds to Designee organizations. One of the main differences between this template and previous versions utilized is Article IX, Section B, which sets out a procedure for probation, suspension, and eventual termination following repeated violations of the terms and conditions of the SA.

The SA criteria are for new and renewal SA applicants (see Appendix C). The qualifications were designed to standardize SAs across the U.S., but allow for regional flexibility when necessary. For example, in areas that are geographically remote or have low stranding coverage, the evaluation criteria may be waived based on the discretion of the NMFS Regional Administrator. Qualifications are listed for response to dead stranded marine mammals/first response; response, triage, and transport of live stranded marine mammals; and rehabilitation and release of live stranded marine mammals.

Stranding network participants must comply with the terms and responsibilities of their SAs through: (1) timely reporting of strandings to NMFS; (2) timely submission of complete reports on basic Level A data; (3) collection and timely reporting of additional information when feasible and requested by NMFS; and (4) cooperation with other network members as well as local, state, and Federal officials.

2.1.1.3 Stranding Agreement and Response Alternatives

The following alternatives address the stranding response activities of the stranding network and the SA criteria in the Policies and Best Practices manual. These alternatives would impact Proposed Actions 1, 2, 3, and 4.

Alternative A1. No Action Alternative- SAs are not issued or renewed. No stranding response activities.

Under Alternative A1, NMFS would not issue new SAs or renew current SAs. The SAs would expire and authorized stranding response activities would end. The current stranding network would cease

to exist. Federal (not including NMFS), state, and local agencies authorized under MMPA Section 109(h) would still be able to conduct emergency response to non-ESA listed species, and ESA-listed species under regulations at 50 CFR 17.21(c)(3) and 17.31(a), where applicable. However, response activities would likely be limited and localized, and would consist mostly of carcass disposal for the protection of public health and safety.

Alternative A2. Status Quo Alternative- Current SAs are renewed and current stranding response activities continue. Final SA criteria are not issued.

Under Alternative A2, NMFS would renew the current SAs but would not issue new SAs. Current stranding response activities would continue but new activities would not be included. New SA holders could not be added to the network and other changes to the network would not occur. The final SA criteria would not be issued. SAs would continue to be issued regionally with national programmatic oversight. Standardization would not occur or proceed slowly with resultant inefficiencies which may impact accomplishment of agency mandates.

Alternative A3. SAs are issued to any applicants after review. Final SA criteria are not issued. SAs include current and future stranding response activities.

Under Alternative A3, NMFS would issue SAs to any applicants after they were reviewed by the NMFS Regional Office (including renewals). The final SA Criteria would not be implemented, and the new SA template would not be utilized. SAs would include current and future stranding response activities.

Alternative A4. Preferred Alternative- Final SA criteria are implemented. SAs would be issued on a case-by-case basis. SAs include current and future stranding response activities.

Under Alternative A4, NMFS would implement the final SA criteria and issue SAs on a case-by-case basis to those entities meeting the SA criteria (including renewals and new applicants), utilizing the new SA template. SAs would include current and future stranding response activities. This alternative would also allow modifications to stranding activities, including response procedures, tools and equipment, and euthanasia techniques.

Alternative A5. Final SA criteria are implemented. SAs would be issued on a case-by-case basis. Stranding response to threatened, endangered, and rare animals is **required**; response to other animals is optional.

Under Alternative A5, NMFS would implement the final SA criteria and issue SAs on a case-by-case basis to those entities meeting the SA criteria (including renewals and new applicants), utilizing the new SA template. SAs include current and future stranding response activities, however this alternative would require response to threatened, endangered and rare animals as part of the terms and conditions of the SA. Response to all other animals would be optional, but highly encouraged. Stranding participants could respond to these non-listed animals when feasible, based upon the availability of resources.

2.1.2 Carcass Disposal

2.1.2.1 Carcass Disposal Methods

During stranding response activities, carcass disposal methods depend on the species, the number and size of animals, location and logistics. Location includes coastal geography, currents, and state and/or local laws and regulations. Logistics refers to the availability of equipment, resources, and manpower. The method of carcass disposal will also be based upon the chemicals used on the animal, including antibiotics, sedatives, and/or euthanasia solution.

One method of disposal is to leave the carcass where the stranding occurred. Natural decomposition, scavengers, and the tide will eventually dispose of the remains. Leaving the carcass on-site is possible in uninhabited areas. However it is less feasible in populated areas where the carcass may be a public health or aesthetic concern, or if chemicals were used to euthanize the animal. Another method of disposal is to move a carcass from an unsuitable area (public beach) to a more appropriate location (a remote beach or a landfill) and let it decompose. Carcasses may also be buried onsite or transported and buried in a more suitable location. A carcass can be towed out to sea and released, but the release site must be far enough from shore so the carcass will not wash up again. If a carcass returns to shore, it necessitates further response and disposal activities. A carcass can also be sunk by attaching materials, such as cement barriers or chains, to weigh the carcass down.

Other industrial disposal methods include incinerating, rendering, and composting. The ability of the local stranding network to utilize these methods depends greatly on the resources available in their area and cost. Composting is an alternative method of carcass disposal involving transporting

carcasses to a composting facility. Composting is not commonly used at the present time, but it is being explored in an experiment conducted by the University of New England utilizing funding from a recent Prescott grant. This study will look at the efficiency of composting, as well as the retention rate of euthanasia solution, bacteria and viruses, and possibly contaminants, by comparing readings from the pre-composted carcasses and the resulting compost.

2.1.2.2 Carcass Disposal Alternatives

The following alternatives define different options for marine mammal carcass disposal. These alternatives would impact Proposed Actions 1 and 3.

Alternative B1. No Action Alternative- No carcass disposal.

Under Alternative B1, NMFS would terminate carcass disposal. Current SAs would expire and stranding response would cease; any disposal activities conducted by stranding network members would also cease. Carcasses of stranded animals would be left on-site to decompose or wash back out into the ocean. Federal (not including NMFS), state, and local agencies authorized under MMPA Section 109(h) would still be able to conduct carcass disposal of non-ESA listed species, and ESA-listed species under regulations at 50 CFR 17.21(c)(3) and 17.31(a), where applicable for the protection of public health and safety. Their methods of carcass disposal and their impacts would not be covered under the MMHSRP.

Alternative B2. Status Quo Alternative- Current methods of carcass disposal continue.

Alternative B2 would continue the current carcass disposal methods used by stranding network members.

Alternative B3. Preferred Alternative- Status Quo with the recommendation to transport chemically euthanized animal carcasses off-site.

Under Alternative B3, NMFS would recommend the removal of chemically euthanized animal carcasses off-site for disposal by incineration, landfill, or other methods. Animals that die naturally or euthanized by other means may be disposed of by whatever means feasible and allowed, including those methods described in Section 2.1.2.1. Alternative B3 would allow the modification of carcass disposal activities as new information is obtained regarding persistent contaminants or as disposal methods are improved or developed, including composting.

2.1.3 Rehabilitation Activities

2.1.3.1 Rehabilitation Facilities and Activities

Twenty-nine facilities are currently authorized under SAs, the National Contingency Plan, or as NMFS designees to conduct marine mammal rehabilitation on species under NMFS jurisdiction (see Appendix F). These facilities are highly variable in terms of species treated, capacity, and facility amenities. Some rehabilitation is conducted in the open ocean, by using nets to fence off a bay or lagoon, or by using floating platforms with nets attached. Some facilities have elaborate structures including inground pools and underwater observation windows, while other groups have only aboveground or temporary pools, which are assembled only when needed. The length of time that a facility can rehabilitate an animal may depend on the species, medical needs, or the available equipment. Most rehabilitation activities conducted in temporary ("pop-up") pools with or without external filtration units must be short-term (days or possibly weeks), and efforts focus primarily on stabilization and assessment. Other organizations are capable of long-term rehabilitation efforts of weeks or months, although usually at considerable cost (in both money and effort). Carcass disposal methods at rehabilitation facilities include rendering, incinerating, or burial in a landfill.

Rehabilitation activities conducted by state or local government official in the normal course of their duties are covered by regulation at 50 CFR 216.22 (a)(3): "Where the marine mammal in question is injured or sick, it shall be permissible to place it in temporary captivity until such time as it is able to be returned to its natural habitat." The governmental official is required to report to the Secretary of Commerce the activities under this section every six months details on the marine mammal take, including "the description of the place and means of confinement and the measures taken for its maintenance and care" when the animal has been retained in rehabilitation (50 CFR 216.22(b)(5)).

2.1.3.2 Rehabilitation Facility Standards

The Rehabilitation Facility Standards set minimum facility, husbandry, and veterinary standards for rehabilitating marine mammals to optimize the success of releasing the animals back to the wild (see Appendix C). The standards also address personnel health and safety issues and contingency planning. Some standards are based on the Animal Welfare Act regulations, which define minimum standards for captive marine mammals. Standards are also based on expert input from a 1998 NMFS workshop in Miami, Florida. Recommended standards (above the minimum) are included for facility design and operation and are suggestions for optimizing the rehabilitation success rate. Meeting or

exceeding the recommended standards may be considered a goal to strive towards when upgrading existing or designing new facilities or protocols.

2.1.3.3 Rehabilitation Activities Alternatives

The following alternatives address the rehabilitation activities of the stranding network and the Rehabilitation Facility Standards in the Policies and Best Practices manual. These alternatives would impact Proposed Actions 1, 2, 3, and 4.

Alternative C1. No Action Alternative- No rehabilitation of stranded animals.

Under Alternative C1, NMFS would terminate the rehabilitation of stranded animals. Current SAs would expire, stranding response would cease, and therefore animals would not be rehabilitated. Sick and injured animals would be left on the beach.

Alternative C2. Status Quo Alternative- Current rehabilitation activities continue.

Under Alternative C2, NMFS would continue the current rehabilitation activities of the stranding network. New rehabilitation facilities could not be added to the stranding network. Adaptive changes to rehabilitation activities would not be permitted. The final Rehabilitation Facility Standards would not be implemented.

Alternative C3. Preferred Alternative- NMFS issues new SAs and response and rehabilitation activities continue. Final Rehabilitation Facility Standards are implemented.

Under Alternative C3, NMFS would continue the current rehabilitation activities of the stranding network, with the ability to designate new rehabilitation facilities and modify rehabilitation activities if necessary. The final Rehabilitation Facility Standards would be implemented.

Alternative C4. New SAs are issued and response and rehabilitation activities continue. Rehabilitation of threatened, endangered, and rare animals is **required**; response to other animals is optional. Final Rehabilitation Facility Standards are implemented.

Under Alternative C4, NMFS would require the rehabilitation of stranded threatened, endangered, and rare animals. Rehabilitation of all other animals would be optional, but highly encouraged. Stranding participants could rehabilitate these animals when feasible, based upon the availability of resources. The final Rehabilitation Facility Standards would be implemented.

2.1.4 Release of Rehabilitated Animals

2.1.4.1 Release Activities

Release of a rehabilitated animal occurs when an attending veterinarian, after consultation with NMFS, determines the animal is releasable. The presumption and goals for rehabilitated animals are to release them back to the wild. In some cases, releasing a rehabilitated animal may not be the best solution for either the individual animal or its conspecifics (members of the same species). The minimum protocols for the release of a rehabilitated marine mammal are covered under regulation at 50 CFR 216.27. Every six months, the marine mammal must be evaluated for releasability by the attending veterinarian. The release determination recommendation and a release plan are made by the attending veterinarian of the rehabilitation facility, in consultation with their assessment and/or husbandry team. This plan includes: 1) a description of the marine mammal, including its physical condition and estimated age; 2) the date and location of the proposed release; and 3) the method and duration of transport prior to release, per 50 CFR 216.67 (a)(2)(ii). The recommendation and release plan are reviewed and approved or changed, if necessary, by NMFS prior to a release. The release recommendation and plan are provided to NMFS at least 15 days in advance of a proposed release date. The NMFS Regional Administrator may allow for pre-approved waivers for routine pinniped cases as stated in 50 CFR 216.27(a)(2)(i)(A). This allows for the release of animals without the required 15-day advanced notice or detailed release plan for an individual case. Typically these waivers apply to cases involving routine diagnosis (*i.e.,* known cause of stranding), treatment, and rehabilitation. Such waivers require the rehabilitation facility to submit a treatment and release protocol for approval. Waivers are not considered for cetacean cases. Non-releasable animals may, with NMFS approval, be permanently placed in a public display or scientific research facility, or may be euthanized.

Prior to release, NMFS requires that animals be tagged or marked for individual identification, and the tag number or description of the marking reported to NMFS. Current commonly used forms of identification for cetaceans include photo identification, freeze branding, and/or a dorsal fin tag. Photo identification should include the body, face, dorsal fin, flukes, and pectoral flippers, as well as any identifying characteristics such as scars or color pattern markings. A numerical freeze brand (if applicable) would be placed on both sides of the dorsal fin or just below the dorsal fin. Roto-tags would be attached on the trailing edge of the dorsal fin. Identification of non-delphinid cetaceans is determined in consultation with NMFS. NMFS must also approve any additional forms of identification to be attached, such as VHF or satellite tags. All pinnipeds must be flipper tagged for

identification. Tags and placement instructions would be obtained from NMFS as appropriate for the pinniped species. Other identification methods, such as freeze branding or glue tags, may be used in addition to flipper tags. The identification method is detailed in the release plan, and will be approved by NMFS prior to being implemented, especially if unique or atypical methods are utilized.

Cetaceans are transported to release sites by vessel. Pinnipeds are transported via vehicle or vessel to beach or ocean release sites. Post-release monitoring is conducted for all released animals. Post-release monitoring may be conducted using mark-resight methodology, radio telemetry, or satellite tags. Monitoring should continue on a regular basis for at least one full year or, at a minimum, the battery duration of the tag.

2.1.4.2 Release Criteria

The release criteria provide guidance for determining the release of rehabilitated marine mammals to the wild (see Appendix C). The guidance includes marine mammal species under NMFS and USFWS jurisdiction. It is a joint document developed by NMFS and USFWS in consultation with marine mammal experts. Standards are also based upon review and public comment of the 1997 draft NOAA Technical Memorandum "Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria." The standards provide recommendations for the medical, behavioral, and developmental assessment of rehabilitated animals prior to release. Recommendations on release site selection and post-release monitoring are also included. The release criteria also require a health screen and certification before an animal is released.

2.1.4.3 Release Alternatives

The following alternatives address the release activities of the stranding network and the release criteria in the Policies and Practices manual. These alternatives would impact Proposed Actions 1, 2, 3, and 4.

Alternative D1. No Action Alternative- No animals to be released.

Under Alternative D1, NMFS would end the release of stranded animals. Current SAs would expire, stranding response and rehabilitation would cease, and therefore there would be no animals to release.

Alternative D2. Status Quo Alternative- Current release activities continue.

Under Alternative D2, NMFS would continue the current release activities of the stranding network. Adaptive changes to release activities would not be permitted. The final release criteria would not be implemented.

Alternative D3. Preferred Alternative- New SAs are issued and response, rehabilitation, and release activities continue. Final release criteria would be implemented and would include adaptive management of release activities.

Under Alternative D3, NMFS would continue the current release activities of the stranding network, with the ability to modify release activities (adaptive changes) when necessary. The final release criteria would be implemented.

2.1.5 Disentanglement Network

2.1.5.1 Disentanglement Activities

Disentanglement efforts are conducted for many marine mammals. For large whales, disentanglement efforts may include vessel and aerial searches for the affected animal and incidental harassment of non-entangled animals during these searches. Close approaches, tagging, use of buoys or sea anchors to slow an animal's movement, cutting of lines and possibly flesh (when the line is embedded), and remote sedation may occur during disentanglement. For pinnipeds and small cetaceans, disentanglement efforts may include capture with incidental disturbance of non-entangled animals, restraint, surgery, rehabilitation, administration of chemical agents (sedatives and/or antibiotics), and release. Biopsy sampling may occur, either through the use of a remote dart or the collection of tissues from the removed fishing gear. Appendix H contains the general methodologies used during disentanglement activities. All disentanglement activities of ESA-listed species are authorized under the ESA/MMPA permit; disentanglement of non-listed species are conducted under the authority of the SA.

2.1.5.2 Disentanglement Guidelines

The Marine Mammal Disentanglement Guidelines provide the definitions and roles for First Responders, Primary First Responders, and Primary Disentanglers for large whale disentanglements (see Appendix C). The five levels of responders are described, including the targeted individuals, responsibilities, and the criteria to be certified for each level. A First Responder is anyone in the disentanglement network with any level of training who may respond to an entanglement report under network protocols and authorization. A Primary First Responder is an individual with a higher

network classification (Levels 3-5) that may direct efforts locally and, under certain conditions and authorization, may attempt disentanglements during first response. A Primary Disentangler is an individual who can perform all the duties of a First Responder, but also meets the NMFS criteria to undertake the actual disentangling. Primary Disentanglers have a classification of Level 4 or 5 in the network. Under the direction of the NMFS Disentanglement Coordinator, these Guidelines are currently in use for the Disentanglement Network on the East Coast (both NMFS Northeast and Southeast Regions). There are approximately 165 trained members of the disentanglement network with response levels ranging from 2-5. There are several hundred more members that have been trained at response level 1.

There are no standardized protocols for disentanglement of small cetaceans and pinnipeds. Currently, these animals are approached on a case-by-case basis by members of the stranding network, responding to them as they would to any other stranded animal. Response to entangled small cetaceans typically requires in-water capture of free-swimming animals. Some animals may have impaired locomotion if the gear is heavy or anchored. Entangled pinnipeds are typically captured on land when they are hauled out. Animals may be freed of gear and immediately released, or brought into a rehabilitation facility for a period of time prior to release.

2.1.5.3 Disentanglement Alternatives

The following alternatives address the disentanglement network and the Disentanglement Guidelines in the Policies and Practices manual. These alternatives would impact Proposed Actions 1, 2, 3, and 4.

Alternative E1. No Action Alternative- No disentanglement network.

Under Alternative E1, NMFS would terminate the disentanglement network. The current SAs would expire and pinniped and small cetacean disentanglement would end. The current ESA/MMPA permit would expire and disentanglement activities of ESA-listed species would not be authorized. Entangled animals may be monitored, (as long as they were not harassed during the monitoring activities), but no action would be taken to disentangle them.

Alternative E2. Status Quo Alternative- Disentanglement network continues current activities, no modifications or new members added.

Under Alternative E2, NMFS would continue the current activities of the disentanglement network. Current SAs would continue to allow disentanglement of pinnipeds and small cetaceans. The new ESA/MMPA permit would be issued and would authorize the current disentanglement activities for ESA-listed species. New members could not be added to the disentanglement network. Adaptive changes to disentanglement activities, including the use of newly developed equipment, would not be permitted.

Alternative E3. Preferred Alternative- Disentanglement network continues current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.

Under Alternative E3, NMFS would continue the current activities of the disentanglement network, with the ability to add new participants and modify disentanglement activities and technologies when necessary. Current and future SAs would continue to allow disentanglement of pinnipeds and small cetaceans. The new ESA/MMPA permit would be issued and would authorize the current and future disentanglement activities of ESA-listed species. The East Coast network would continue their current activities. Modifications would be made to the West Coast network to coordinate the structure and training with the East Coast network. The Disentanglement Guidelines and training prerequisites for network participants would be implemented nationwide.

2.1.6 Biomonitoring and Research

2.1.6.1 Biomonitoring and Research Activities

The MMHSRP conducts and sponsors a variety of prospective health assessments and research projects relating to marine mammal health. The prospective health assessment research activities of the MMHSRP are conducted on stranded animals and free-ranging animals that occur in areas with known health concerns or in areas of previous health concerns. Marine mammals that are captured for these health assessments may have visible health problems (for example, skin lesions), they may have been exposed to known toxins, or they may have been exposed to other physical, chemical, or biotic stressors that are known to produce adverse health outcomes in marine mammals. The areas targeted for prospective health assessments often include areas of previous and current die-offs.

Many different diagnostic and research labs are under permit and/or contract with the MMSHRP to provide analyses. Services provided include histopathology, virology, bacteriology, toxicology

(contaminant and biotoxin analyses), and acoustic diagnostics. General research methodologies are described in Appendix H.

2.1.6.2 Biomonitoring and Research Alternatives

The following alternatives address the biomonitoring and research activities of the MMHSRP. These alternatives would impact Proposed Actions 2 and 3.

Alternative F1. No Action Alternative- Biomonitoring and research activities would not occur.

Under Alternative F1, NMFS would terminate the current biomonitoring and research activities of the MMHSRP. This would include the NMMTB, health assessment captures, and other various research projects.

Alternative F2. Status Quo Alternative- Continuation of current biomonitoring and research activities.

Under Alternative F2, NMFS PR1 would issue the MMHSRP a new ESA/MMPA permit that would include the current biomonitoring and research activities. New biomonitoring and research activities would not be added under the permit.

Alternative F3. Preferred Alternative- New ESA/MMPA permit issued to include current and future biomonitoring and research activities.

Under Alternative F3, NMFS PR1 would issue the MMHSRP a new ESA/MMPA permit that would include current and new biomonitoring and research activities.

2.2 Alternatives Considered but Eliminated from Further Analysis

2.2.1 Stranding Response Alternatives

Stranding Response Curtailed Immediately. This alternative would immediately stop the response to stranded animals and the current stranding network would cease to exist. Public comments supported the continuation of stranding response activities and stated that this alternative was not feasible. Under this alternative, NMFS would not be fulfilling its mandate under the MMPA, and there would be a high level of public controversy. Therefore, NMFS eliminated this alternative.

Stranding Response to Some Animals is Authorized, Other Animals are Prohibited. Public comments did not support prohibiting stranding response to certain animals. By denying organizations the ability to respond to some animals, these animals would have to be left on the beach. This would create public controversy, and would eliminate valuable information on marine mammal health and populations that is gained from the examination of stranded animals. Therefore, NMFS eliminated this alternative.

2.2.2 Carcass Disposal Alternatives

All Animals are Buried On-site. Burial is not an option in all geographic areas due to substrate issues (rocks or dense soil, shallow water table, inaccessibility by necessary machinery, etc.) or local restrictions. Burial of animal carcasses may be prohibited in some areas where animals strand. In addition, marine mammal carcasses have the potential to be highly toxic. Chemically euthanized animal carcasses may contain high concentrations of lethal chemicals. Other carcasses may have high toxin levels from biotoxins or other contaminants. Burying these carcasses would create a risk to scavengers, water quality, and soils. The option to transport carcasses off-site must be available. Therefore, NMFS eliminated this alternative.

All Animals are Transported Off-site for Disposal. Public comments did not support the alternative to transport all carcasses off-site for disposal. Transporting all carcasses off-site would place a financial burden on stranding network participants. In addition, some carcasses may not be transportable for logistical reasons: the animal is too large or too heavy to lift; equipment is unavailable or cost prohibitive; equipment is not permitted; or has no available beach access. Other disposal methods (burial, disposal at sea, natural decomposition) for non-toxic carcasses are more cost-effective and feasible. Therefore, NMFS eliminated this alternative.

No Animals are Chemically Euthanized. Chemical injection is currently the most common humane method of euthanasia for pinnipeds and small cetaceans. Other methods of euthanasia, such as ballistics (shooting) or explosives, may be dangerous to personnel assisting with the process as well as the public. Prohibiting the use of chemical euthanasia would require stranding personnel to either use these methods or not perform euthanasia. The use of other methods would increase the risks to human health and safety. Additional numbers of animals would be killed using other means or left on the beach to die, which could increase the suffering of the animal and potentially create public controversy. Therefore, NMFS eliminated this alternative.

2.2.3 Rehabilitation Activities Alternatives

Rehabilitation Activities Curtailed Immediately. This alternative would immediately stop the rehabilitation of stranded animals. Public comments supported the continuation of rehabilitation activities and stated that this alternative was not feasible. Under this alternative, NMFS would not be fulfilling its mandate under the MMPA. Therefore, NMFS eliminated this alternative.

Rehabilitation of Some Animals is Authorized, Other Animals are Prohibited. Public comments did not support prohibiting the rehabilitation of certain animals. By denying organizations the ability to respond to some animals, these animals would have to be left on the beach. This would create public controversy, and would eliminate valuable information on marine mammal health and populations. Rehabilitation of common species also gives rehabilitation facilities additional opportunities to perfect their rehabilitation practices, increasing the chance of successful rehabilitation and release of threatened, endangered and rare species. Therefore, NMFS eliminated this alternative.

2.2.4 Release of Rehabilitated Animals Alternatives

All Animals are Released (After Rehabilitation). Currently, nonreleasable animals may be placed in permanent captivity in a public display or at a research facility if they hold an APHIS exhibitor's or research license. During rehabilitation, problems may be detected that would prevent the animal from being deemed releaseable (*e.g.*, the animal has a medical issue requiring regular veterinary care and medications, or it develops behavioral problems). Requiring the facility to release this animal despite this condition would be detrimental to the welfare of the animal and possibly to the wild population and human safety. Therefore, NMFS eliminated this alternative.

Release of Some Animals is Required, Other Animals are Optional. Under this alternative, release of some species of rehabilitated animals would be required to occur under any circumstance, or the animal would be euthanized. Currently, these animals may be deemed nonreleaseable and placed in permanent captivity at a public display or at a research facility, where they contribute to the education of the general public or to the scientific body of knowledge. Requiring the release of animals would result in the release of inappropriate animals (those suffering from medical or behavioral conditions). This would be detrimental to the welfare of the animals and possibly to the wild population and human safety. Therefore, NMFS eliminated this alternative.

Release of Some Animals is Authorized, Other Animals are Prohibited. Under this alternative, release of some species of rehabilitated animals would be prohibited, regardless of the circumstances.

Therefore, the animal would be placed in permanent captivity at a public display or at a research facility or euthanized, even if it was "releaseable" or appropriate to be released back into the wild. This would be a detriment to the wild population and would result in overcrowding at facilities, or needless euthanasia. Therefore, NMFS eliminated this alternative.

2.2.5 Disentanglement Alternative

Disentanglement of Some Animals is Authorized, Other Animals are Prohibited. Under this alternative, disentanglement of some species would be prohibited, regardless of the circumstances. Therefore, the animal would remain entangled and potentially unable to feed, swim, or reproduce, even if the entanglement could be dealt with at minimum risk to the animal and the response team This would be a detriment to the wild population and would result in needless death and suffering of marine mammals. Therefore, NMFS eliminated this alternative.

2.2.6 Biomonitoring and Research Activities Alternatives

Health Assessment Captures Would Not Occur. Under Title IV of the MMPA, one of the purposes of the MMHSRP is to collect and disseminate reference data on the health and health trends of marine mammal populations in the wild. Health assessment captures are an integral part of collecting this health reference data. Captures are also used to provide information on animals in areas where UMEs have occurred or are occurring, and significantly contribute to UME investigations. Therefore, NMFS eliminated this alternative.

Tissue Banking Would Not Occur. The NMMTB was established under Title IV of the MMPA to store, analyze, and archive marine mammal tissues. Without the NMMTB, reference data on the health of marine mammals and populations of marine mammals would not be collected and maintained. Under this alternative, NMFS would not be fulfilling its statutory mandate to maintain the NMMTB. Therefore, NMFS eliminated this alternative.

3. Affected Environment

3.1 Introduction

This chapter describes the environmental and socioeconomic conditions most likely to be affected by the alternatives. The information serves as a baseline from which to identify and evaluate potential impacts from implementation of the alternatives. In compliance with NEPA, CEQ, and NOAA regulations and guidelines, the description of the affected environment focuses on those resource areas that are potentially subject to impacts from the anticipated actions. These resources include:

- Biological resources: protected and sensitive habitats, submerged aquatic vegetation (SAV) and macroalgae, sea turtles, marine mammals, threatened and endangered species, fish, birds, and other wildlife;
- Water and sediment quality;
- Human health and safety;
- Cultural resources; and
- Socioeconomics.

Some environmental resources and conditions that are often analyzed in an EIS have been omitted from this analysis. Effects in the following categories are considered insignificant or irrelevant to the anticipated actions, or impacts from the alternatives are not anticipated:

- ***Air quality:*** Air quality impacts from any individual activity would either be non-existent or minor (such as limited dust or emissions from a vehicle or boat engine). The impacts would be insignificant contributions when compared to impacts from other motor vehicle emissions on highways and roads where MMHSRP activity is occurring, and would not represent a significant contribution to regional air quality. Pathogen spread through treatment or necropsy of sick animals would not be considered air pollution, but is analyzed under human health and safety.
- ***Noise:*** Most MMHSRP activities would not result in the production of noise. One exception would be the use of heavy machinery in response or disposal activities. However, this equipment would produce noise similar to or below levels that are allowed under local ordinances governing normal construction activities, and would be of short duration and extremely localized, and therefore resulting in insignificant impacts.

- ***Land use:*** The activities of the MMHSRP would not involve significant changes in land use or be inconsistent with existing local and regional plans and policies on land use. The land where response activities would occur is not considered suitable for agricultural use or housing development.
- ***Public services and utilities:*** Public services include transportation, police, fire, and other emergency services. Utilities include electric power, gas/steam/oil, telecommunications, water facilities, storm drainage, and sanitary sewer systems. The MMHSRP's activities would not disrupt, damage, or incur any other impact to these areas**.**
- ***Coastal zone management:*** NMFS has determined that the alternatives for the MMHSRP's activities are consistent with the coastal management programs in the affected area. No significant impacts would be expected from these activities.

3.2 Biological Resources

3.2.1 Definition of the Resource

Biological resources include native or naturalized plants and animals, and the habitats in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by NMFS, USFWS, or that are otherwise protected under Federal or state laws. Resources evaluated include protected and sensitive habitats; SAV and macroalgae; sea turtles; fish and shellfish; coastal and marine birds; and marine mammals.

Protected and Sensitive Habitats

Protected and sensitive habitats are usually defined as those areas that are identified as marine sanctuaries, national seashores, critical habitats, coral reefs, national parks, wildlife refuges, national forests, national monuments, estuarine research reserve sites, and fisheries management areas. These particular areas are under Federal jurisdiction and are managed by NMFS, USFWS, the National Park Service (NPS), the National Ocean Service, the Bureau of Land Management (BLM), and the U.S. Forest Service (USFS). Wilderness areas are typically designated within current national parks, national wildlife refuges (NWR), national forests, and national monuments. Jurisdiction over wilderness areas is divided between USFWS, NPS, BLM, and USFS. Sensitive habitats may also be protected under State and local jurisdictions, including protected reserves, parks, beaches, and seashores. Executive Order (EO) 13089, *Coral Reef Protection* requires federal agencies, whose actions may affect U.S. coral reef systems, to identify those actions and ensure that they will not degrade the conditions of such ecosystems. Coral reefs are colonial invertebrates that excrete a

calcium carbonate skeleton. Coral reefs provide habitat to a reef fish and invertebrates, increase biodiversity, and protect shorelines from coastal erosion. Coral reefs support commercial and recreational fishing, boating, scuba diving, and pharmaceutical research.

SAV and Macroalgae

The term SAV refers to rooted, vascular, flowering plants that live and grow below the water surface (Stephan *et al.* 2000). SAV includes seagrasses and macrophytes (aquatic plants not rooted to a substrate). Macroalgae, such as seaweed and kelp, are multicellular algae large enough to be visible to the eye. SAV and macroalgae are among the most productive ecosystems in the world. Both occur in all U.S. coastal waters, with the exception of South Carolina and Georgia, where turbidity and tidal amplitude inhibit SAV growth (Stephan *et al.* 2000). SAV and macroalgae provide food and habitat for a variety of organisms, including important commercial and recreational fisheries species. SAV improves water quality, filters nutrients and contaminants, provides sediment stabilization, and reduces coastal erosion (GMP 2004).

Marine Mammals and Sea Turtles

The mission of NMFS is to manage, conserve, and protect all living marine resources within the U.S. EEZ, including marine mammals and sea turtles. Threatened and endangered marine mammals and sea turtles are protected under the ESA. Fifteen marine mammal species (or stocks of species) within the U.S. are listed under the ESA, and 7 foreign species are listed. Six sea turtle species within the U.S. are listed under the ESA, and 2 foreign species are listed. All marine mammals are protected under the MMPA. Some populations of marine mammals are designated as depleted under the MMPA. Twenty-six species, or stocks of species, have been listed as depleted.

The ESA (16 U.S.C. 1531–1534), administered by NMFS and USFWS, mandates the protection and conservation of threatened and endangered species and the ecosystems on which they depend. Under the ESA, an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. "ESA Candidate species" are those that have been petitioned to be listed as threatened or endangered. Critical habitat may also be designated for threatened and endangered species. Critical habitat is defined as specific areas within the geographical area occupied by a species at the time of listing, if the areas contain physical or biological features essential to conservation, and those features may require special management considerations or protection. Specific areas outside the geographical area occupied by the species

may also be designated as critical habitat, if it is determined that the area is essential for conservation. Section 7 of the ESA requires that all Federal agencies consult with NMFS or USFWS, as applicable, before initiating any action that could affect a listed species. Under Section 7, a Federal agency must ensure that any project authorized, funded, or conducted by that agency is "…not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical." All six species of sea turtles occurring in the U.S. are protected under the ESA. Federal protection of sea turtles is split between NMFS and USFWS. NMFS has the lead responsibility for the conservation and recovery of sea turtles in the marine environment. USFWS has the lead responsibility for sea turtles on nesting beaches.

The MMPA (16 U.S.C. 1361 et seq.) protects all marine mammals, regardless of whether or not they are listed under the ESA. The Secretary of Commerce is responsible for the protection of all cetaceans (whales, porpoises, and dolphins) and pinnipeds (seals and sea lions), except walruses, and has delegated authority for implementing the MMPA to NMFS. The Secretary of the Interior is responsible for the protection of walruses, polar bears, sea otters, manatees, and dugongs, and has delegated this responsibility to the USFWS. These responsibilities include providing oversight and advice to regulatory agencies on all Federal actions that might affect these species. Marine mammals may be designated as "depleted" under the MMPA if the Secretary of Commerce, after consultation with the MMC, determines that the species or population stock is below its optimum sustainable population. Marine mammals that are listed as threatened or endangered under the ESA are also designated as depleted under the MMPA.

The ESA prohibits the "take" of threatened and endangered species, with certain exceptions, within the U.S, in waters under U.S. jurisdiction, and by U.S. citizens on the high seas. Under Section 3 of the ESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Exceptions are permitted for activities that are for scientific purposes or to enhance the propagation or survival of the affected species [Section 10(a)(1)(A)] or for activities where the take would be incidental to an otherwise lawful activity [Section 10(a)(1)(B)]. Permits may be issued after submission, review, and a public comment period of an application and conservation plan, provided that the impacts of the take will be minimized to the maximum extent practicable. The taking must not appreciably reduce the likelihood of the survival and recovery of the species in the wild. Since 1999, the MMSHRP has obtained a 10(a)(1)(A) permit

for directed research and enhancement (including response and rehabilitation) of endangered species (Appendix G).

The MMPA prohibits the "take" of marine mammals, with certain exceptions, in waters under U.S. jurisdiction and by U.S. citizens on the high seas. Under Section 3 of the MMPA, "take" of marine mammals is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." "Harassment" is defined as any act of pursuit, torment, or annoyance that has the potential to injure marine mammal stock in the wild, or that has the potential to disturb a marine mammal or marine mammal stock in the wild by disrupting behavioral patterns, including migration, breathing, nursing, breeding, feeding, and sheltering. The Secretary of Commerce may issue permits which authorize the direct taking of marine mammals for scientific research, importation for public display, and the enhancement of the survival or recovery of a species or stock under Section 104 of the MMPA. Permits may also be issued for photography of marine mammals for educational or commercial purposes. Since 1999, the MMHSRP has obtained an MMPA permit for directed take of marine mammals (Appendix G).

Fish, Shellfish, and EFH

The ESA provides protection for threatened and endangered fish and shellfish species. The ESA allows the listing of distinct population segments (DPS) of threatened and endangered species. NMFS policy stipulates that a salmon population will be considered "distinct" for purposes of the ESA if it represents an Evolutionarily Significant Unit (ESU) of the biological species. To qualify as an ESU, a population (or group of populations) must be (a) reproductively isolated from populations of the same species, and (b) represent an important component in the evolutionary legacy of the species.

Pursuant to Section 303(a) (7) of the Magnuson-Stevens Fishery Conservation and Management Act, regional fishery management councils must identify EFH used by all life history stages of each managed species. EFH is defined as waters and substrate that are necessary to the species for spawning, breeding, feeding, or growth to maturity. EFH that provides extremely important ecological functions or are particularly vulnerable to degradation should be identified as habitat areas of particular concern in order to prioritize conservation efforts. Activities that have been shown to affect EFH include disturbance or destruction of habitat from stationary fishing gear, dredging and filling, agricultural and urban runoff, direct discharge, and the introduction of exotic species. Consultation with NMFS is required if a proposed action permitted, funded, or undertaken by a

Federal agency could adversely affect EFH. When a Federal agency determines that an action may adversely affect EFH, the agency must initiate consultation with NMFS. The Federal agency must submit to NMFS an EFH assessment containing "a description of the action; an analysis of the potential adverse effects of the action on EFH and the managed species; the federal agency's conclusions regarding the effects of the action on EFH; and proposed mitigation, if applicable." For this PEIS, consultation with NMFS was initiated on June 22, 2006. An EFH Assessment was completed in March 2008. The consultation determined that impacts to EFH would not be expected to occur, with mitigation, as a result of the Proposed Actions and alternatives; therefore EFH will not be discussed further.

Coastal and Marine Birds

The ESA provides protection for threatened and endangered bird species. The Migratory Bird Treaty Act and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, provide protection for all migrating bird populations. Under these regulations, NMFS is required to analyze the potential impacts its actions may have on threatened, endangered, and migratory birds.

3.2.2 Affected Environment

3.2.2.1 Protected and Sensitive Habitats

Atlantic Coast federally protected and sensitive habitats include 14 National Estuarine Research Reserves (NERRs), 69 National Wildlife Refuges (NWRs), 5 National Marine Sanctuaries (NMSs), 5 national parks, 8 national seashores, 10 wilderness areas, and 1 ecological preserve (DOC/NOAA and DOI 2006, Wilderness.net 2006). Critical habitat has been designated for the North Atlantic right whale (*Eubalaena glacialis*), West Indian manatee, piping plover (*Charadrius melodus*), yellow-shouldered blackbird (*Agelaius xanthomus*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), hawksbill sea turtle (*Eretmochelys imbricata*), and Johnson's seagrass (*Halophila johnsonii*) (Appendix E, Table E-1).

There are 39 designated coral reefs ranging from the southern tip of South Carolina to the Upper Florida Keys. Gray's Reef, located off of Sapelo Island, GA, is one of the largest nearshore live-bottom reefs in the southeastern U.S. Fifty-four coral reefs are located within Puerto Rico and the U.S. Virgin Islands. The staghorn coral (*Acropora cervicornis*) and elkhorn coral (*Acropora palmata*) are the first coral species to be listed as threatened under the ESA (Appendix E, Table E-5). These corals are the dominant reef building species and occur through out Florida, the Bahamas, and the Caribbean. Elkhorn and staghorn coral are found in shallow water reefs in high energy zones. In

the action area, the corals occur in the Florida Keys, Puerto Rico, and the U.S. Virgin Islands. Current threats to the species are pollution, excess nutrients, pathogens, climate change, and overfishing (NMFS 2006a).

Gulf of Mexico federally protected and sensitive habitats include 5 NERRs, 32 NWRs, 1 NMS, 1 national park, 2 national seashores, and 7 wilderness areas (DOC/NOAA and DOI 2006, Wilderness.net 2006). Critical habitat has been designated for the West Indian manatee, Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), and whooping crane (*Grus americana*). Thirty-two coral reefs are located in the Gulf of Mexico, including the Florida Middle Grounds and the Flower Garden Banks, the northernmost coral reefs in North America (Appendix E, Table E-2).

Pacific Coast federally protected and sensitive habitats include 6 NERRs, 34 NWRs, 5 NMSs, 1 national seashore, 2 national parks, 5 national monuments, 5 national forests, 34 wilderness areas, and 1 Steller sea lion conservation area (DOC/NOAA and DOI 2006, Wilderness.net 2006). Critical habitat has been designated for the following species: Steller sea lion, North Pacific right whale, Southern Resident killer whale DPS, tidewater goby (*Eucyclogobius newberryi*), Western snowy plover (*Charadrius alexandrinus nivosus*), Coastal California gnatcatcher (*Polioptila californica californica*), spectacled eider (*Somateria fischeri*), Steller's eider (*Polysticta stelleri*), marbled murrelet (*Brachyramphus marmoratus marmoratus*), three coho salmon (*Oncorhynchus kisutch*) ESUs, five chinook salmon (*Oncorhynchus tshawytscha*) ESUs, two chum salmon (*Oncorhynchus keta*) ESUs, and four steelhead (*Oncorhynchus mykiss*) ESUs (Appendix E, Table E-3).

Pacific Islands federally protected and sensitive habitats include Hawaiian monk seal critical habitat, four NWRs, two NMSs, one national park, and one wilderness area (DOC/NOAA and DOI 2006, Wilderness.net 2006). The Northwestern Hawaiian Islands Marine National Monument was established in June 2006. The monument encompasses the healthiest and most undisturbed coral reef ecosystem in the U.S. and contains many rare, threatened, and endangered species. Three new marine national monuments will be established in 2009 in the Pacific Islands: the Marianas Trench, Pacific Remote Islands, and Rose Atoll Marine National Monuments. Two territorially protected marine sanctuaries are located in CNMI (Appendix E, Table E-4).

3.2.2.2 SAV and Macroalgae

From Maine to Virginia, eelgrass (*Zostera marina*) is the dominant SAV species, and co-occurs with widgeon grass (*Ruppia maritima*). In North Carolina, Cuban shoalgrass (*Haludule wrightii*) and eelgrass are the dominant SAV species. No SAV occurs in South Carolina and Georgia. In Florida,

dominant species of SAV include Cuban shoalgrass, turtlegrass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*), and several species of *Halophila* (Stephan *et al.* 2000). Johnson's seagrass is a threatened species found along the east coast of Florida, from central Biscayne Bay to Sebastian Inlet. Critical habitat for Johnson's seagrass has been designated in the Indian River Lagoon and Biscayne Bay, FL (Appendix E, Table E-5). Macroalgae species on the Atlantic Coast include sea lettuce (*Ulva lactuca*) and rockweed (*Fucus spp.*). On the Atlantic coast, SAV loss was reported in 23 of the 62 estuaries surveyed in NOAA's National Estuarine Eutrophication Assessment. Severe SAV loss is occurring in the main stem of the Chesapeake Bay, Tangier/Pocomoke Sounds (MD), Patuxent River (MD), Choptank River (MD), and Gardiners Bay (NY). No severe SAV loss was found in the South Atlantic (North Carolina to Florida) (Bricker *et al.* 1999).

In the Gulf of Mexico, six common SAV species include Cuban shoalgrass, turtlegrass, manatee grass, widgeon grass, paddle grass (*Halophila decipensi*), and star grass (*Halophila engelmannii*) (GMP 2004). Macroalgae species include Sargassum (*Sargassum fluitans*), forked sea tumbleweed (*Dictyota bartaryresii*), and watercress alga (*Halimeda opuntia*) (NMS 2005). SAV loss was reported in 18 of the 38 estuaries surveyed in NOAA's National Estuarine Eutrophication Assessment. Severe SAV loss is occurring in Lake Pontchartrain, LA and Galveston Bay, TX (Bricker *et al.* 1999).

Common SAV species on the Pacific Coast include eelgrass, surfgrass (*Phyllospadix serrulatus*), and pickelweed (*Salicornia virginica*) (NOAA CSC 2001). Macroalgae species include giant kelp (*Macrocystis pyrifera*), golden rockweed (*Silvetia compressa*), bull kelp (*Nereocystis leutkeana*), rockweed (*Fucus sp.*), and sea lettuce (NMS 2005, OCNMS 2004). An invasive alga, *Caulerpa taxifolia*, has been found in California coastal waters. SAV loss was reported in 8 of the 39 estuaries surveyed in NOAA's National Estuarine Eutrophication Assessment. Severe SAV loss is occurring in Morro Bay and San Francisco Bay, CA (Bricker *et al.* 1999).

In the Pacific Islands, common SAV species include paddle grass, Hawaiian paddle grass (*Halophila hawaiiana*), *Halophila minor*, and *Halophila ovalis* (NOAA CSC 2001). Macroalgae species include *Stypopodium flabelliforme*, *Halitheda opuntia*, *Caulerpa webbiana*, and *Padina australis* (NMS 2005). Seagrass beds provide important foraging grounds for green, olive ridley, and loggerhead sea turtles. Six invasive species of macroalgae occur in Hawaii: *Acanthophora spicifera*, *Hypnea musciformis*, *Kappaphycus* spp., *Eucheuma denticulatum*, *Avrainvillea amadelpha*, and *Gracilaria salicornia*. These species are spreading and competing with native marine flora and fauna (Puttock *et al.* undated).

3.2.2.3 Sea Turtles

Six species of sea turtles have the potential to occur on the Atlantic Coast. Threatened species include the loggerhead (*Caretta caretta*), green, and olive ridley (*Lepidochelys olivacea*) sea turtles. Olive ridley sea turtle occurrences are rare but have been recorded in Puerto Rico, southern Florida, and the Grand Banks. Endangered species include Kemp's ridley (*Lepidochelys kempii*), leatherback, and hawksbill sea turtles. Hawksbill sea turtles commonly occur in southern Florida, Puerto Rico, the Virgin Islands, and the northern Gulf of Mexico, and have also been documented as far north as Massachusetts. The Florida breeding population of green sea turtles is also listed as endangered (Appendix E, Table E-6). Critical habitat for the green sea turtle is designated in waters extending seaward 3 nautical miles from the mean high water line of the Culebra Islands in Puerto Rico (50 CFR 226.208). Critical habitat for the hawksbill sea turtle is designated in waters extending seaward 3 nautical miles from the mean high water line of Isla Mona and Monito Island, Puerto Rico (50 CFR 226.209). Critical habitat for the leatherback is designated off Sandy Point on St. Croix Island in the Caribbean and around southwest Cape Point.

Four species of sea turtles have the potential to occur on the Pacific Coast. Threatened species include the green, olive ridley, and loggerhead sea turtles. Endangered species include the leatherback sea turtle and the green sea turtle breeding population found on the Pacific coast of Mexico. The East Pacific green turtle, or "black turtle," may be referred to as *Chelonia mydas agassizii*. No sea turtles nest on the Pacific Coast of the U.S.; the closest nesting beaches are in Baja California, Mexico. However, all five species have been recorded in U.S. waters and have been found stranded on the coast. Foraging and short-term inter-breeding residency has been recorded for green turtles in San Diego and leatherbacks in central and northern California. Green sea turtles occasionally occur in Alaska and have been found in southern Alaskan waters. Olive ridley sea turtles occurrences are rare in Oregon, Washington, and Alaska, but have been recorded (Hodge 2001). Loggerheads in Alaska are a rare occurrence and leatherbacks have been found in the Bering Sea (Appendix E, Table E-6).

Five species of sea turtles have the potential to occur in the Pacific Islands. Threatened species include the green, loggerhead, and olive ridley sea turtles. Endangered species include the leatherback and hawksbill sea turtles (Appendix E, Table E-6).

3.2.2.4 Fish and Shellfish

Three species of endangered fish occur on the Atlantic Coast: the Atlantic salmon (*Salmo salar*), the shortnose sturgeon (*Acipenser brevirostrum*), and the smalltooth sawfish (*Pristis pectinata*) (Appendix E, Table E-7). Atlantic salmon are a DPS located in the Gulf of Maine. Atlantic salmon in Maine outside of the range of the Gulf of Maine DPS have been proposed for listing as endangered. The shortnose sturgeon occurs throughout the Atlantic Coast and the smalltooth sawfish occurs from North Carolina to Florida. There is no critical habitat designated for these species on the Atlantic Coast, but critical habitat has been proposed for the Gulf of Maine Atlantic salmon DPS. Commercial and recreational fisheries are managed by the states; the New England, Mid-Atlantic, South Atlantic, and Caribbean Fishery Management Councils; and NMFS. Important commercial, recreational, and/or ecological species include sand lance (*Ammodytes hexapterus*), bay anchovy (*Anchoa mitchilli*), Atlantic croaker (*Micropongonia undulatus*), Atlantic menhaden (*Brevoortia tyrannus*), American shad (*Alosa sapidissima*), and striped bass (*Morone saxatilis*). Shellfish species include blue crab (*Calinectes sapidus*), Atlantic oyster (*Crassostrea virginica*), and hard clams (*Mercenaria mercenaria*) (CIMS 2006).

In the Gulf of Mexico, Gulf sturgeon is threatened and the smalltooth sawfish is endangered (Appendix E, Table E-8). Critical habitat has been designated for Gulf sturgeon in the Pensacola Bay system, Santa Rosa Sound, Mississippi Sound/Pascagoula Bay system, Choctawhatchee Bay system, Apalachicola Bay system, and Suwanee Sound (USFWS 2003). Critical habitat has been proposed for smalltooth sawfish along the southwestern coast of Florida. Commercial and recreational fisheries in the Gulf of Mexico are managed by the states, the Gulf of Mexico Fishery Management Council, and NMFS. Important commercial, recreational, and/or ecological species include Gulf menhaden (*Brevoortia patronis*), red drum (*Sciaenops ocellatus*), striped mullet (*Mugil cephalus*), and anchovy. Shellfish species include blue crab, stone crab (*Menippe mercenaria*), and penaeid shrimp.

Protected shellfish and fish species that occur throughout the West Coast (excluding Alaska) include coho salmon (threatened and endangered), chinook salmon (threatened and endangered), sockeye salmon (*Oncorhynchus nerka*) (threatened and endangered), chum salmon (*Oncorhynchus keta)* (threatened), and steelhead (threatened, endangered, and candidate). The southern DPS of green sturgeon (*Acipenser medirostris*) is listed as threatened in California. Two endangered species that only occur in California are the white abalone (*Haliostis sorenseni*) and the tidewater goby. Critical habitat has been designated for the tidewater goby and includes 10 coastal stream segments in Orange and San Diego counties, California (Appendix E, Table E-9). Critical habitat includes the stream

channels and their associated wetlands, floodplains, and estuaries (65 FR 69693–69717). There are no threatened or endangered fish species in Alaska.

On the Pacific coast, the Southern Oregon/Northern California Coasts coho ESU and the Oregon Coast coho ESU are threatened. The Central California Coast coho ESU is endangered. Critical habitat has been designated for each of these coho ESUs. Four ESUs of chinook salmon are threatened and have critical habitat: the California Coastal ESU, the Central Valley spring-run ESU, the Lower Columbia River ESU, and the Puget Sound ESU. The Sacramento River winter-run ESU of chinook salmon is endangered and critical habitat has been designated for this ESU. Two ESUs of chum salmon are threatened and have critical habitat: Hood Canal summer-run ESU and the Columbia River ESU. Three ESUs of steelhead are threatened and have critical habitat: the Northern California ESU, the Central California ESU, and the South-Central California Coast ESU. The Southern California ESU of steelhead is endangered and has designated critical habitat. Threatened chinook salmon ESUs that could be incidentally harvested in Alaska include the Snake River fall-run ESU, Upper Willamette River ESU, Puget Sound ESU, and the Lower Columbia River ESU (NMFS 2005).

Commercial and recreational fisheries on the West Coast are managed by the states, the Pacific Fishery Management Council, the North Pacific Fishery Management Council, and NMFS. Important commercial, recreational, ecological, and/or subsistence species include salmon, California halibut (*Paralichthys californicus*), white croaker (*Genyonemus lineatus*), Pacific herring (*Clupea harengus pallasi*), Atka mackerel (*Pleurogrammus monopterygiusi*) and Pacific cod (*Gadus macrocephalus*) (CDFG 2001, WDFW 1997, WDFW 2006). Important shellfish species include Dungeness crab (*Cancer magister*), Pacific razor clam (*Siliqua patula*), geoduck clam (*Panopea abrupta*), king crab (*Paralithodes spp.*), and Tanner crab (*Chionoecetes bairdi*) (ADFG 2006).

No threatened or endangered species of fish occur in the Pacific Islands. Commercial and recreational fisheries are managed by the State of Hawaii, U.S. Territories, the Western Pacific Fishery Management Council, and NMFS. Important commercial, recreational, and/or ecological species include albacore tuna (*Thunnus alalunga*), skipjack tuna (*Katsuwonus pelamis*), wahoo (*Acanthocybium solanchi*), wrasses (*Labridae*), jacks (*Carangidae*), and blue marlin (*Makaira nigricans*) (NMFS 2005).

3.2.2.5 Coastal and Marine Birds

Threatened species on the U.S. Atlantic Coast include the bald eagle (*Haliaeetus leucocephalus*) and piping plover. Critical habitat for wintering populations of piping plovers has been designated along the coastal shoreline of North Carolina and south along the eastern coast of the U.S. to the Gulf of Mexico. The wood stork (*Mycteria americana*) is endangered from South Carolina to Florida. The yellow-shouldered blackbird is listed as endangered only in Puerto Rico. Critical habitat for the yellow-shouldered blackbird has been designated on the main island of Puerto Rico and on Isla Mona. The roseate tern (*Sterna dougallii dougallii*) is endangered from Maine to North Carolina. The Caribbean population of the roseate tern is threatened in Florida, Puerto Rico, and the Virgin Islands. A non-essential population of whooping cranes is located from Virginia to Florida. Individuals of the population are treated as threatened if they occur in a NWR or national park. (Appendix E, Table E-10). Seabirds, shorebirds, wading birds, and waterfowl using the Atlantic Flyway migrate through or nest on the Atlantic coast. Species include the great blue heron (*Ardea herodius*), snowy egret (*Egretta thula*), osprey (*Pandion haliaetus*), great cormorant (*Phalacrocorax carbo*), red knot (*Calidris canutus*), and whimbrel (*Numenious phaeopus*) (Clark and Niles 2000).

Threatened species in the Gulf of Mexico include the bald eagle and piping plover. Piping plover critical habitat has been designated along the coastal shoreline of the Gulf Coast, from Texas to Florida. The whooping crane is only listed as endangered in Texas and critical habitat has been designated along the Texas Gulf Coast. The brown pelican (*Pelecanus occidentalis*) is endangered in Texas, Louisiana, and Mississippi. The wood stork is only endangered in Alabama (Appendix E, Table E-11). The Mississippi and Central Flyways pass through the Gulf of Mexico. Species that migrate through or nest on the coast include the snowy egret, great blue heron, gull-billed tern (*Sterna nilotica*), sanderling (*Calidris alba*), and American oystercatcher (*Haematopus palliates*) (Hunter *et al.* 2002, Elliott and McKnight 2000).

Threatened species found from California to Alaska include the bald eagle, marbled murrelet, and the western snowy plover (Appendix E, Table E-12). Critical habitat for the western snowy plover has been designated in California, Oregon, and Washington. Critical habitat for the marbled murrelet has been designated in Alaska. Other threatened species found in California include the Coastal California gnatcatcher and the San Clemente sage sparrow (*Amphispiza belli clementeae*). Critical habitat for the Coastal California gnatcatcher has been designated in along the southern California coast.

Endangered species on the entire West Coast include the short-tailed albatross (*Phoebastria albatrus*) and Alaska breeding population of Steller's eider (Appendix E, Table E-12). Occurrences of Steller's eider in California, Oregon, and Washington are rare or accidental. Critical habitat for the Steller's eider has been designated in Alaska. The endangered brown pelican is found in California, Oregon, and Washington. Endangered species only found in California include the California clapper rail (*Rallus longirostris obsoletus*), light-footed clapper rail (*Rallus longirostris levipes*), San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*), and California least tern (*Sterna antillarum browni*). The California condor (*Gymnogyps californianus*) is an endangered species that has recently been reintroduced in Southern California and may be found along the coast. In Alaska, the spectacled eider is endangered and critical habitat has been designated.

The Pacific Flyway passes through the U.S. Pacific Coast. Species include the royal tern (*Sterna maxima*), common murre (*Uria aalge*), snowy egret, Caspian tern (*Sterna caspia*), black-crowned night heron (*Nycticorax nycticorax*), and the sooty shearwater (*Puffinus griseus*) (Hickey *et al.* 2003, USFWS 2005, ADFG 2005).

Eleven endangered coastal and marine bird species are found in the Pacific Islands area: the short-tailed albatross, Hawaiian coot (*Fulica Americana alai*), Hawaiian duck (*Anas wyvilliana*), laysan duck (*Anas laysanensis*), laysan finch (*Telespyza cantans*), nihoa finch (*Telespyza ultima*), Hawaiian dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*), Newell's Townsend's shearwater (*Puffinus auricularis newelli*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Guam bridled white-eye (*Zosterops conspicillatus conspicillatus*), and Mariana crow (*Corvus kubaryii*) (Appendix E, Table E-13). No critical habitat has been designated for these bird species.

A variety of birds inhabit the region including geese, ducks, coots, rails, waders, and gulls. Species include the Hawaiian goose (*Branta sandvicensis*), Tahiti petrel (*Pterodroma rostrata*), black-crowned night-heron, pacific-golden plover (*Pluvialis fulva*), and red-footed booby (*Sula sula*) (HAS 2002, USFWS 2005).

3.2.2.6 Marine Mammals

Most marine mammal species are wide-ranging and have been reported stranded in all NMFS regions. Populations of some species such as large whales, pinnipeds, and some small cetaceans routinely cross regional boundaries. Other marine mammals are considered resident, staying to a relatively localized area.

Animals that strand live may be immediately released, transferred to a rehabilitation facility, euthanized, or die naturally. Animals in rehabilitation may be released, sent to a public display or research facility (if deemed nonreleasable), euthanized, or they may die naturally. Significantly more pinnipeds strand each year than cetaceans. Figure 3-1 shows the total number of strandings (dead and live) nationwide from 2001-2006. The majority of stranded pinnipeds are alive when first reported, and up to 50 percent of the rehabilitated seals and sea lions are released back into the environment. The majority of cetaceans strand dead. Of the live-stranded small cetaceans, few are taken into a rehabilitation facility and very few are released. Only one mysticete has ever been rehabilitated in the U.S. – a juvenile gray whale (*Eschrichtius robustus*) in the Southwest Region. Figures 3-2 and 3-3 summarize nationwide pinniped and cetacean strandings, respectively, from 2001-2006. Released animals are those that were taken into a rehabilitation facility and released after treatment.

In this section, descriptions of the marine mammals that may occur in each NMFS region are presented, along with an overview of stranding information, including trends in strandings by numbers, species and seasonality, mass strandings, and UMEs.

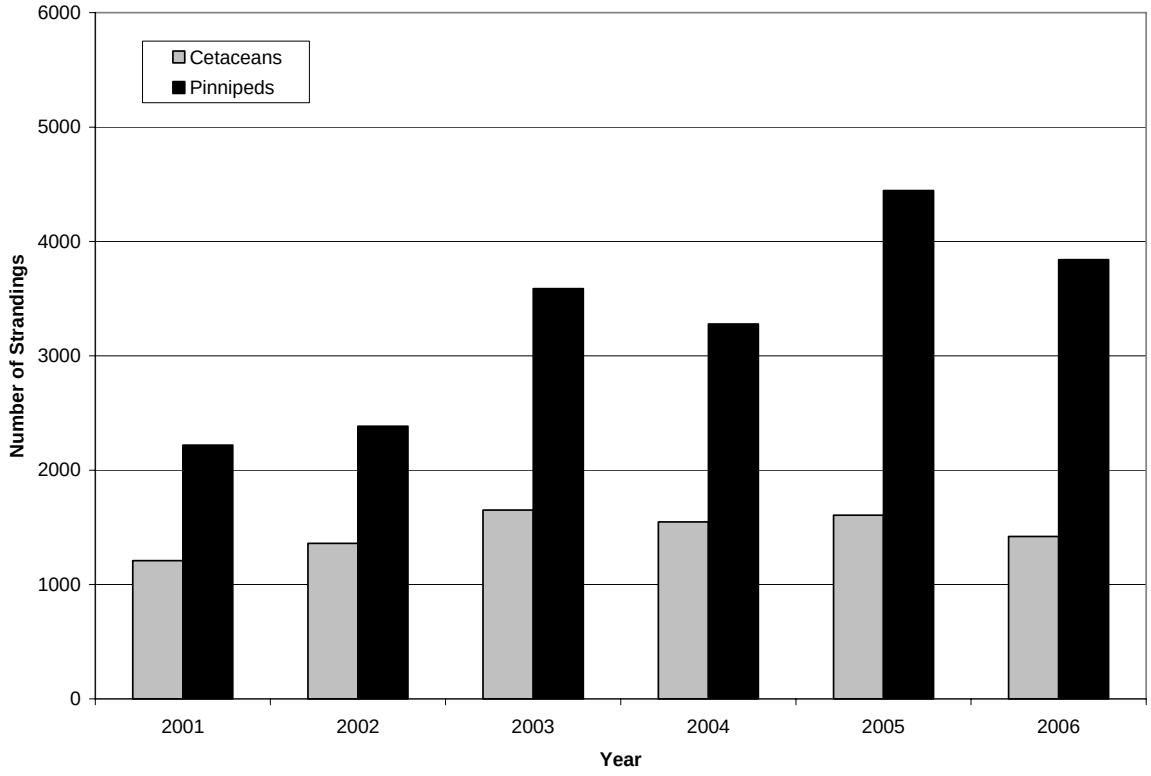


Figure 3-1. Nationwide Stranding Summary 2001-2006

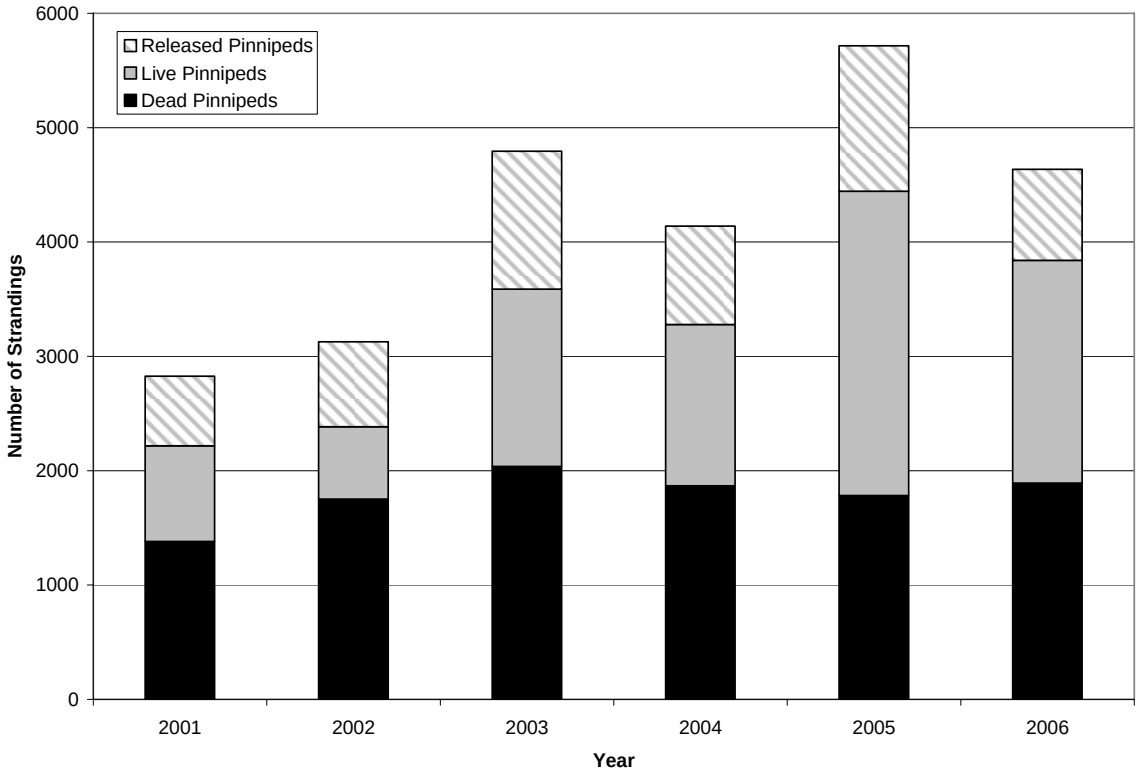


Figure 3-2. Pinniped Strandings Nationwide 2001-2006

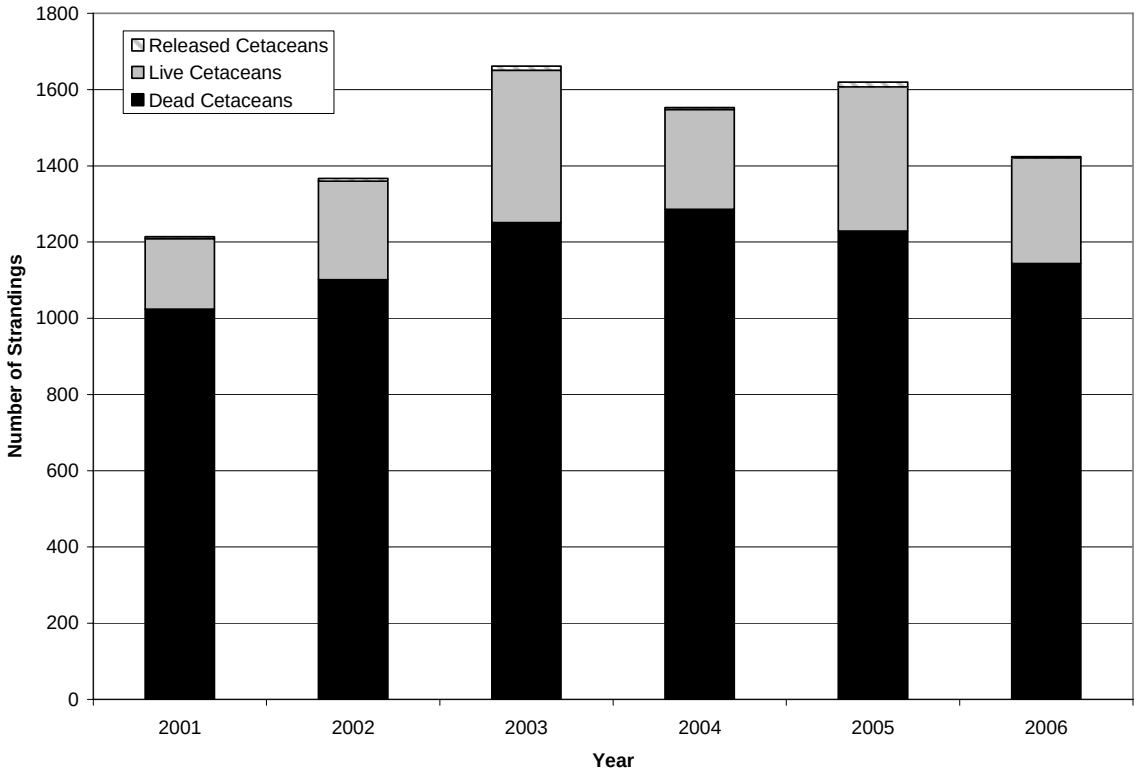


Figure 3-3. Cetacean Strandings Nationwide 2001-2006

NMFS Northeast Region. Thirty-eight species of marine mammals have the potential to occur in the Northeast Region (Appendix E, Table E-14) (Geraci and Lounsbury 2005). Six of these species are listed as endangered: the North Atlantic right whale, humpback whale, fin whale, blue whale, sei whale, and sperm whale. All threatened and endangered marine mammal species are listed as depleted under the MMPA. The Western North Atlantic coastal migratory stock of bottlenose dolphins, which range from New Jersey to Florida, are also listed as depleted under the MMPA. Critical habitat for the right whale is designated within this region in portions of Cape Cod Bay, Stellwagen Bank, and the Great South Channel off the coast of Massachusetts (59 FR 28793-28834).

The most commonly stranded pinniped species in the Northeast Region are harbor seals (*Phoca vitulina*), harp seals (*Phoca groenlandica*), hooded seals (*Cystophora cristata*), and gray seals (*Halichoerys grypus*). The number of stranded pinnipeds and particularly the ice seals (harp, hooded and gray seals) has been increasing in recent years. This is believed to be due to growth in the overall Northeast pinniped populations. Figure 3-4 depicts the number of reported pinniped strandings in the Northeast Region from 2001-2006. Twelve pinnipeds were placed in public display facilities from 2001-2006.

The most commonly stranded cetacean species in the Northeast Region are bottlenose dolphins, harbor porpoises (*Phocoena phocoena*), Atlantic white-sided dolphins (*Lagenorhynchus acutus*), common dolphins (*Delphinus delphis*), pilot whales (*Globicephala melas* and *G. macrorhynchus*), and minke whales. Other less common strandings include striped dolphins (*Stenella coeruleoalba*), Risso's dolphins, pygmy sperm whales (*Kogia breviceps*), dwarf sperm whales (*Kogia sima*), sperm whales, killer whales, humpback whales, right whales, and fin whales. Many of the large whale carcasses are discovered floating many miles offshore by aerial survey and fishery spotter planes, and never land on the beach unless towed in by the stranding network for sampling. Figure 3-5 shows cetacean strandings in the Northeast Region from 2001-2006. Two cetaceans were placed in public display facilities from 2001-2006.

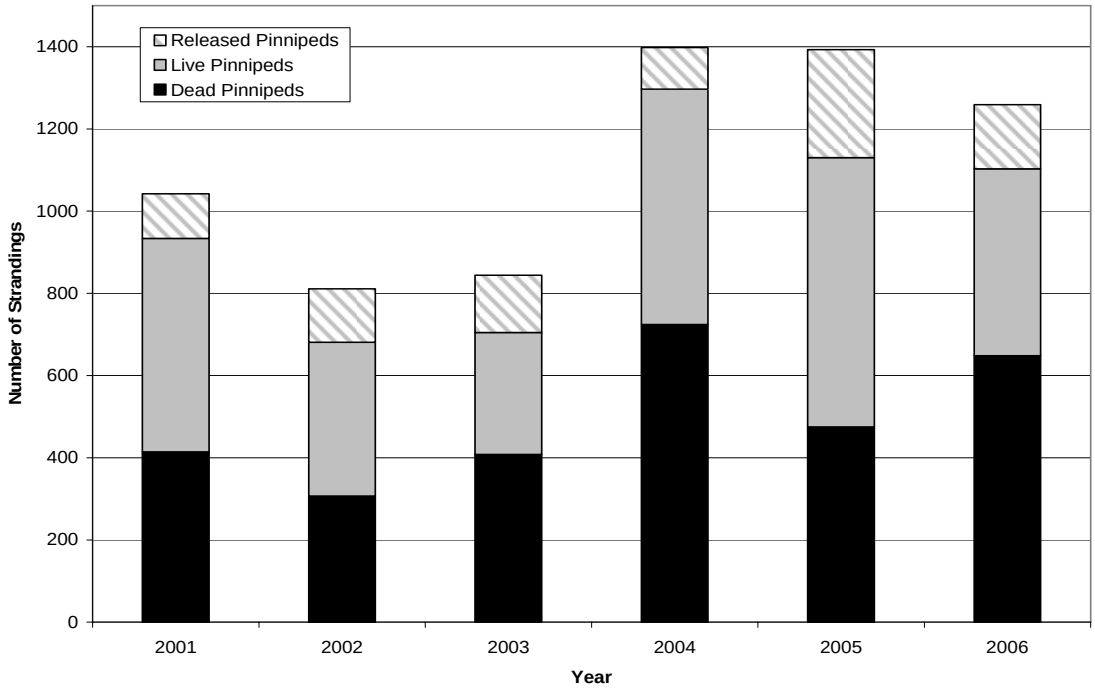


Figure 3-4. Northeast Region Pinniped Strandings 2001-2006

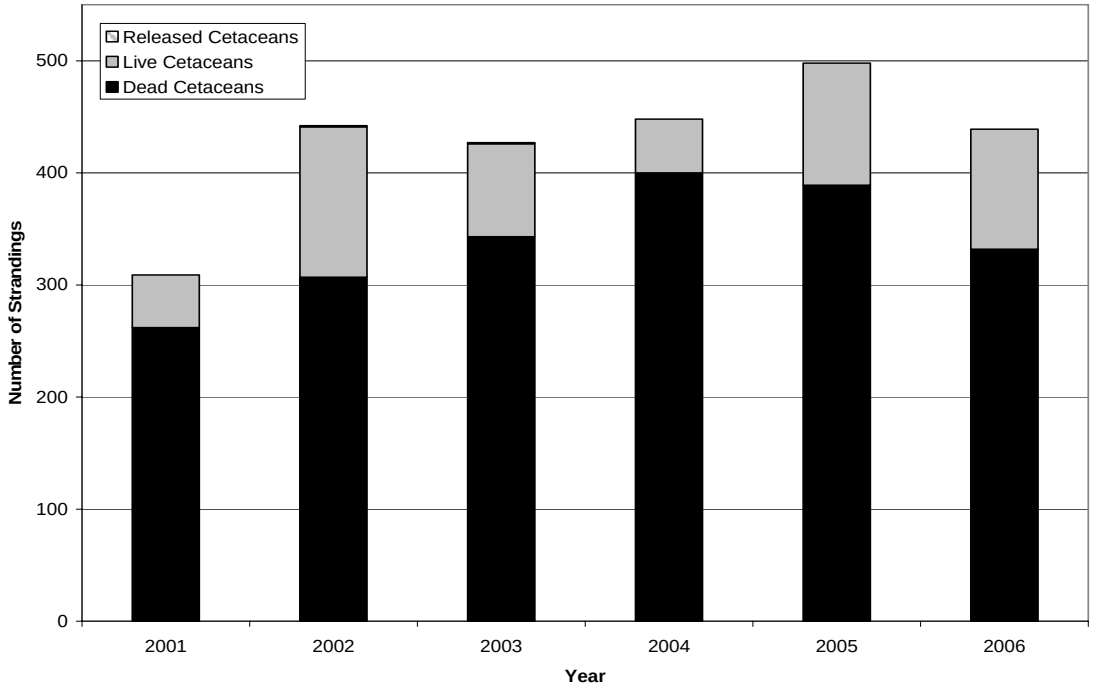


Figure 3-5. Northeast Region Cetacean Strandings 2001-2006

Mass Strandings. The Northeast Region, particularly Cape Cod, MA, has one of the highest incidences of live single and mass strandings of small cetaceans in the U.S. Mass strandings occur an average of once per year on Cape Cod and 6 to 10 live cetacean stranding events (single or mass strandings) occur annually in the Northeast Region, most often in the winter. Each event may involve single or multiple animals, resulting in the large proportion of live strandings in Figure 3-5.

Human Interactions. Approximately 25 fisheries interactions are documented annually. Bottlenose dolphins and harbor porpoise are the small cetaceans most frequently impacted by human interactions, primarily fishery interactions. Large whales also show evidence of fishery and other human interactions. Approximately 61.6 percent of the overall right whale population shows physical evidence of entanglements (such as scars) and between 10 to 28 percent experience entanglement each year (Hamilton *et al.* 1998, Knowlton *et al.* 2001). According to the 2003 Stock Assessment, 60 percent of right whale mortalities and serious injuries reported from 1997 to 2001 resulted from entanglements or fishery interactions (NMFS 2003). This number increased to approximately 69 percent from 1999 to 2003 (NMFS 2005b). Disentanglement activity reports to the MMHSRP have verified entanglements of right, humpback, fin, and minke whales. Ship strikes of right whales have also been documented in the region. More than half (56 percent) of the recorded right whale ship strikes from 1975 to 2002 occurred off the coasts of the Northeast U.S. and Canada, and the mid-Atlantic area accounted for 22 percent (Jensen and Silber 2003). Six confirmed ship strikes of Gulf of Maine humpback whales and eight confirmed ship strikes of Western North Atlantic fin whales occurred from 2001 to 2005 in the Northeast Region (Nelson *et al.* 2007). Ship strikes have also been documented for sperm, sei, blue, and minke whales (Jensen and Silber 2003).

Temporal Changes. Stranding patterns vary temporally as marine mammal distribution changes with the seasons. In the spring, strandings of gray seal pups and harbor porpoise are common, as well as mass strandings of small cetaceans. Harbor seal pups, bottlenose dolphins, and large whale strandings are common in summer. Ship strikes and entanglements are frequent in summer. Fall strandings may include marine mammals in out of habitat situations. Common strandings in winter include juvenile ice seals, as they fail to forage successfully. Ice seal populations have also been increasing in Canada, leading to increasing numbers of animals in U.S. waters.

Marine Mammal Population Changes. The North Atlantic right whale population continues to be depleted and has not shown any signs of recovery. The best estimate of the size of the North Atlantic right whale population is a range of 300 to 350. Although other population size estimates are available, the most recent Stock Assessment Report (Waring *et al.* 2007) indicates that the best

estimate minimum population size for the species is 313 individually-recognized whales known to be alive in 2002. Recent models indicate that this population is likely declining, rather than remaining static or increasing (Caswell *et al.* 1999). Recent abundance estimates of the humpback whale Gulf of Maine stock indicated a continued increase in population growth. However, the size of the humpback whale stock may be below the Optimum Sustainable Population (OSP) in the U.S. EEZ. Populations of gray, harp, hooded, and harbor seals are likely increasing in the U.S. EEZ (Waring *et al.* 2007).

UMEs. Table 3-1 describes the UMEs that have occurred in the Northeast Region from 1991 to April 2008. The 2006-2007 pinniped UME was declared after morbillivirus was found in several pinnipeds in rehabilitation, and later detected from carcasses. *Morbillivirus* is the highly contagious and lethal genus of virus (Family Paramyxoviridae) that has been responsible for more significant marine mammal die-offs due to infectious disease than any other pathogen to date. These *Morbillivirus* die-offs include several seal epizootics in Northern Europe and Russia involving tens of thousands of seals, and dolphin mortalities in the Mediterranean Sea and along the U.S. Atlantic and Gulf of Mexico coasts. In April 2008, a UME was declared in for offshore delphinids in the Mid-Atlantic.

Table 3-1. UMEs in the Northeast Region, 1991-2008

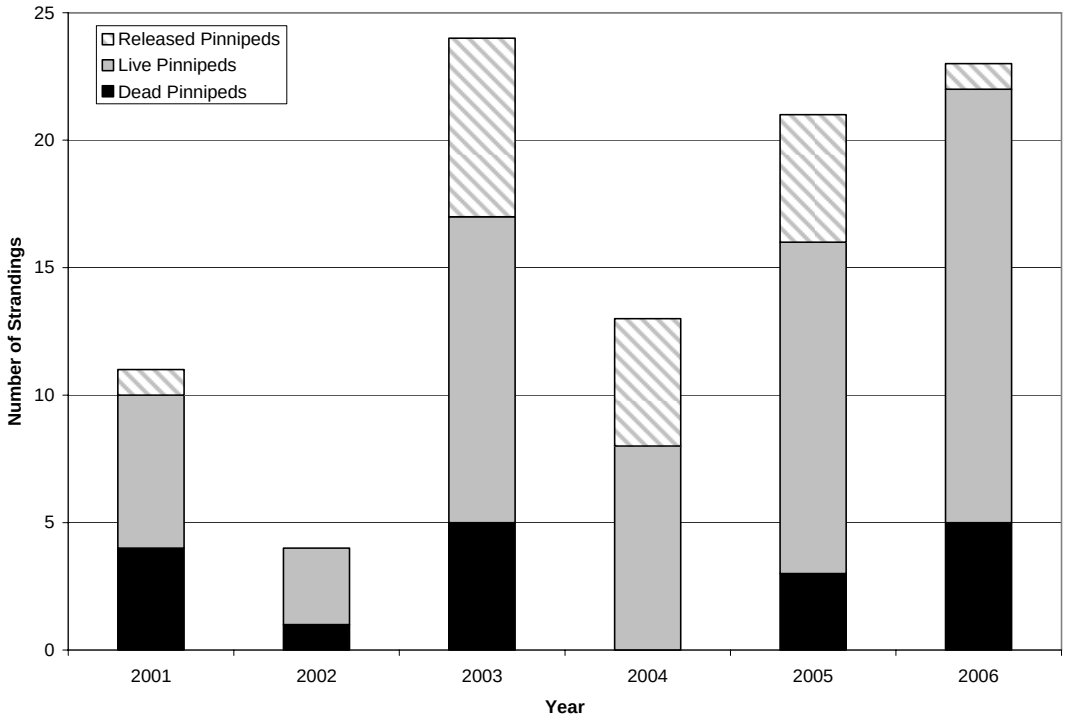
Year	Species	Location	Cause	Numbers of Animals
1991	Harbor seals	New York	possible erysipelas	24
1992	Phocids	New England	infectious disease	24
2003	Large whales (primarily humpback whales)	Gulf of Maine	domoic acid (suspected)	21
2003	Harbor seals and minke whales	Maine	undetermined (results pending)	21 minke whales, 42 harbor seals
2004	Small cetaceans	Virginia	undetermined	67
2005	Large whales	North Atlantic	undetermined	~34
2006-2007	Humpback whales	North Atlantic	undetermined, UME has not been closed	48
2006-2007	Pinnipeds	North Atlantic	morbillivirus	>1000 (harbor, gray, harp, and hooded seals)
2008	Offshore delphinids (primarily common and Atlantic white-sided dolphins)	Mid-Atlantic	undetermined	35

Reference: NMFS 2008b

NMFS Southeast Region. Thirty-two species of marine mammals have been reported in the Southeast Region (Appendix E, Table E-15) (Geraci and Lounsbury 2005). Six of these species are listed as endangered: the West Indian manatee, North Atlantic right whale, humpback whale, blue whale, sei whale, and sperm whale. All threatened and endangered marine mammal species are also listed as depleted under the MMPA. The Western North Atlantic coastal migratory stock of bottlenose dolphins are also listed as depleted under the MMPA. Critical habitat for the right whale is designated from the shoreline between the mouth of the Altamaha River, Georgia, to the Sebastian River Inlet, Florida, seaward to 15 nautical miles (59 FR 28793-28834). Critical habitat for the West Indian manatee is designated within several watersheds along the east and west coast of Florida (42 FR 47840–47845).

The most commonly stranded pinniped species in the Southeast Region are harbor seals, representing over 90 percent of stranded pinnipeds. The majority (80 percent) of these strandings are immediately released back into the water. Other pinnipeds that strand in the Southeast Region include small numbers of hooded, harp, and gray seals. Recently there has been an increase in strandings of these seal species, many of them in the Caribbean. Figure 3-6 depicts the number of reported pinniped strandings in the Southeast Region from 2001-2004. Ten pinnipeds were placed in public display facilities from 2001-2006.

The Southeast region currently has the most stranded cetaceans of any region, and a variety of taxa are represented (an average of 17 species of odontocetes annually). The most commonly stranded species in the Southeast region are bottlenose dolphins, pygmy sperm whales, dwarf sperm whales, and harbor porpoise. Other cetaceans that strand regularly, but in smaller numbers overall include: striped dolphins, spinner dolphins (*Stenella longirostris*), Atlantic spotted dolphins (*Stenella frontalis*), pantropical spotted dolphins (*Stenella attenuata*), Fraser's dolphin (*Lagenodelphis hosei*), Risso's dolphin, rough-toothed dolphin, melon-headed whales (*Peponocephala electra*), pilot whales, and several beaked whale species. Of mysticetes, the North Atlantic right whale is the most common mysticete to strand. On average, approximately three stranded right whales are reported each year in the Southeast Region. Other mysticetes that strand in the Southeast Region include humpback whales, minke whales, and rarely Bryde's whales (*Balaenoptera edeni*) and sei whales. Figure 3-7 depicts the number of reported cetacean strandings in the Southeast Region from 2001-2006. Nineteen cetaceans were placed in public display facilities from 2001-2006.



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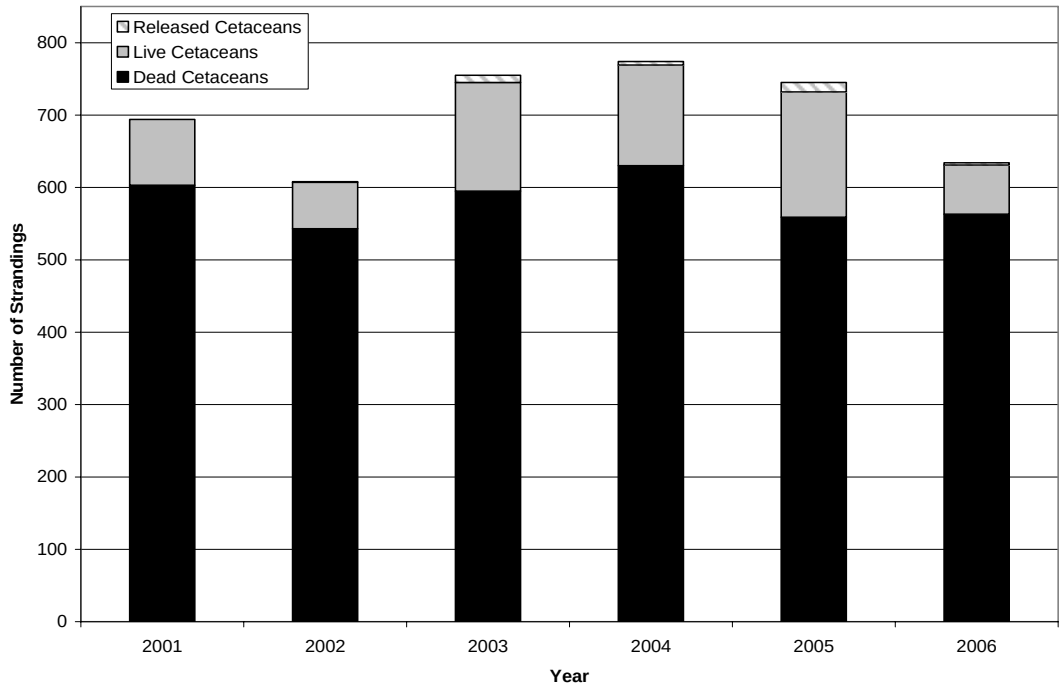
2 **Figure 3-6. Southeast Region Pinniped Strandings 2001-2006**



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4 **Figure 3-7. Southeast Region Cetacean Strandings 2001-2006**

Mass Strandings. Mass strandings occur frequently in the Southeast Region. The majority of mass strandings are either pilot whales or rough-toothed dolphins. Other species that have mass stranded include bottlenose dolphins, Fraser's dolphins, striped dolphins, and pantropical spotted dolphins.

Human Interactions. Human interactions accounted for 12 percent of the total number of strandings from 2001-2004. Of these, seven percent are fishery interactions including crab pot and recreational hook and line, and the remaining five percent of human-related mortality included boat strikes, gun shot wounds, and plastic ingestion. Documented human interactions with odontocetes are primarily fisheries interactions, although ship strikes do occur. Documented human interactions with mysticetes include entanglements and ship strikes. Reported right whale strandings have been associated with entanglements and boat strikes more often than other causes. Right whale entanglements are described above under the NMFS Northeast Region section. Three humpback whales, one fin whale, and one Bryde's whale were confirmed entangled in the Southeast Region from 2001 to 2005 (Nelson *et al.* 2007). Twenty-two percent of the recorded right whale ship strikes from 1975 to 2002 occurred off the coast of the Southeast area (Jensen and Silber 2003). Two confirmed ship strikes of Gulf of Maine humpback whales have also occurred in the Southeast Region from 2001 to 2005 (Nelson *et al.* 2007).

Temporal Changes. Seasonal peaks are seen in many species in the Southeast Region, and are generally related to migratory patterns, calving seasons, environmental conditions (including water temperature and harmful algal blooms) and fishery activities. For example, bottlenose dolphin strandings generally occur in the spring and summer in the more southern parts of the region, and in the spring and fall towards the north. Right whale and humpback whale strandings are most common in the southern component of their home range from November through April.

Marine Mammal Population Changes. Population changes to North Atlantic right whales and Gulf of Maine humpbacks are the same as those listed for the Northeast Region. The West Indian manatee population trends are poorly known. However, based upon a carcass recovery program in Florida, manatee deaths have increased by an average of 5.9 percent per year from 1976 through 1992.

UMEs. Table 3-2 describes the UMEs that have occurred in the Southeast Region as from 1991 to April 2008.

Table 3-2. UMEs in the Southeast Region, 1991-2008

Year	Species	Location	Cause	Numbers of Animals
1991	Bottlenose dolphins	Florida (Sarasota)	undetermined	30
1992	Bottlenose dolphins	Texas	undetermined	220
1994	Bottlenose dolphins	Texas	morbillivirus	72
1996	Right whales	Florida, Georgia	human interaction	6
1996	Manatees	Florida (West Coast)	brevetoxin	149
1996	Bottlenose dolphins	Mississippi	undetermined	30
1999-2000	Bottlenose dolphins	Florida (Panhandle)	brevetoxin	115
2001	Bottlenose dolphins	Florida (Indian River)	undetermined (saxitoxin suspected)	35
2002	Manatees	Florida (West Coast)	brevetoxin	34
2003	Manatees	Florida (West Coast)	brevetoxin (suspected)	96
2004	Bottlenose dolphins	Florida (Panhandle)	undetermined (brevetoxin suspected)	107
2004	Small cetaceans	North Carolina	undetermined	100
2005-2006	Multispecies (manatees, bottlenose dolphins)	Florida (West Coast)	brevetoxin (suspected)	204 bottlenose dolphins, 130 manatees
2005	Harbor porpoises	North Carolina	undetermined	43
2005-2006	Bottlenose dolphins	Florida (Panhandle)	brevetoxin (suspected)	97
2006	Manatees	Florida (Everglades)	brevetoxin (suspected)	24
2007	Bottlenose dolphins	Texas and Louisiana	undetermined	62
2007	Manatees	Florida (west coast)	brevetoxin	37
2008	Bottlenose dolphins (majority are neonates)	Texas	undetermined	~120
2008	Bottlenose dolphins	Florida (Indian River)	undetermined	~48

Reference: NMFS 2008b

NMFS Southwest Region. Thirty-seven species of marine mammals have the potential to occur in the Southwest Region (Appendix E, Table E-16) (Geraci and Lounsbury 2005). The Steller sea lion,

southern sea otter (*Enhydra lutris nereis*), and Guadalupe fur seal are listed as threatened. Humpback, blue, sei, sperm, fin, and North Pacific right whales are listed as endangered. All threatened and endangered marine mammal species are listed as depleted under the MMPA. In California, Steller sea lion critical habitat is designated as major rookeries and their associated air and aquatic zones. The air zones extend 3,000 feet above rookery areas historically occupied by sea lions, and aquatic zones extend 3,000 feet seaward from these areas (58 FR 45269–45285).

The most commonly stranded pinniped species in the Southwest region are California sea lions (*Zalophus californianus*), followed by harbor seals and northern elephant seals (*Mirounga angustirostris*). There are also infrequent strandings of Steller sea lions, Guadalupe fur seals, and northern fur seals. Over half of all stranded otariids were reported alive when first observed. Figure 3-8 depicts the number of reported pinniped strandings in the Southwest Region from 2001-2006. Eighteen pinnipeds were placed in public display facilities from 2001-2006.

The most commonly stranded small cetaceans in the Southwest Region are long- and short-beaked common dolphins (*Delphinus capensis* and *D. delphis*), harbor porpoise, bottlenose dolphins, Risso's dolphins, Dall's porpoises (*Phocenoides dalli*), and Pacific white-sided dolphins (*Lagenorhynchus obliquidens*). The most commonly stranded large whales are gray whales, which in some years are the most commonly observed stranded cetacean. Infrequently stranded cetacean species include Northern right whale dolphins (*Lissodelphis borealis*), rough-toothed dolphins, pygmy and dwarf sperm whales, sperm whales, short-finned pilot whales, beaked whales, humpback whales, and minke whales (*Balaenoptera acutorostrata*). Most stranded cetaceans are dead when first observed and reported. Figure 3-9 depicts the number of reported cetacean strandings in the Southwest Region from 2001-2006. Two cetaceans were placed in public display facilities from 2001-2006.

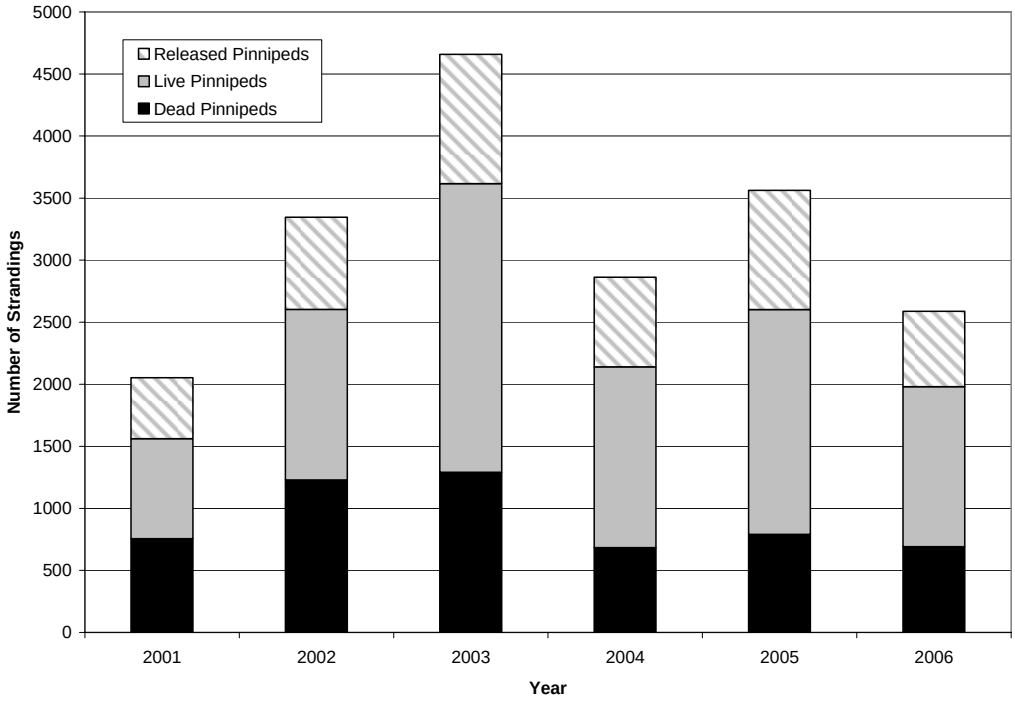

Figure 3-8. Southwest Region Pinniped Strandings 2001-2006

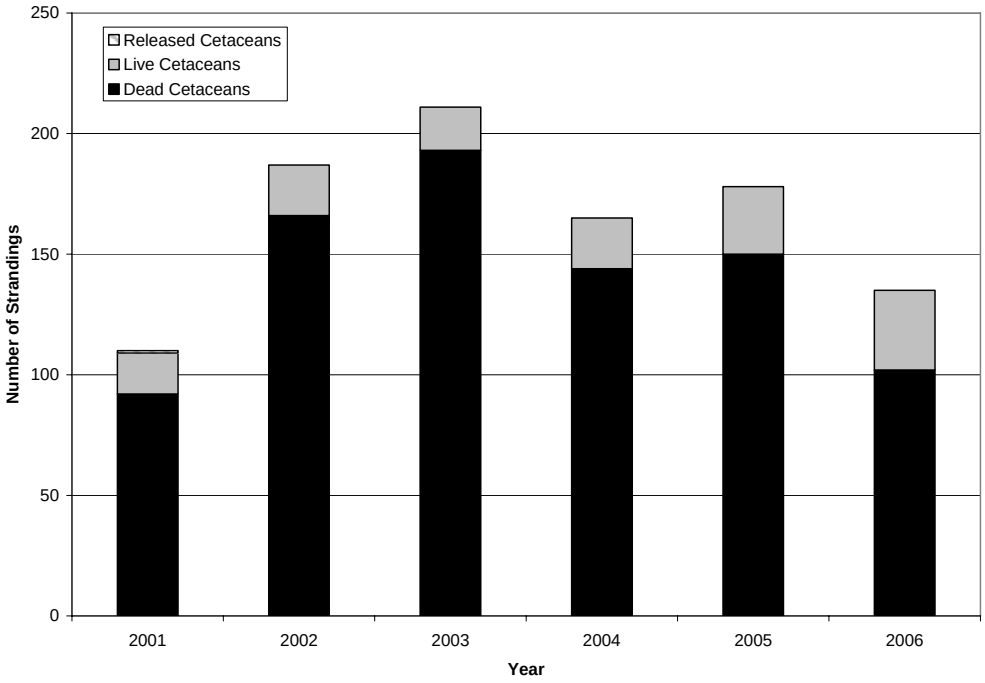

Figure 3-9. Southwest Region Cetacean Strandings 2001-2006

Mass Strandings. Mass strandings are rarely reported in the Southwest Region.

Human Interactions. Documented human interactions in the Southwest region include boat strikes, fishery interactions, and deliberate shootings. Seventeen whales (10 gray whales and 7 humpback whales) were reported entangled in fishing gear, and other animals were determined to have been hit by ships. Each year some pinnipeds are documented to have been shot.

Temporal Changes. The majority of gray whale strandings in the Southwest Region occur from March through May when the whales are found off the coast of California during their northern migration. Several large stranding events, affecting both odontocetes and pinnipeds, have been recorded in the spring coincident with the occurrence of large toxic phytoplankton blooms. Most elephant seal strandings are pups and most occur from March-May during the fasting period between the end of weaning and when the animals enter the open ocean to feed on their own. Most harbor seal strandings occur from April-June, coinciding with the peak of pupping season.

Marine Mammal Population Changes. Most marine mammal stocks in California waters are stable and/or increasing. California sea lions have been increasing recently at 5.4 percent to 6.1 percent per year. Short-finned pilot whales have declined in abundance in the Southern California Bight. This decline is likely a result of a change in distribution since the 1982-1983 El Niño event. The Guadalupe fur seal population has been growing at approximately 13.7 percent per year (Carretta *et al.* 2007).

UMEs. Table 3-3 describes the UMEs that have occurred in the Southwest Region from 1991 to April 2008.

Table 3-3. UMEs in the Southwest Region, 1991-2008

Year	Species	Location	Cause	Number of Animals
1991	California sea lions	California	leptospirosis	160
1992-1993	Pinnipeds	California	El Nino	~1000
1994	Common dolphins	California	undetermined	53
1997	Harbor seals	California	viral pneumonia	90
1998	California sea lions	California	domoic acid	70
1999-2001	Gray whales	California, Oregon, Washington	undetermined	651
2000	California sea lions	California	domoic acid	184

Table 3-3. UMEs in the Southwest Region, 1991-2008 (continued)

Year	Species	Location	Cause	Number of Animals
2000	Harbor seals	California	infectious disease	26
2002	Multispecies (common dolphins, California sea lion, sea otters)	California	domoic acid	~500
2003	Sea otters	California	ecological factors	69
2007	Cetaceans (primarily common dolphins)	California	domoic acid	63
2007	Large whales (primarily blue whales)	California	human interaction, undetermined	8

Reference: NMFS 2008b

NMFS Northwest Region. Twenty-eight species of marine mammals have the potential to occur in the Northwest Region (Appendix E, Table E-17) (Geraci and Lounsbury 2005). The Steller sea lion is the only threatened marine mammal species in the region. Endangered marine mammal species include the humpback, blue, sei, sperm, fin, and North Pacific right whales. The Southern Resident DPS of killer whales in Washington is also listed as endangered. Approximately 2,560 square miles of inland waters of Washington have been designated as critical habitat for the Southern Resident killer whale DPS (71 FR 69054-69070). All threatened and endangered species are listed as depleted under the MMPA. The Eastern Pacific stock of the northern fur seal (*Callorhinus ursinus*) is also listed as depleted under the MMPA. In Oregon, Stellar sea lion critical habitat is designated as major rookeries and their associated air and aquatic zones. The air zones extend 3,000 feet (0.9 kilometers) above rookery areas historically occupied by sea lions, and aquatic zones extend 3,000 feet seaward from these areas (58 FR 45269–45285).

The majority of stranded animals in the region are harbor seals. Approximately 50 percent of stranded harbor seals are live when first observed and are predominantly pups. Other commonly stranded pinnipeds include California sea lions, Steller sea lions, and Northern fur seals. These animals are usually dead when first reported. The number of elephant seals reported to the network has recently been increasing, associated with recently colonized haul-out and breeding sites in southern Oregon and the inland waters of Washington. The majority of elephant seals that are reported to the network are not stranded, but are hauled out to molt. The network's response includes posting signs to alert the public about the life history of the seals and to help prevent harassment of

the resting animals. Figure 3-10 depicts the number of reported pinniped strandings in the Northwest Region from 2001-2006. The increasing trend in reported strandings, shown in Figure 3-10, may reflect improved coverage by the stranding network combined with increased funding. One pinniped was placed in a public display facility from 2001-2006.

The most common stranded cetacean species are the gray whale, harbor porpoises, Dall's porpoises, Pacific white-sided dolphins, killer whales, sperm whales, Risso's dolphin, minke, humpback, and fin whales. Seventeen different odontocete species, including beaked whales, have been reported stranded from 1989-2003. The majority of stranded odontocetes are dead when first observed. Figure 3-11 depicts the number of reported cetacean strandings in the Northwest Region from 2001-2006. The increasing trend in reported strandings, shown in Figure 3-11, may reflect improved coverage by the stranding network combined with increased funding. No cetaceans were placed in public display facilities from 2001-2006.

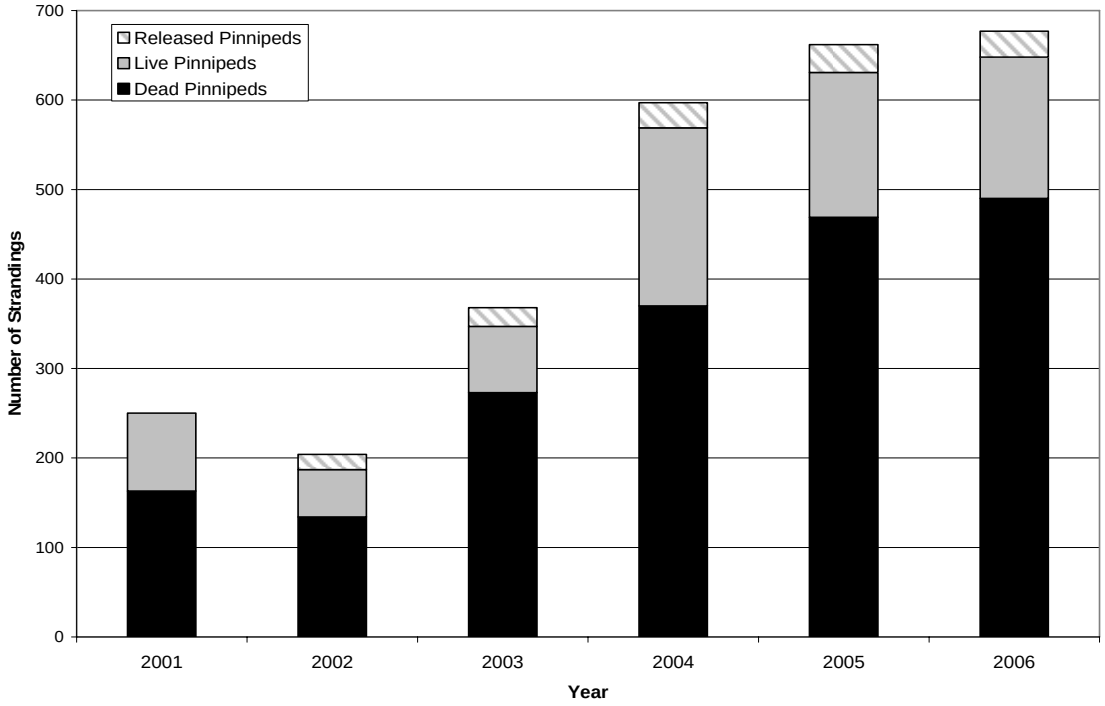

Figure 3-10. Northwest Region Pinniped Strandings 2001-2006

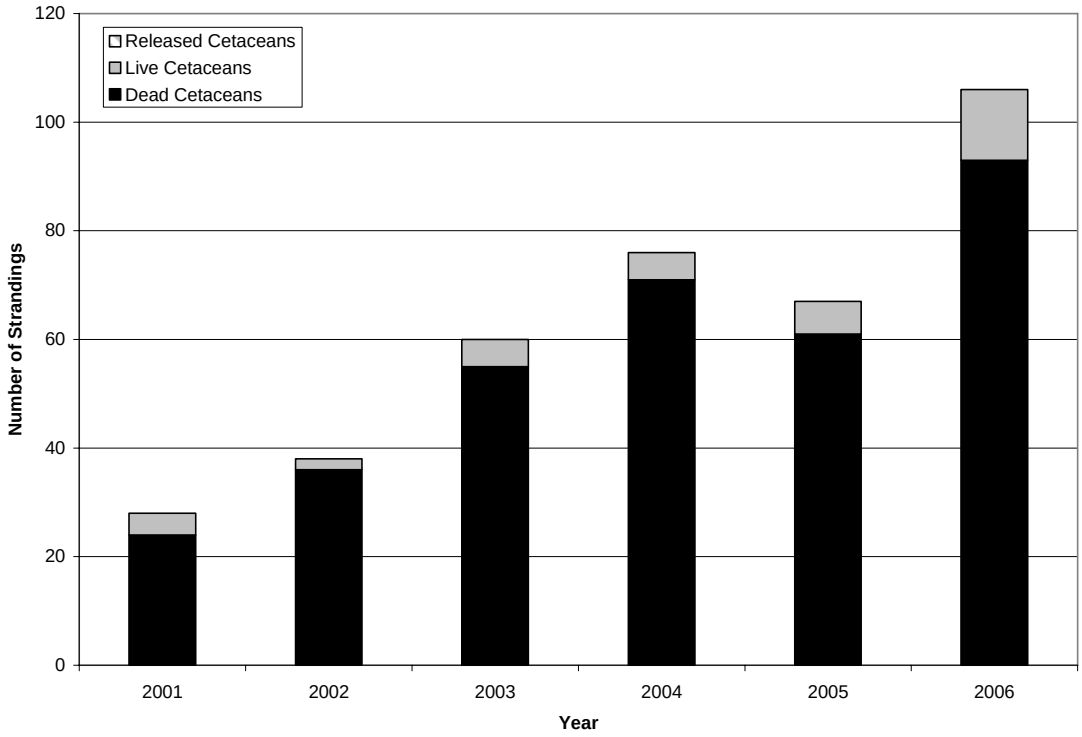

Figure 3-11. Northwest Region Cetacean Strandings 2001-2006

Mass Strandings. The occurrence of mass strandings in Oregon and Washington is rare. However, a mass stranding of 41 sperm whales occurred in central Oregon in 1979.

Human interactions. Boat strikes and fisheries interactions with large whales have been documented. Documented human interactions with phocids include fisheries interactions, vehicle collisions, and shootings. Documented human interactions involving otariids are primarily shootings.

Temporal changes. Gray whales strand most frequently in the spring during their northward migration.

Marine Mammal Population Changes. The Southern Resident killer whale DPS experienced an almost 20 percent decline from 1996 to 2001. Since 2001 there has been a small increase in the population, and there were 87 whales in the Southern Resident DPS in 2007 (NMFS 2008a). Based on aerial surveys, the Washington inland stock of harbor porpoise has increased three fold since 1997. The outer coast stock of harbor porpoise appears to be declining. There has also been an increase in male California sea lions in Washington State waters.

UMEs. Table 3-4 describes the UMEs that have occurred in the Northwest Region from 1991 to April 2008.

Table 3-4. UMEs in the Northwest Region, 1991-2008

Year	Species	Location	Cause	Numbers of Animals
1993	Pinnipeds	Washington	human interaction	53
1999-2001	Gray whales	California, Oregon, Washington	undetermined	651
2006	Harbor porpoises	Oregon, Washington	undetermined	113
2007	Guadalupe fur seals	Oregon, Washington	undetermined	15

Reference: NMFS 2008b

NMFS Alaska Region. Twenty-nine species of marine mammals have the potential to occur in the Alaska Region (Appendix E, Table E-18) (Geraci and Lounsbury 2005). Threatened marine mammal species include the southwest Alaska DPS of the northern sea otter (*Enhydra lutris kenyoni*), the eastern DPS of the Steller sea lion, and the polar bear. Endangered marine mammal species include the western DPS of Steller sea lions, the Cook Inlet stock of beluga whales (*Delphinapterus leucas*), bowhead (*Balaena mysticetus)*, blue, humpback, fin, sei, sperm, and North Pacific right whales. ESA Candidate species include bearded, ringed, and spotted seals. All threatened and endangered species are listed as depleted under the MMPA. The Eastern Pacific Stock of northern fur seals is listed as depleted under the MMPA. The AT1 group of transient killer whales is also listed as depleted. Critical habitat for the Steller sea lion is designated within Alaska and is defined as major rookeries; haul-outs; and associated terrestrial, air, and aquatic zones. There are also three special aquatic foraging areas that are designated as critical habitat for the Steller sea lion: Shelikof Strait (in the Gulf of Alaska), Bogoslof Island area and Seguam Pass (in the Bering Strait), and the Aleutian Islands area (58 FR 45269–45285). Critical habitat for the North Pacific right whale has been designated in the Gulf of Alaska and the Southeast Bering Sea (71 FR 38277-38297).

The Alaska Regional Stranding Network coordinates with Alaska Native tribal governments and villages, particularly for species that have co-management agreements, as mandated through Section 119 of the MMPA. Stranded animals are examined to determine if the death resulted from a struck-but-lost situation. At times, Native villages request parts from an animal for subsistence use or Native articles of handicrafts and clothing.

Stranding reports in Alaska are limited by the extensive and mostly rural coastline. Commonly reported stranded pinniped species (excluding walrus) include harbor seal, Steller sea lion, ringed seal, bearded seal, spotted seal, and elephant seal. On average, from 2001-2006, five harbor seal pups a year were brought to the rehabilitation facility in Alaska. Figure 3-12 depicts the number of reported pinniped strandings (excluding walrus) in the Alaska Region during from 2001-2006. One pinniped was placed in a public display facility from 2001-2006.

The most commonly stranded cetacean species in the Alaska Region are gray whales, beluga whales, humpback whales, killer whales, Dall's porpoise, harbor porpoise, and Cuvier's (*Ziphius cavirostris)*, Baird's (*Berardius bairdii*), and Stejneger's (*Mesoplodon stejnegeri*) beaked whales. Infrequently reported stranded species include Pacific white-sided dolphins, sperm whales, minke whales, and fin whales. Most beluga whale strandings are from the Cook Inlet stock. On average, from 2001-2006, three beaked whale strandings were reported each year. Figure 3-13 depicts the number of reported cetacean strandings in the Alaska Region from 2001-2006. No cetaceans were released from rehabilitation during this time period. No cetaceans were placed in public display facilities from 2001-2006.

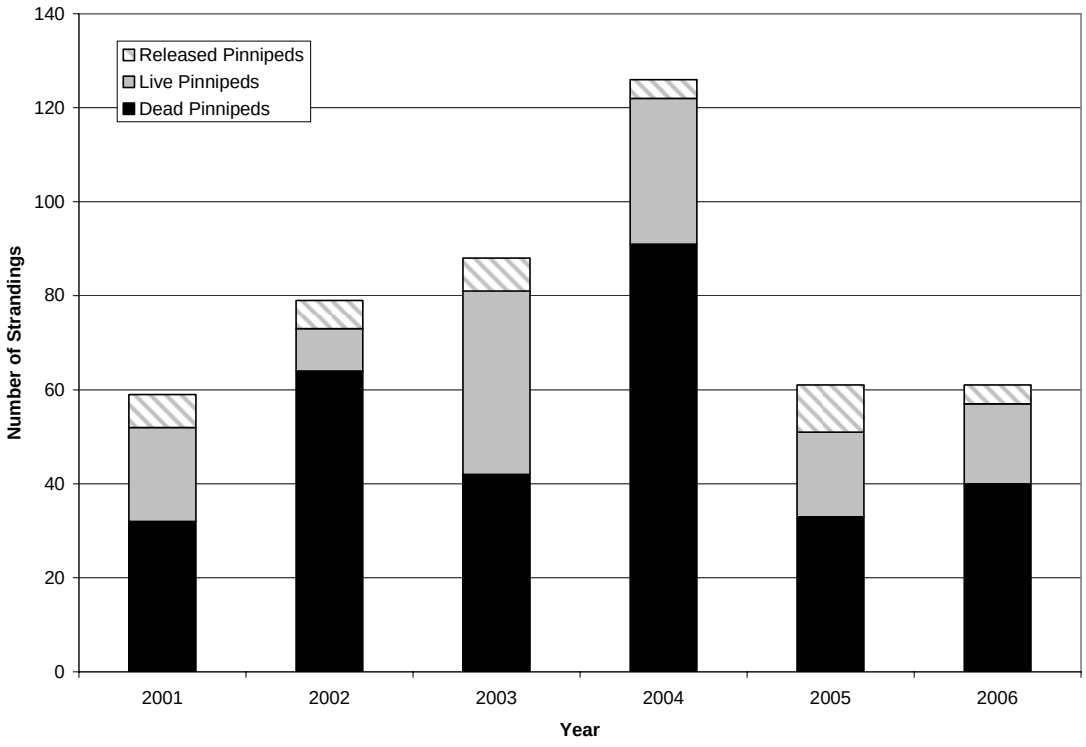

Figure 3-12. Alaska Region Pinniped Strandings 2001-2006

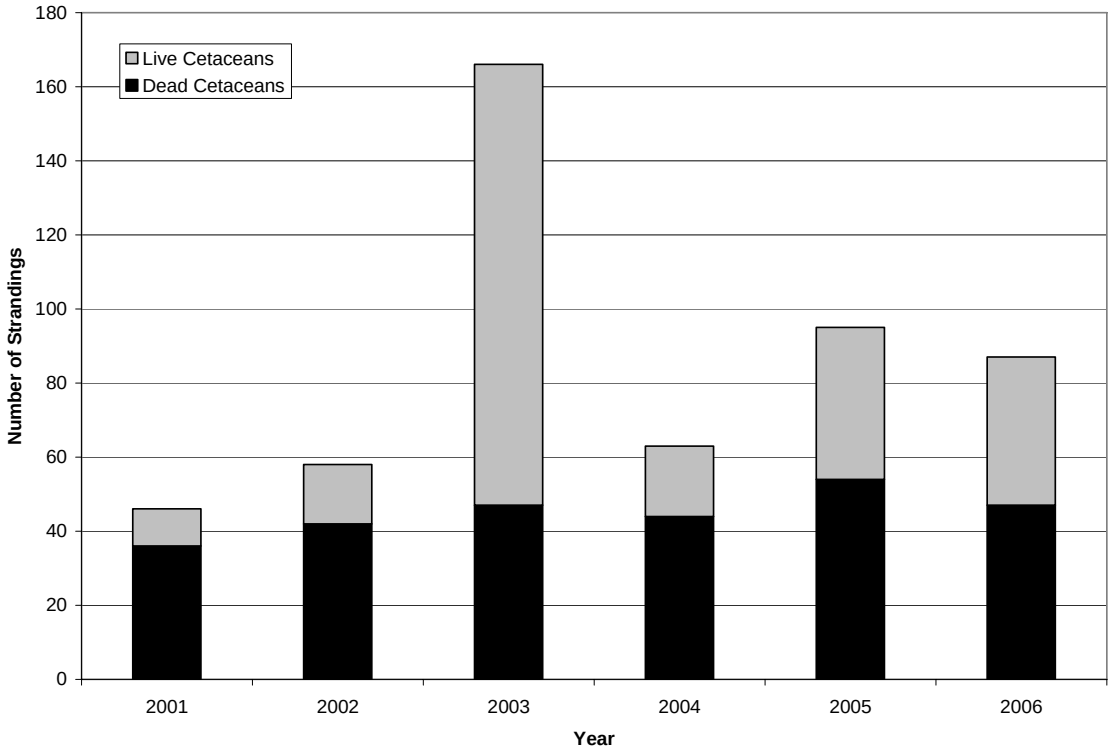

Figure 3-13. Alaska Region Cetacean Strandings 2001-2006

Mass Strandings. Cook Inlet beluga mass strandings, as related to tides, were reported three times in 2000 (two unconfirmed reports) and five times in 2003 (two unconfirmed reports), with a best estimate of 20 animals per event. In 2006 there were six polar bear mortalities. Mass walrus mortalities are occasionally reported at Alaska terrestrial haul-outs. In 2005, about 30 walruses died from terrain falls at Cape Pierce in the Togiak National Wildlife Refuge. Trampling deaths have been reported in the Punuk Islands near St. Lawrence Island.

Human Interactions. Documented human interactions for stranded animals include boat strikes and fisheries interactions. From 2000-2004, an average of seven humpback whale entanglements were reported annually. This number increased to approximately 22 in 2005 and 15 in 2006. Some of these entanglement events may be the result of increased reporting awareness or re-sightings of the same animal. However, the number of entangled humpback whale reports appears to be increasing. During this time, several bowhead and gray whales were also reported entangled. Several boat strike reports involving humpback whales are reported annually. Numerous cases of Steller sea lion fishery interactions are reported annually. These cases include animals that have swallowed hooks, flashers, and lures; animals with packing bands around their necks; and animals wrapped in net or other fishery

related material. From 1996-2000, the estimated mean mortality of walruses from fisheries activities was 1.2 walrus per year.

Temporal Changes. Most stranding reports of NMFS marine mammal species are received during the warmer months (May-October). No reported strandings of NMFS species appear to be from temporal or ice changes. Polar bear and Pacific walrus strandings would be most likely attributed to changing sea ice habitat and could occur year round. The most critical times for polar bears would likely be in the spring, soon after cubs are born, through the fall. For Pacific walrus, the critical time for young animals and calves would be during the late spring-early summer when the female and calves follow the ice pack north.

Marine Mammal Population Changes. Some marine mammal populations are increasing, including: the Central North Pacific stock of humpback whales, bowhead whales, the eastern population stock of Steller sea lions, and Bristol Bay beluga whales. Harbor seal populations have experienced declines in parts of Alaska, notably the Aleutian Islands, Prince William Sound, and Glacier Bay. Cook Inlet belugas were designated as depleted on May 31, 2000 (65 FR 34590) and endangered on October 22, 2008 (73 FR 62919). Surveys on Cook Inlet belugas from 1999-2008 have demonstrated a decline of 1.5 percent per year (NMFS 2008c). AT1 killer whales were designated as depleted on June 3, 2004 (69 FR 31321). Northern fur seals, which were designated as depleted on May 18, 1988 (53 FR 17888) are not recovering and continue to decline. The size and trend of the Pacific walrus population are currently unknown. Population point estimates from 1975-1990 ranged between 202,039 to 246,360 walruses, but were not precise enough to accurately reflect trend. The Southern Beaufort Sea population and Chukchi/Bering Seas populations of polar bear are thought to be declining.

UMEs. A northern sea otter UME was declared in Alaska on August 24, 2006 for elevated levels of sea otter mortality since 2002, with the majority of deaths in 2005 and 2006. A significant and unusual pathology, *Streptococcus bovis* endocarditis/septicemia was reported in approximately 43 percent of these animals.

NMFS Pacific Islands Region. Twenty-three marine mammal species have the potential to occur in the Pacific Islands Region (Appendix E, Table E-19) (Geraci and Lounsbury 2005). No threatened species occur in the region. Endangered species include the Hawaiian monk seal and humpback, sperm, and fin whales. All endangered species are listed as depleted under the MMPA. Critical habitat for the Hawaiian monk seal is designated and is defined as all beach areas, sand spits, and

islets (including all beach crest vegetation to its deepest extent inland), lagoon waters, and inner reef waters. Critical habitat also includes ocean waters out to a depth of 20 fathoms around Kure Atoll, Midway Islands (except Sand Island and its harbor), Pearl and Hermes Reefs, Lisianski Island, Laysan Island, Maro Reef, Gardner Pinnacles, French Frigate Shoals, Necker Island, and Nihoa Island (53 FR 18998).

The only pinniped species to naturally occur in the Hawaiian Islands is the Hawaiian monk seal. Hawaiian monk seals rest and pup on beaches in the main Hawaiian Islands, and may mistakenly be reported as being stranded. However, a total of 10 sick and injured (stranded) monk seals were reported from 2000-2004, and 8 of these animals were found dead. Rarely, elephant seals may also be found stranded in the main Hawaiian Islands. Figure 3-14 depicts the number of reported pinniped strandings in the Pacific Islands Region from 2001-2006. No pinnipeds were sent to public display facilities during this period.

The most common cetacean species to be reported stranded are humpback whales, sperm whales, spinner dolphins, spotted dolphins, and striped dolphins. Infrequently reported cetacean species include bottlenose dolphin, rough-toothed dolphin, pygmy sperm whale, dwarf sperm whales, pilot whales, false killer whales (*Pseudorca crassidens*), melon-headed whales, beaked whales, and killer whales. Approximately four large whales are reported stranded each year, with most of the strandings occurring during the humpback whale mating and calving season (November to April). Figure 3-15 depicts the number of reported cetacean strandings in the Pacific Islands Region from 2001-2006. No cetaceans were sent to public display facilities during this period.

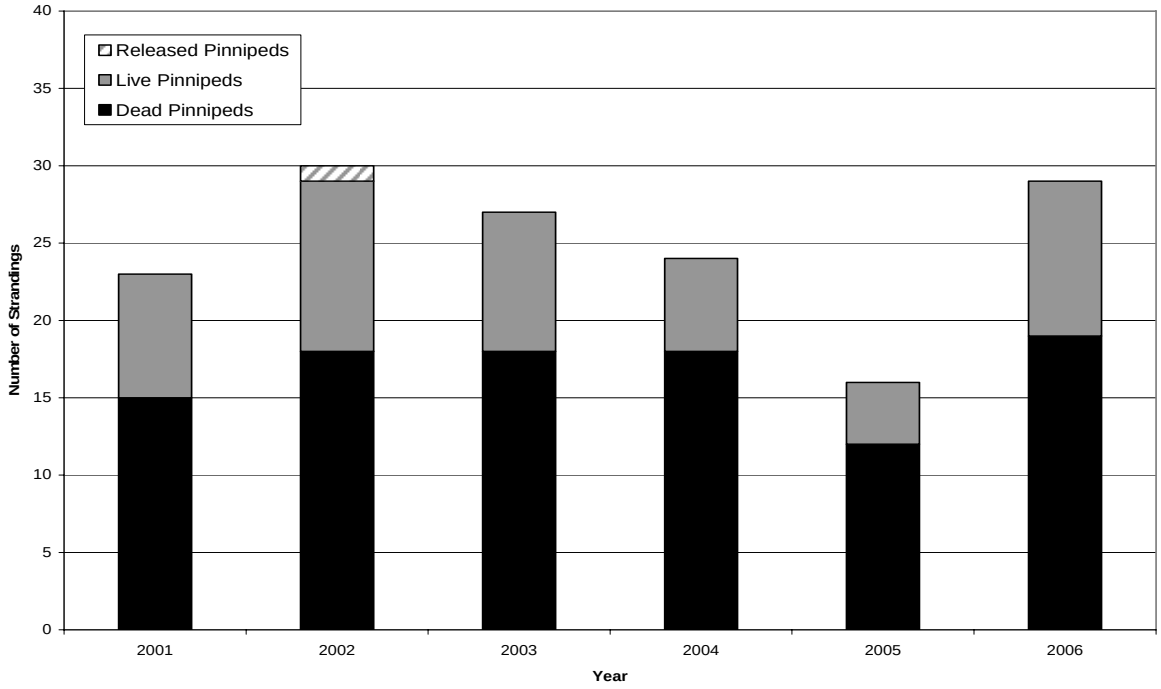

Figure 3-14. Pacific Islands Region Pinniped Strandings 2001-2006

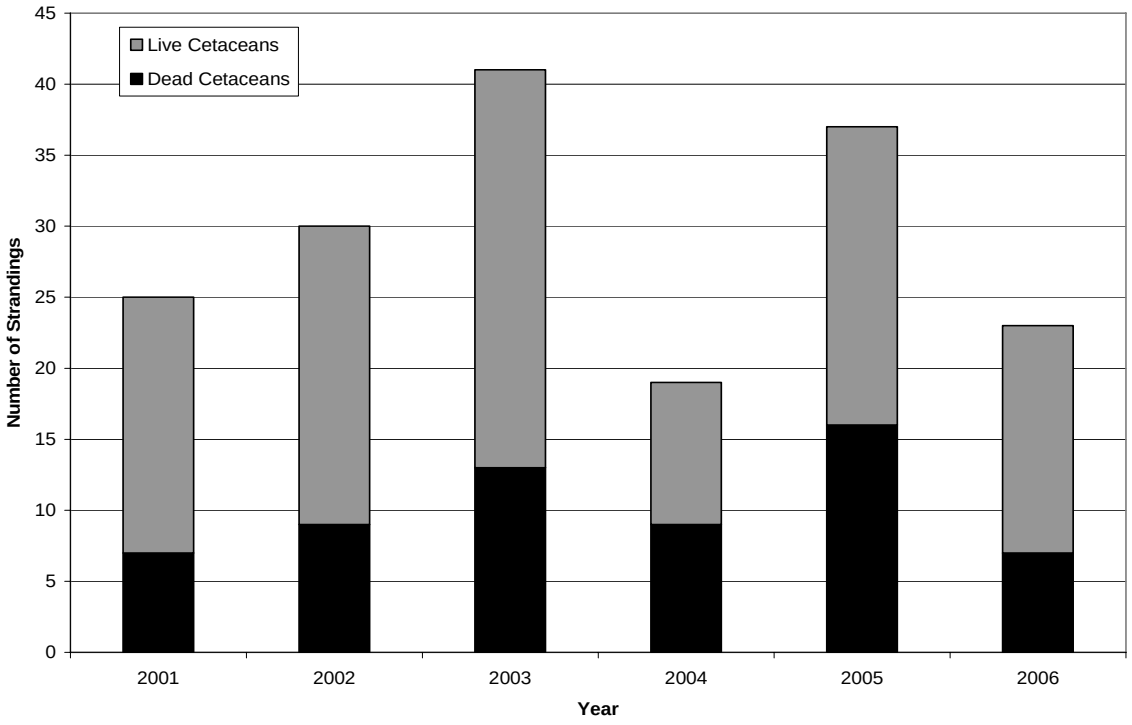

Figure 3-15. Pacific Islands Region Cetacean Strandings 2001-2006

Mass Strandings. Mass strandings are rarely recorded in the Pacific Islands Region. However, in 2004 a group of 150-200 melon-headed whales were reported close to shore inside Hanalei Bay on the island of Kaua'i. These animals milled in shallow water for several hours and only returned to deep water after human intervention. The local citizens constructed a *lau* (a floating strand of woven vines) and used it to herd the animals out of the Bay.

Human Interaction. On average, four monk seals are reported hooked or entangled in fishing gear or marine debris. Documented human interactions with large whales include boat strikes and fisheries interactions. Humpback whales have been reported entangled in fishing gear, with an average of four entanglements per year.

Temporal Changes. No temporal changes have been noted in the Pacific Islands Region.

Marine Mammal Population Changes. The Hawaiian monk seal population has been declining at an average of 3.8 percent per year since 1998. The population is well below historical levels and has not recovered from past declines. Since 2000, there has been a general decline in both abundance and juvenile survival at Pearl and Hermes Reef, Midway Atoll, and Kure Atoll. The main Hawaiian Islands population may be increasing, but this has not been confirmed and the abundance appears to be too low to influence the current total population numbers (Carretta *et al.* 2007).

UMEs. A monk seal UME occurred from 2001 to 2002 due to starvation (NMFS 2008b).

3.3 Water and Sediment Quality

3.3.1 Definition of the Resource

Water quality is defined as the biological, chemical, and physical properties of a waterbody that determine it's suitability for human use or for its role in the ecosystem. In coastal environments water quality is influenced by river drainage, erosion, and atmospheric deposition (*e.g.*, precipitation and dust). Human activities affect water quality through nonpoint source runoff, pollutant discharges, dumping, hazardous material spills, and air emissions. Water quality is determine through a variety of indicators, including dissolved inorganic nitrogen (DIN), dissolved inorganic phosphorus (DIP), water clarity, and dissolved oxygen. Concentrations of DIN and DIP that indicate poor condition vary according to location. Water clarity is considered poor if less than 10 percent of surface light reaches 1 m. Dissolved oxygen is considered poor if concentrations less than 2 mg/L are present. Data on water quality are mainly taken from the Environmental Protection Agency (EPA) National Coastal Condition Report II (NCCR) (EPA 2005).

Sediment quality is the ability of sediment to support a healthy benthic population and it helps to determine the ecological health of aquatic systems. Sediments provide essential habitat and food for many organisms. Activities affecting sediment quality are runoff, pollutant discharges, dumping, hazardous materials spills, and air emissions. Typical sediment contaminants include heavy metals and POPs. POPs include dioxin, Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), and pesticides. Most major harbors in the U.S. have moderate to severe sediment contamination. Sediment toxicity can be measured by conducting static toxicity tests with amphipods. Sediment contamination can be determined using Effects Range Median (ERM) and Effects Range Low (ERL) guidelines. The ERM is the median concentration of a contaminant observed to have adverse biological effects. The ERL is the 10^{th} percentile concentration of a contaminant demonstrating adverse biological effects. Sediment toxicity from organic matter can be assessed by measuring the Total Organic Carbon (TOC) content. Data on sediment quality are compiled in the NCCR (EPA 2005).

3.3.2 Affected Environment

The North Atlantic coast is the most densely populated coastal region in the U.S. The overall estuarine ecological condition is rated as poor. Twenty-seven percent of the estuarine area is impaired for aquatic life use. Thirty-one percent of the estuarine area is impaired for human use. The water quality in estuaries is considered fair to poor. The DIN rating is fair, with 11 percent having concentrations exceeding 0.5 mg/L. The DIP rating is good, with 5 percent having concentrations exceeding 0.05 mg/L. The overall rating of water clarity is fair, with 23 percent of the estuarine area in poor condition. Northeast estuaries dissolved oxygen concentrations are good. Hypoxia and anoxia were apparent in 10 percent of the estuarine area, mainly in the isolated trenches of the Chesapeake Bay (EPA 2005).

A poor sediment quality rating was given to 16 percent of estuaries on the Northeast coast Unimpaired sediments are located in the Acadian Province (with the exception of Great Bay, NH), eastern Long Island Sound, and open regions of the Delaware and Chesapeake Bays. Toxic sediments were found in eight percent of Northeast estuaries. Sediments in Cape Cod Bay, New York Harbor, and western Long Island Sound are impaired by toxicity. Sediment contamination is considered fair. Sediment around major urban areas (New York Harbor, Narragansett Bay) exceeds ERM guidelines for metals and other organic contaminants. Other contaminants exceeding ERL guidelines included nickel, mercury, arsenic, chromium, Dichloro-Diphenyl-Trichloroethane (DDT),

and PCBs. The TOC for estuaries was good and elevated TOC levels corresponded to areas with high sediment contamination (EPA 2005).

Water quality of the South Atlantic coast estuaries is affected by the increasing coastal population. Estuarine areas are in fair to good ecological condition. Twenty-three percent of the estuarine area is impaired for aquatic life and human uses. The water quality in estuaries is considered fair to good. The DIN rating is good and no estuarine areas have a DIN concentration exceeding 0.5 mg/L. DIP is considered fair, with 12 percent having concentrations exceeding 0.05 mg/L. The overall rating of water clarity is fair, with 12 percent of the estuarine area in poor condition. Dissolved oxygen concentrations are good, with only two percent of the area exhibiting hypoxia. Sediment quality in the South Atlantic coast estuaries is fair to good. Sediment toxicity, contamination, and TOC are all considered good (EPA 2005).

In Puerto Rico, the overall ecological condition of estuaries is poor. Seventy-seven percent of the area is impaired for aquatic life use. The water quality in estuaries is considered fair. DIN is considered good, with no estuaries exceeding concentrations greater than 0.1 mg/L. The DIP rating is good, with only six percent exceeding concentrations greater than 0.01 mg/L. Water clarity is fair and dissolved oxygen concentrations are good, with one percent of the areas exhibiting hypoxia. Water quality in all of Puerto Rico's shoreline waters has been assessed. Twenty-one percent of shoreline waters are impaired, 24 percent are threatened, and 55 percent are fully supporting designated uses. Sediment quality is poor in Puerto Rico, with three percent of sediment considered toxic. Sediment contamination criteria (ERM and ERL) were exceeded in 23 percent of sediments, mostly for heavy metals, pesticides, and PCBs. Sediment TOC is poor, as 44 percent of sediment had a high TOC level (EPA 2002).

The U.S. Virgin Islands surface water quality is generally good, but quality is declining due to an increase in point and non-point source discharges into the marine environment. Vessel wastes and uncontrolled runoff are major direct discharges into surface waters (VI DPNR 2001). Estuaries in the Virgin Islands have not been assessed, as these waterbodies are not considered to be true estuaries. Ninety-seven percent of the shoreline has been assessed. Four percent of shoreline waters are impaired, 10 percent threatened, and 86 percent are fully supporting designated uses (EPA 2005). Sediment quality information for the Virgin Islands is not available.

Water quality in the Gulf of Mexico is affected by the growing population along the coast. The Gulf of Mexico estuarine area is in fair ecological condition. Thirty-five percent of the area is impaired for

aquatic life uses, and 14 percent are impaired for human use. The water quality in estuaries is considered fair. DIN is considered good, with only two percent having concentrations greater than 0.5 mg/L. The DIP rating is fair, with 11 percent having concentrations exceeding 0.05 mg/L. The overall rating of water clarity is fair, with 29 percent in poor condition. Dissolved oxygen concentrations are good, with only one percent of the area exhibiting hypoxia. Coastal and deeper waters of the Gulf are degraded from spills and dumping from vessels. An area of hypoxia, located off of the Louisiana continental shelf, begins in late spring and disappears in the fall. Sediment quality in the Gulf of Mexico is fair, with less than one percent exhibiting toxicity. However, the toxicity percentage may be different, as data was missing from 38 percent of estuaries. Sediment ERM guidelines were exceeded primarily in Texas estuaries and ERL guidelines were exceeded in Mobile Bay, AL. Sediment TOC levels are considered good in the Gulf Coast (EPA 2005).

Ecological conditions in Pacific Coast estuaries are fair to poor. The water quality index for estuaries is good to fair. Poor water quality is mainly concentrated in south Hood Canal (Puget Sound) and San Francisco Bay. The DIN rating is good, with less than one percent exceeding concentrations of 0.5 mg/L. DIP is considered fair, with concentrations exceeding 0.1 mg/L in San Francisco Bay and south Hood Canal. Water clarity is considered poor, especially in San Francisco Bay. Dissolved oxygen concentrations are good and hypoxia was only exhibited in two subestuaries of Puget Sound (EPA 2005). Sediment quality in Pacific Coast estuaries is fair to poor and toxicity is poor. There are high metal concentrations in San Francisco Bay and high metal and organic contaminants in Puget Sound and Los Angeles Harbor. ERM guidelines were exceeded in San Francisco Bay for chromium, mercury, and copper. In Southern California, DDT levels exceeded ERM guidelines. One site on the Columbia River exceeded ERM guidelines for either PAHs or PCBs. Three sites in Puget Sound also exceed these contaminant criteria. Los Angeles Harbor had high concentrations of metals and PAHs. Sediment TOC is considered good to fair. Los Angeles Harbor and Big Lagoon (in Northern California) are areas with high TOC (EPA 2005).

Most of Alaska's vast coastline has not been monitored for water quality. The majority of water resources are likely in pristine condition due to its size, sparse population, and remoteness. Water quality may be impaired around urban areas and near seafood processing facilities in the Aleutian Islands (EPA 2002). Only 0.1 percent of Alaska's estuaries water quality has been assessed. Of this percentage, 89 percent are impaired and 11 percent are fully supporting designated uses. Only 0.1 percent of the Alaska shoreline has been assessed. Thirty-six percent of the assessed shoreline water is impaired. Sixty-four percent of shoreline water is fully supporting designated uses (EPA 2005).

An overall assessment of Alaska's sediment quality has not been conducted. Harbors and bays have the potential to contain toxic sediments contaminated with PCBs, lead, dioxin, and petroleum products.

Hawaii does not have a comprehensive coastal monitoring program. Water quality in Hawaii is variable, depending on storm water runoff. Storm water runoff decreases water quality as it carries pollutants into estuaries and coastal waters. Most industrial facilities and wastewater treatment plants discharge into coastal waters. Turbidity, nutrients, and pathogens from nonpoint source pollution also affect Hawaii's water quality (EPA 2002). Water quality has been assessed in 99 percent of Hawaiian estuaries. Of this percentage, 57 percent is impaired and 43 percent is fully supporting designated uses. Eighty-three percent of shoreline waters have been assessed. Two percent of shoreline waters are impaired, 1 percent is threatened, and 97 percent is fully supporting designated uses (EPA 2005). An overall assessment of Hawaii's sediment quality has not been conducted.

Guam's marine waters and bay sediments are generally free of pollutants, except in areas of localized pollutant runoff or where discharges from land or vessels occur. The deep surrounding seas rapidly dilute pollutant discharges (GEPA 2000). Of the bays assessed for water quality, three percent supported aquatic life and 65 percent supported swimming. Pollutants impacting water quality in these areas include pathogens, metals, suspended solids, urban runoff, and municipal facilities. The main cause of pollution in shoreline waters are microbial organisms (EPA 2002). Sediment quality has been assessed for four of Guam's main harbors: Agana Boat Basin, Outer Apra Harbor, Agat Marina, and Merizo Pier. Overall the sites were relatively clean, including deeper water sediments. Most sites had high levels of copper, zinc, lead, and tin. Apra Harbor had the highest levels of these contaminants as well as PCBs and PAHs (GEPA 2000).

Water quality in American Samoa is generally in good condition. Poor water quality conditions exist in populated areas where nutrient enrichment from human and animal wastes occurs. Heavy rains can bring sediments to coastal waters, a result of improper land use practices. Water and sediment quality in Pago Pago Harbor are in poor condition. Fish and substrates are contaminated with heavy metals, pesticides, and other pollutants. Previously, nutrient loading from cannery wastes caused algal blooms and fish kills. Wastes are now being dumped beyond the inner harbor (Craig 2002). Of the ocean shoreline assessed, 14 percent was impaired for aquatic life support. Fish consumption and swimming uses were impaired in 100 percent of the assessed shoreline (EPA 2002). Sediment quality information for the American Samoa is not available.

In the southern islands of CNMI, coastal water quality is impacted by sewage outfalls and overflows, septic systems, dredging, excess nutrients, and urban runoff. Sedimentation from unpaved roads and development increases turbidity in nearshore waters during heavy rains. High nutrient levels have negatively affected coral reefs and lagoons. Water quality data was collected in 2005 on Saipan, Tinian, Rota, and Managaha. In Saipan, 34 percent of coastal waters were non-supportive and 36 percent were fully supportive of recreational uses. In Tinian and Rota, 64 percent were fully supportive of recreational uses, and no areas were non-supportive. All waters assessed on Managaha were fully supportive of recreational uses. Water quality near coral reefs was also monitored in 2005. Twenty-eight percent of assessed waters were non-supportive of aquatic uses. Forty-eight percent were fully supportive of aquatic uses (Castro *et al.* 2006). Sediment quality information for CNMI is not available.

3.4 Cultural Resources

3.4.1 Definition of the Resource

Cultural resources are prehistoric or historic remains, artifacts, or indicators of past human activities and accomplishments. They include "historic properties," defined as prehistoric or historic sites, buildings, structures, or objects listed or eligible for listing on the National Register of Historic Places (NRHP). Artifacts, records, and physical remains associated with historic properties may be considered cultural resources (NRCS 2006). Other types of cultural resources include cultural or religious practices and Traditional Cultural Properties (TCPs). TCPs are properties associated with cultural practices or beliefs of a living community that are important in maintaining the continuing cultural identity of the community (Parker and King 1998). Examples of TCPs include: Native American ceremonial locations; urban neighborhoods that are the traditional home of a particular cultural group; and locations associated with the traditional beliefs of a Native American group.

NEPA and CEQ regulations require Federal agencies to consider potential impacts on the "human environment," which is defined as "the natural and physical environment and the relationships of people to that environment" (40 CFR 1508.14). Therefore, a Federal action must be analyzed for probable impacts on the cultural aspects of the human environment. The National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects of their actions on historic properties (16 U.S.C. 470 et seq.). The Archeological and Historic Preservation Act requires Federal agencies to report any perceived impacts their actions may have on historical or archaeological data (including relics and specimens) (16 U.S.C. 469a et seq.). The Native American Graves Protection

and Repatriation Act requires the identification and appropriate disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony that are excavated on purpose or discovered inadvertently on Federal or tribal lands (25 U.S.C. 3001 et seq.).

3.4.2 Affected Environment

Prehistoric sites on land include shell middens, lithic scatters, habitation sites, burials, and ceremonial sites and sacred sites of early Native American populations. Other Native American cultural remains include domestic artifacts, stone tools, ivory objects, woven fishing nets, fiber-tempered pottery, masks, pictographs, and petroglyphs. Petroglyphs have been found on prominent boulders along the shoreline in Washington State (Stilson *et al.* 2003).

In some coastal areas of the U.S., Native American tribes and other aboriginal peoples maintain strong cultural and subsistence ties to the environment and living natural resources, including marine mammals. This rich heritage may be traced to pre-history through art, language, tradition, or social customs. Native American villages located on the Pacific Coast depended on salmon, shellfish, and marine mammals for subsistence and cultural purposes. Whaling and sealing played a large role in the culture of tribes, including the Makah Tribe in Washington. The Makah hunted whales and used drift or stranded whales for subsistence uses, including food, tools, and trade. In the Pacific Northwest, Native American lands, trust resources, and tribal rights have been secured through treaties, statutes, judicial decisions, and EOs. NMFS administers its trust responsibilities, with respect to treaties, through government-to-government relationships with tribes. Present coastal tribes in Washington continue to use coastal resources for subsistence, ceremonial, and commercial activities. Important ceremonial resources include oysters, crabs, clams, salmon, bottomfish, kelp, seaweeds, sea urchins, and sea birds (OCNMS 1993).

Alaska Natives use marine mammal parts for cultural handicrafts and harvest marine mammals for subsistence. The Inuit people of Arctic Alaska currently hunt ribbon seals (*Phoca fasciata*), ringed seals (*Phoca hispida*), bearded seals (*Erignathus barbatus*), spotted seals (*Phoca largha*), bowhead whales, gray whales, walrus, and polar bears. Alaska natives also harvest beluga whales in the Bering, Chukchi, and Beaufort Seas and Cook Inlet. Harbor seals are currently harvested throughout their range by coastal Alaska Natives. Northern fur seals are hunted in the Pribilof Islands. There is also a limited harvest of Steller sea lions and sea otters. Under the MMPA (Section 119), NMFS enters into cooperative agreements with Alaska Native organizations to co-manage subsistence and conserve marine mammals, including ice seals, harbor seals, fur seals, beluga whales, and bowhead

whales. Co-management agreements help meet species protection and recovery goals under the ESA and MMPA, while sustaining the traditional livelihoods of Alaska Natives. Alaska Native organizations also participate in marine mammal research and monitoring efforts.

Prehistoric sites are prevalent in the Pacific Islands. Guam coastal areas include latte stones and ancient Chamorro artifacts. Latte stones were pillars which ancient Chamorro houses were built upon. Latte stones are inserted in sand containing fragments of pottery, shells, fish bones, charcoal, stone and shell tools. Burials in sand-lined pits have also been found near or under Latte stones. In American Samoa, habitation sites are expected to be located in coastal areas. Material remains found at these sites may include Lapita pottery, basalt flakes and tools, volcanic glass, shell fishhooks, shell ornaments, and faunal remains. Archaeological evidence indicates that early sites may be found on the shores of prehistoric embankments that have been filled in with sand. Remains of prehistoric villages may be visible on the surface, but many are buried underground (ASHPO 2006). Underground remains of prehistoric sites are also present in CNMI. Remains of Latte villages can be found on CNMI coastal stretches and may include petroglyphs and Latte stones.

Archaeological sites in Hawaii include burial sites and TCPs. TCPs include volcanic cones, landforms associated with deities, and submerged coral formations which were once fishing locations. Habitation sites, burials, religious structures, and fishponds are present along the shoreline. Most sites are above the high-water mark and may be buried underneath the sand of many beaches. The largest known concentration of native Hawaiian burials is located on the Mokapu Peninsula, Oahu. This dune complex has been listed on the NRHP. The site was excavated for military purposes from 1938-1940 and reburial efforts are being conducted (Cleghorn 2001). Archaeological historic sites below the high-water mark are typically fishponds, but anchor holes and petroglyphs have been documented. Most archaeological sites and TCPs in Hawaii have not been surveyed. It is likely that most coastline areas contain historic sites and resources (USCG 1999). In the Northwestern Hawaiian Islands, Nihoa and Necker Islands are both listed on the NRHP for their ceremonial and religious usage by Native Hawaiians.

Many historic resources in the action area are listed on, or eligible to be listed on, the NRHP. These include lighthouses, ports, docks, coastal forts, and shipwrecks. The majority of historic sites in the Pacific Islands are areas from World War II. In American Samoa, Guam, and CNMI Japanese pillboxes and other coastal defenses can be found along the coastline. On CNMI, a mass grave of Japanese and U.S. military forces killed during battle is located on the coast (Cabrera 2005). Many shipwrecks are grounded on beaches throughout CNMI (CNMI 2001).

Submerged cultural resources include inundated archaeological sites, Native American artifacts, shipwrecks, and aircrafts. Native American artifacts include canoe runs, canoes, fish weirs, and petroglyphs (Stilson *et al.* 2003). Inundated archaeological sites found in nearshore areas include fishing weirs, bowls, donut stones, prehistoric stone anchors, historic metal anchors, and the remains of landings and wharfs. There is the potential for prehistoric sites offshore, where areas of the continental shelf were once shoreline. Archaeological surveys have not been conducted in most of these areas. American tanks that did not make landfall in CNMI sit in reef waters next to beaches (Cabrera 2005).

3.5 Human Health and Safety

3.5.1 Definition of the Resource

A human health and safety risk is any hazardous, unhealthy, or unsanitary condition causing, or capable of causing, an unreasonable threat to the health, safety, and welfare of persons living or working in the vicinity of such condition. Human health and safety risks are present during response, rehabilitation, release, disentanglement, and research activities. Possible concerns for workers include physical injury, illness, exposure to contaminants, and ocean conditions. The Occupational Safety and Health Administration (OSHA) sets standards to assure safe and healthy working conditions and prevent work-related injuries and illnesses. OSHA requires employers to have health and safety plans. Employers must also maintain accurate records of employee work-related injuries, illnesses, deaths, and exposure to toxic materials or harmful physical agents. OSHA has laboratory standards for air contaminants and the risk of exposure to hazardous chemicals.

Human health and safety risks may also affect the general public during normal beach and ocean activities, such as swimming, boating, and surfing. Possible concerns are drowning, illness, contact with marine animals, and exposure to contaminants.

3.5.2 Affected Environment

3.5.2.1 Marine Mammal Worker Safety

Stranding Response. For authorized persons responding to strandings, hazards include physical injury, marine debris, zoonotic diseases, contaminant and toxin exposure, and exposure to the elements. In a survey of marine mammal workers, over half (54 percent) of the 483 respondents reported having at least one injury or illness believe to be the result of direct contact with marine mammals. Most injuries were cuts, scrapes, bites, and rashes (Mazet *et al.* 2004). Physical injuries

may occur from the stranded marine mammal. Stranded whales may thrash their flukes or roll over onto a person. Pinnipeds may attack and inflict serious bites that could become infected. Chemical exposure may occur if personnel are in contact with euthanasia solutions or other drugs. Other physical injuries include cuts from bone fragments and instruments. Lifting and rolling large animals and the use of heavy equipment can cause strains and bruises. Wet conditions can lead to slips, trips, falls, and possible drowning. Drowning is a risk during water rescues, especially if heavy surf conditions, dangerous undertows, or rip currents exist. Rescuers can become entangled in lines and nets used during water rescues, increasing the risk of drowning or other physical injury. The beach composition (fine sand, mud, cobble, boulder, etc.) can increase the difficulty of responding to strandings and may increase the risk of physical injuries.

Marine debris is a hazard during stranding responses. Workers may be injured by stepping on broken glass, rusty metal, needles, or other litter. Workers could become entangled in derelict fishing gear during water responses. Workers may also come into contact with contaminated debris, including medical wastes and sewage.

Reports of human illnesses from contact with marine mammals are rare, but have occurred. Marine mammals may carry infectious zoonotic diseases that may be transmitted to humans. Pathogens may be transmitted through direct contact with tissues, body fluids, or aerosols of the infected animals. These pathogens include, but are not limited to, *Mycoplasma* spp. (seal finger), *Mycobacterium* spp., *Erysipelothrix* sp., *Leptospira* sp., *Brucella* spp., seal poxvirus, and calicivirus. Seal finger typically occurs after a pinniped bite and can cause swelling and severe pain, especially in the joints of the hands. Seal poxvirus can cause painful skin lesions that may last up to a year. Leptospira can produce chills, headaches, myalgia, and eye pain in humans. Other organisms that infect marine mammals and could affect humans include *Salmonella* spp., *Vibrio* spp., *Clostridium* sp., parasites, and fungi (Mazet *et al.* 2004, Cowan *et al.* 2001). In the survey by Mazet *et al.* (2004), respondents reported dangerous infections, including tuberculosis, leptospirosis, and brucellosis.

Marine animals in the water are a safety concern for marine mammal workers. Handling or stepping on coral can lead to cuts which may become infected. Jellyfish, including Portuguese man o'war, stings may cause minimal damage or fatal injuries. The defense mechanism of venomous fish (rays, scorpionfish, lionfish, etc.) can lead to bite or puncture wounds. Shark attacks are possible during response activities if workers are entering the water. Shark attacks are prevalent in U.S. coastal waters, with over 490 attacks since 1990. Of this number, 322 attacks have occurred in Florida; 53 in Hawaii; and 35 in California (FLMNH 2005).

Stranding responders may also be exposed to biotoxins from HABs. Most biotoxins are only a risk if contaminated seafood is consumed, except for brevetoxins. Aerosolized brevetoxins may be inhaled by humans and can cause respiratory problems, nausea, vomiting, and neurological symptoms. Responding to marine mammals contaminated with oil or other materials may cause lightheadedness; nausea; and eye, skin, and respiratory irritation (Geraci and Lounsbury 2005).

Stranding responders are exposed to the elements and may suffer from sunburn, heat exhaustion, and heatstroke. Symptoms of heat exhaustion and heatstroke include profuse sweating, muscle cramps, nausea, dizziness, fever, and unconsciousness. Hypothermia may occur in cold weather and if responders are in cold water for long periods of time. Symptoms of hypothermia include weakness, drowsiness, confusion, uncontrollable shivering, and cold, pale skin.

Disentanglement. Safety issues that may arise during disentanglement activities on water are related to aircraft operations, boating operations, the entanglement, physical and chemical restraint of the animal, and weather conditions. Safety hazards during aerial surveys to locate animals include collisions with another aircraft or a fixed object, mechanical failure, and crashes due to inclement weather conditions.

During disentanglement operations, boating accidents may include collisions with another vessel or a fixed object, capsizing, a person falling overboard, and drowning. The risk of an accident may increase if boats come too close to the tail of the whale or if nets and lines foul the boat's propeller. Pursuit of an entangled animal, rough seas, inclement weather conditions, and nightfall all increase the risk of a boating accident. Persons onboard have the potential to become entangled in nets, ropes, or buoys attached to the animal, increasing the risk of falling overboard.

Physical injuries from disentanglement activities, both in water and on land, include bites from entangled animals, bruises, dislocations, and broken bones. Cuts may occur from instruments used to disentangle the animal. Other physical injuries may occur from contact with marine debris. Chemical exposure is possible during the administration of drugs for restraint, treatment, or euthanasia.

Rehabilitation. Safety risks relative to rehabilitation include physical injury; zoonotic diseases; and contaminant, toxin, and chemical exposure. Rehabilitation personnel may incur physical injuries such as slips, trips, and falls from wet conditions around animal pools and pens. Lifting or moving animals may cause strains and bruises. Injuries to personnel working with animals in pools and pens include

bites, bruises, and drowning. Exposure to zoonotic diseases, contaminants, and toxins are potential risks to all personnel handling animals. Animal handlers in pools would be exposed to water contaminated with urine and feces. Chemical exposure is possible during the administration of drugs, including euthanasia solutions.

Release. Release activities may cause strains, bruises, animal bites, or more severe physical injuries from moving animals for transport. Exposure to liquid nitrogen may occur during freeze branding procedures. During vessel releases, physical injuries could occur as a result of vessel collisions, capsizing, inclement weather, and rough waters. Sunburn, heat exhaustion, heat stroke, and hypothermia are possible, if release activities require people to be outside for extending periods of time. Physical injuries may occur from contact with marine debris.

Research. Research activities conducted under the MMHSRP may occur in a laboratory and in or on the water. Safety issues in research laboratories include exposure to hazardous chemicals, flammable solvents, cryogenic liquids, air contaminants, biological agents, and UV radiation. Physical injuries such as cuts, punctures, bruises, and burns may occur while using laboratory equipment and materials.

Research activities conducted in the water would typically be health assessment captures and releases. Risks include entanglement in nets, drowning, exposure to zoonotic diseases, cuts from instruments, accidental needle sticks, and injuries from freeze branding. Sunburn, heat exhaustion, and heatstroke may also occur, with symptoms including profuse sweating, muscle cramps, nausea, dizziness, fever, and unconsciousness. Hypothermia may occur in cold weather and if researchers are in cold water for long periods of time. Symptoms of hypothermia include weakness, drowsiness, confusion, uncontrollable shivering, and cold, pale skin. Jellyfish, sting rays, other venomous fish, and sharks all pose threats to researchers in water. Physical injuries could occur as a result of vessel collisions, capsizing, inclement weather, rough waters, and contact with marine debris. Slips, trips, and falls would also be hazards during research activities.

3.5.2.2 Public Safety

Public health and safety issues during recreational activities in the action area include pollution, marine debris, HABs, marine animals, marine debris, surf conditions, exposure to the elements, and boating operations.

A major public health concern in recreational waters is pollution. Pollutants entering the water include sewage, trash, medical wastes, oil or chemical spills, stormwater runoff, and boating waste. In 2004, sewage spills and overflow closed beaches for a total of 1,319 days. Stormwater runoff closed beaches for 4,144 days. These pollutants can contaminate the water with toxins, heavy metals, pesticides, bacteria, and viruses. Microbial infections include gastroenteritis, salmonellosis, shigellosis, giardiasis, skin rashes, and pinkeye. In 2004, beach advisories or closures occurred for approximately 14,615 days due to elevated bacteria levels. Viral infections can cause hepatitis; gastroenteritis; respiratory illness; and ear, nose, and throat problems (NRDC 2005). Marine debris is often found on beaches and the ocean floor. Beachgoers may be injured by stepping on broken glass, rusty metal, needles, or other litter or come in contact with contaminated debris. Swimmers and divers may get entangled in derelict fishing gear.

Beaches may also be closed during a HAB event. Typically biotoxins from HABs are only hazardous if contaminated seafood is consumed. Inhalation of aerosolized brevetoxins can cause respiratory irritation, nausea, and neurological problems.

Human interactions with stranded marine mammals are public health risks. As mentioned above, stranded animals can thrash around, roll onto, and attack humans. Consumption of marine mammals, which currently occurs in Alaska, may also be hazardous if animals have environmental contaminants or diseases. Zoonotic diseases can be passed if a person comes into contact with the animal or its body fluids. Coral, jellyfish, venomous fish, and sharks are marine animals that humans may encounter during recreational activities.

Surf conditions include strong currents, rip currents, dangerous shorebreaks, and large and/or high waves. Hazardous surf conditions can cause injuries and drowning. Exposure to the elements can lead to sunburn, heat exhaustion, heatstroke, or hypothermia.

Boating operations include motorboats, sailboats, personal watercraft (jet skis), and kayaks. In 2004, the top five types of recreational boating accidents were: collision with a vessel; collision with a fixed object; falls overboard; capsizing; and skier mishap. The causes of boating fatalities are drowning, trauma, and hypothermia. Contributing factors to accidents are reckless operations, excessive speeds, hazardous waters, alcohol use, operator inexperience, and machinery system failure. Most accidents occurred during fishing activities and waterskiing or tubing activities (USCG 2005).

3.6 Socioeconomics

3.6.1 Definition of the Resource

Socioeconomics are defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Population levels are determined by regional birth and death rates, as well as immigration and emigration. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. The alternatives would not affect population levels within the action area; therefore this information will not be discussed. Important economic activities in the coastal regions of the U.S. include commercial, recreational, and subsistence fisheries; tourism; and other recreational activities. Other recreational activities conducted include clamming, beachcombing, surfing, boating, and planned events (festivals, sport tournaments, etc.). The alternatives have the potential to economically impact the MMHSRP rehabilitation facilities. Therefore, current costs of maintaining these facilities are discussed.

EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, requires Federal agencies to identify and address any disproportionately high and adverse human health or environmental effects their actions may have on minority and low-income populations. The alternatives are largely based upon marine mammal strandings and entanglements. Strandings and entanglements cannot be predicted and may occur anywhere on the coasts or in waters of the U.S. Potential effects of the alternatives would not occur with greater frequency for minority and low-income populations than for the general population as a whole. No environmental justice impacts would be expected from the alternatives and therefore will not be discussed further.

3.6.2 Affected Environment

Economic activities in coastal regions likely to intersect with one or more activities covered under this PEIS include industries encompassing stranding network participants (*e.g.*, zoos and veterinary services) and tourism industries. Basic information for the relevant industries was obtained through the U.S. Economic Census. The information provided includes revenues, number of establishments, and number of employees by coastal states and territories (or if data was available at the county level, by aggregating data by coastal counties). Tabulations of this information are provided in Appendix M.

Existing and potential members of the stranding network (and those who provide services to the network) are likely to fall into either two categories: zoos/botanical gardens and veterinary services.

The zoos and botanical gardens industry category is comprised of establishments primarily engaged in the preservation and exhibition of live plant and animal life and animal life displays, including aquaria. Since numerous SA holders are non-profits, statewide information for zoos and botanical gardens were also provided for those facilities with federal tax-exempt status. The veterinary services industry category is comprised of establishments of licensed veterinary practitioners primarily engaged in the practice of veterinary medicine, dentistry, or surgery for animals, as well as establishments primarily engaged in providing testing services for licensed veterinary practitioners. Summary information by state for these two industry categories are contained in Appendix M. The information for these industry categories include activities for the entire state, since some stranding activities related to those covered under the PEIS may occur further inland.

Tourism industries which may be affected by the various activities in this PEIS include lodging and restaurants located adjacent to stranding activities. Since marine mammal stranding events occur in the water or on the beach, tourism-related businesses that are likely to be affected are those located on or near the ocean; therefore summary statistics for lodging and restaurants located in coastal counties are reported. Appendix M contains combined summary information for lodging and restaurant industries located in coastal counties. Lodging includes hotels, motels, bed and breakfasts, recreational vehicle parks, campgrounds, recreational camps and vacation camps. The restaurant category includes full-service restaurants, limited-service restaurants, cafeterias, snack bars, and bars.

Stranding responses are usually short-term events. Most stranding responses last for a day. Responses to mass strandings of live animals may take several days. In tourist-based coastal economies, the economic input of stranding responders will be minimal and undetectable in regional economic statistics.

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4. Environmental Consequences

4.1 Introduction

This section evaluates the potential direct and indirect environmental and socioeconomic impacts of the alternatives. Table 4-1 lists the alternatives considered in detail and their descriptions. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are reasonably foreseeable effects caused by an action, but occur later in time or farther removed in distance from the action. CEQ regulations define the significance of impacts in terms of context and intensity. Context refers to the geographic area of effect, which varies with the setting of the alternatives and with each resource area being analyzed. Intensity refers to the severity of the impact and considers whether the effect would be negligible, minor, moderate, or major. Negligible impacts would not be detectable and would have no discernible effect. Minor impacts would be slightly detectable and would not be expected to have an overall effect. Moderate impacts would be clearly detectable and could have an appreciable effect. Major impacts would be clearly detectable and would have a substantial, highly noticeable effect. Duration, short-term or long-term, must be considered in the assessment of the environmental impacts. Short-term impacts are temporary and would generally end once the proposed activities have stopped. Long-term impacts are typically those effects that would last several years or more or would be permanent. Impacts were also evaluated in terms of whether they would be beneficial and/or adverse.

Mitigation measures are methods to avoid, minimize, rectify, or reduce the adverse environmental impacts of an action. Mitigation measures are discussed in Section 5. These are measures that would be taken to avoid or minimize adverse effects of the proposed actions.

1 **Table 4-1. Alternatives Considered in Detail**

Alternative	Description
Stranding Agreements and Response	
Alternative A1	No Action- SAs expire, stranding response would end.
Alternative A2	Status Quo- Current SAs would be renewed, current stranding response activities continue. Final SA criteria would not be issued.
Alternative A3	SAs issued to any applicants after review, new SA template would not be utilized. Final SA criteria would not be issued. Current and future activities included.
Alternative A4 (Preferred)	Final SA criteria would be implemented, new SA template would be utilized, current and future activities included.
Alternative A5	Final SA criteria would be implemented, new SA template would be utilized, and response to threatened, endangered, or rare animals would be required.
Carcass Disposal	
Alternative B1	No Action- SAs expire, no carcass disposal would occur, carcasses would be left where stranded.
Alternative B2	Status Quo- Current methods of carcass disposal continue.
Alternative B3 (Preferred)	Status Quo with the recommendation to transport chemically euthanized animal carcasses off-site.
Rehabilitation Activities	
Alternative C1	No Action- Current SAs would expire, stranding response would cease, and animals would not be rehabilitated.
Alternative C2	Status Quo- Current rehabilitation activities would continue. Final Rehabilitation Facility Standards would not be implemented.
Alternative C3 (Preferred)	New SAs would be issued, rehabilitation activities continue. Final Rehabilitation Facility Standards would be implemented.
Alternative C4	New SAs would be issued, rehabilitation activities would continue. Rehabilitation of threatened, endangered, and rare animals would be required; response to other animals would be optional. Final Rehabilitation Facility Standards would be implemented.
Release of Rehabilitated Animals	
Alternative D1	No Action- Current SAs would expire, stranding response and rehabilitation would cease, and therefore there would be no animals to release.
Alternative D2	Status Quo- Current release activities would continue. Adaptive changes to release activities would not be permitted. Final release criteria would not be implemented.
Alternative D3 (Preferred)	New SAs would be issued, release activities continue. Final release criteria would be implemented and would include adaptive management of release activities.
Disentanglement Activities	
Alternative E1	No Action- No disentanglement network.
Alternative E2	Status Quo- Disentanglement network would continue current activities, no modifications or new members added.

Table 4-1. Alternatives Considered in Detail (continued)

Alternative	Description
Disentanglement Activities	
Alternative E3 (Preferred)	Disentanglement network would continue current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.
Biomonitoring and Research Activities	
Alternative F1	No Action- Biomonitoring and research activities would not occur.
Alternative F2	Status Quo- New ESA/MMPA permit would continue current biomonitoring and research activities.
Alternative F3 (Preferred)	New ESA/MMPA permit would be issued to include current and future biomonitoring and research activities.

4.2 Biological Resources

This section evaluates the potential impacts on biological resources as a result of the alternatives. Impacts on biological resources are evaluated in context and intensity on a population or species-wide scale. Therefore, while more significant impacts may occur on individual animals, the overall impact on the population or species may still be considered minor.

4.2.1 Stranding Agreements and Response Alternatives

4.2.1.1 Alternative A1- No Action

Under Alternative A1 stranding response from current SA (formerly LOA) holders would end once all agreements have expired. Federal (not including NMFS), state, and local agencies authorized under MMPA Section 109(h) would still be able to conduct emergency response to non-ESA listed species, and those ESA-listed species for which response is part of the 4(d) rule (see 50 CFR 223.202(b)(2)). However, response activities would likely be limited and localized in extent, and would consist mostly of carcass disposal for the protection of public health and safety. The authorized level of stranding response would greatly decrease, ESA-listed marine mammals would not be responded to, animals in peril would not be hazed away from hazards, and more animals would likely perish. These animals would be removed from the population, which might have an adverse effect on species, especially those that are depleted, threatened, or endangered. There would be a lack of detection and notification of morbidity and mortality. The valuable information on marine mammal populations, such as biology, health, and disease detection, collected during the examination of stranded animals would no longer be collected. Scientists would not be able to study why strandings occur, which could indirectly affect future marine mammal populations.

In addition, the ability of the stranding network to act as a surveillance network would be eliminated. This could result in the emergence and spread of marine mammal diseases, or the use and spread of fishery practices that were harmful to marine mammals, without any possibility for human intervention or mitigation until population-level effects were observed. At that point, it would likely be too late for any quarantine or translocation program to halt the spread of disease or for a fishery modification to occur. This could have adverse impacts on marine mammal populations, particularly those that are threatened or endangered, where the loss of a relatively small number of individuals represents a greater proportion of the species. One example would be the early detection of a disease such as *Morbillivirus* in the highly endangered Hawaiian monk seal (a naïve population). This outbreak could be mitigated by the isolation/translocation/captivity of affected individuals, but only if it was detected early in the spread of the disease, when few individuals had contracted the virus.

In addition, other environmental conditions have been first detected in marine mammals or beach-cast seabirds, including oil spills and HABS. Early detection of these circumstances also allows the potential for human intervention (finding the source of the oil spill) and reducing the overall number of affected biological resources. When a significant number of strandings occur that share the same findings of fishery interaction, this information can be used to manage the fishery to reduce the impacts on marine mammals. Gear modifications, geographic changes (area closures), and temporal changes (season dates) may all be changed so that the probability of fishery interactions with marine mammal populations (particularly those that are threatened or endangered) is reduced. The stranding network provides critical information about potential issues when first observed, which allows for response and management before the problem becomes widespread and costly or impossible to ameliorate.

No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds would be expected to occur under this alternative. Effects from leaving a carcass on the beach are described in Section 4.2.2.1, Carcass Disposal.

4.2.1.2 Alternative A2- Status Quo

Under Alternative A2, the current SAs would be renewed and current stranding response activities would continue without the issuance of Final SA criteria. Potential minor, short-term, adverse effects on all biological resources could occur from vessel and vehicle uses, but these impacts are expected to be negligible when compared to other inputs of hazardous materials from vessels, sewage outfalls, runoff, industrial operations, and other beach vehicle uses. Spills of hazardous materials or wastes

from vessels during response to free-swimming animals could impact biological resources. Some materials could be diluted quickly by currents, only causing temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer impacts. As with any activity, vehicular transport, heavy equipment, or medical equipment used during beach response activities could leak oil or other materials into sand and nearshore waters. These would likely be small amounts that would be flushed out and/or diluted rapidly, causing a minor and temporary impact.

Minor, short- and long-term adverse effects on protected and sensitive habitats could occur during response activities. Equipment used for transport or response may traverse protected habitats to access a stranded animal. An animal may be stranded in a protected habitat and equipment might be needed for the response. Response activity could damage sand dunes and associated vegetation. Equipment may also cause compaction of the beach. Response equipment could also disturb or injure nesting sea turtles, depending on the location and time of year. Disturbance of a nesting sea turtle would likely be a short-term, minor impact. Injuring a nesting sea turtle and/or their eggs could produce minor, long-term effects, as all sea turtles are endangered species.

Minor, short-term adverse effects on shellfish and other invertebrates living in the beach and intertidal environment could occur during response activities. The traversing of heavy equipment over shellfish beds could damage or kill shellfish. Digging with a shovel or spade to allow room for an animal's flukes and flippers could also damage shellfish.

Minor to moderate, short-term adverse effects on coastal and marine birds could occur during response activities. The use of equipment and the presence of people could disturb birds nesting or roosting in trees or small bushes, and may cause them to temporarily leave the area. Ground nesting birds could be adversely affected by response activities. Heavy equipment could crush nests and response personnel could disturb or damage a nest. Response activities conducted in shallow waters could disturb foraging birds. This impact would be minimal, as birds could forage in nearby areas and would likely return once response activities ended.

Live stranded animals would most likely experience stress and pain due to the stranding event itself that could be decreased or increased by stranding response activities. The effects of stranding response activities on cetaceans would depend on the condition, species, and history of the animal. An alert and responsive animal may panic when responders approach. Mothers separated from their calves may become aggressive, and members of social species may experience negative effects from

being separated from conspecifics. Debilitated animals that are weakly responsive or non-responsive animals may not physically, but may physiologically, react to responders.

Healthy animals may be released immediately from the stranding site. Tagging may occur before the release in order to monitor the animal's movements. Roto-tags would most commonly be used, but radio tags could be attached if available. During the attachment of the roto-tag, pain would only last during the application, and sedatives or local anesthetic would be used. The tag site could become infected, causing pain to the animal. Tissue damage or infection could occur when the tag is shed. For pinnipeds, animal movement may prolong or prevent healing by producing repetitive stress on the tag site. Epoxy would be used to attach radio tags to pinnipeds and should not cause pain if done properly. However, it may result in discomfort if the placement of the instrument causes pulling of the hair or skin during animal movement. In addition, if the ratio of resin and hardener is not correctly measured, the resulting heat-producing reaction could burn the animal's skin. Both the resin and hardener could cause skin irritation, such as itching, rashes, hives, and dermatitis. The instrument could be knocked or torn off, pulling out hair and possibly some of the underlying skin, which would then be open to infection.

During mass strandings, animals may be marked with a grease pen, crayon, or zinc oxide to keep track of each animal. These materials would not cause an impact on marine mammals.

Handling, lifting, and moving an animal may cause injuries to the animal, including stress and increased shock. Flippers may be crushed or the animal may overheat if stretchers do not have openings for them. Creases or seams in stretchers and transport equipment may press into the skin, causing discomfort, pain, and possible temporary or permanent injuries. Chemical immobilization of a cetacean can be life threatening, if not administered and monitored correctly. When anesthetized, an animal may go into a dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. While under anesthesia, a cetacean may develop hypothermia. If the animal is not in water, improper body support could compromise cardiac and respiratory functions (Haulena and Heath 2001). During transport to a rehabilitation facility, animals may overheat in direct sun and heat without protection. Depending on body condition, cetaceans may overheat (hyperthermia) or develop hypothermia during transport. Body surfaces may be exposed to the drying effects of air. Animals may also be knocked around, causing muscle damage or they may inhale exhaust fumes. Improper transport of cetaceans may cause abrasions, pressure necrosis, thermoregulatory problems, and respiratory problems. Muscular stiffness may occur from transport, but most accepted transport methods try to minimize or avoid this entirely. Stiffness would disappear

within a few hours to a few days, unless there was permanent muscle damage (Antrim and McBain 2001).

Beach response activities for live stranded pinnipeds would require physical capture of the animal. Captures may disrupt other animals, including conspecifics, if the capture occurs at a haul-out site or any other area where animals were located. Impacts would be expected, as non-target animals may flee into the water. Pups and young animals may be trampled or abandoned. Juvenile and adult animals may be trampled and killed during stampedes or injured on rocks and cliff faces. If animals were not injured, impacts would be minor and short-term as animals would likely return once responders have left. Handling and restraint, if not properly executed, may further injure or kill a pinniped (*e.g.* suffocation under the weight of a handler). Chemical immobilization (anesthesia or sedation) of a pinniped has risks, especially in ill or injured animals, if not administered and monitored correctly. When anesthetized or sedated, an animal may go into a dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. Pinnipeds may develop hypo- or hyperthermia while anesthetized. Transport to a rehabilitation facility may cause muscular stiffness or damage. Stiffness would disappear within a few hours to a few days, unless there was permanent muscle damage (Antrim and McBain 2001). Without protection, animals may overheat in direct sun and heat or develop hypothermia or frostbite in freezing temperatures. Inhalation of exhaust fumes and jolting during transport could injure pinnipeds.

Response may also include the harassment and/or capture of free-swimming animals that are trapped, out of habitat, extralimital, or exhibiting abnormal behavior. Reactions to vessel close approaches and hazing activities from cetaceans may include swimming faster, breaching, diving, tail and fin slapping, or moving away from the vessel. Pinniped reactions to vessels are highly variable, depending on the species (Calkins and Pitcher 1982). Behaviors in response to close approaches by vessel would generally be short-term, with a minimal effect on the animal.

Any capture and/or restraint procedure would likely have some effect on the behavior or activities of marine mammals. The method(s) of restraint, as well as the age and general condition of the animal are all factors that would affect an animal's response to capture. Animals could incur contusions, concussions, lacerations, nerve injuries, hematomas, and fractures in their attempts to avoid capture or escape restraint (Fowler 1978). The stress response could change an animal's reaction to many drugs, including those commonly used for chemical restraint, which could have lethal consequences. Stress could also alter an animal's immune system. It may also lead to behavioral changes including

increased aggressive and antisocial tendencies (Fowler 1986). Stress from capture and restraint could cause capture myopathy, which occurs when an animal cannot cool itself (Fowler 1978). Capture myopathy is characterized by degeneration and necrosis of striated and cardiac muscles and usually develops within 7 to 14 days after significant trauma, stranding, transport, or capture. Animals could also become entangled in the capture net, which may result in injuries or death. Animals may become stressed during handling and restraint. Signs of stress in cetaceans include reduced respiration, prolonged struggling while being held, and arching. Impacts on pinnipeds from capture and restraint are described above.

Response would include hazing an animal(s) when necessary to move it away from a possible health hazard. Potential adverse effects of hazing would likely be from the close approach of vessels, either used to deploy hazing methods or as a method itself. The intent of the activities would be to cause the animal to change their behavior and move away from a potential threat. Acoustic deterrent methods may cause temporary physical discomfort, but would not likely cause long-term injuries. The use of airguns around mysticetes is a concern because of their ability to hear low frequencies better than odontocetes. Concern with using mid-frequency sonar is the close range impacts on harbor porpoise, minke whales, Steller sea lions, and other species. The use of seal bombs near highly volatile oil is also a concern. Exclusion devices used for pinnipeds would not have a significant impact, as animals would not become trapped or entangled. Overall, no significant, long-term impacts to behavior would be expected with proper mitigation. A beneficial impact would be expected from hazing because it would likely prevent an animal from being harmed.

Biological samples may be collected from a stranded animal to help determine the medical and physiological condition of the animal, assess the best course of action, and monitor progress and appropriateness of treatment. Samples would include blood, swabs, biopsies, etc. Sample collection would likely cause minor stress to the animal, beyond the actual stranding event. Response activities would be conducted in an attempt to save an animal's life, to reduce pain and suffering, or to humanely euthanize an animal, which would be deemed in the best interest of the animal. Most adverse impacts on stranded animals would be outweighed by the potential beneficial impacts of saving an animal and/or reducing their pain and suffering.

Response activities would also include euthanasia, when deemed necessary. Euthanasia procedures would be performed by the attending veterinarian or a person acting on behalf of the attending veterinarian. All euthanasia procedures would follow the AVMA guidelines (AVMA 2001) and/or the AAZV guidelines (AAZV 2006). Chemical euthanasia agents may cause hyperexcitability or

violent reactions in some species. Intraperitoneal administration of a euthanasia solution may lead to the prolonged onset of action due to differential or slow absorption rates. It may also cause irritation in the surrounding tissues. Improperly administered chemical euthanasia agents or methods of delivery may prolong the pain and suffering of an animal. When done correctly, the use of ballistics should cause instantaneous unconsciousness followed by respiratory and cardiac arrest. However, improper uses, such as inappropriate caliber of the firearm or untrained personnel, may not cause unconsciousness before death and would then not be considered humane under the AVMA guidelines. During mass strandings, the use of ballistics may stress and exacerbate fear in the surviving animals. The incorrect charge placement of explosives may not cause instantaneous unconsciousness and may cause tissue destruction (Greer *et al.* 2001). Exsanguination (bleeding) may prolong pain and suffering if done incorrectly.

Issuance of SAs only to current SA holders limits the activities of the stranding network to the geographic area that is currently covered. Animals may strand in areas where response is limited or non-existent. Limited response may increase the pain and suffering of stranded animals, and animals would likely die without response from the stranding network. Limiting the issuance of SAs would not allow for new rehabilitation facilities to be added and would affect the amount of animals that could be accepted for rehabilitation. If current rehabilitation facilities do not have space for an animal, the animal would be euthanized or left on the beach during response activities. Prohibiting new activities could reduce the success of a response, as new tools and techniques would not be available for use.

Implementing the SA criteria would ensure that only those individuals, organizations, or institutions qualified and trained to conduct response, assessment, rehabilitation, and/or release of marine mammals would be given SAs. This would reduce the likelihood of increased risks to wild populations with release. Without using the criteria during the review of SA applicants, inexperienced personnel could be issued a SA to respond to and/or rehabilitate stranded animals. Inexperienced personnel could put the animal's health in jeopardy, increase their pain and suffering, and increase the adverse impacts on other biological resources. The potential for an appropriate response (immediate release, animal to rehabilitation, or euthanasia) would decrease. Without a nationwide set of criteria, SA holders in different NMFS regions may not be held to the same standards or require the same minimum experience and qualifications. This would include working with a licensed veterinarian for live animal response and rehabilitation to ensure animals receive adequate and humane care.

4.2.1.3 Alternative A3

Under Alternative A3, SAs would be issued to any applicants after review, the new SA template would not be utilized, and the Final SA criteria would not be issued. Current and future stranding response activities would be included in this alternative. Effects on biological resources from stranding response activities under Alternative A3 would be the same as those described under Alternative A2. Effects of not implementing the SA criteria would also be the same as those described under Alternative A2. Under Alternative A3, as new techniques and tools become available they could be permitted for use during response activities. This would likely have a beneficial impact on marine mammals as response efforts would be conducted using the best available equipment and methods.

Minor, adverse effects on marine mammals would be expected to occur if new SAs are issued to any applicant after they were reviewed by the appropriate NMFS Regional Office. Inexperienced individuals may be responding to stranded marine mammals, which could result in injuries or inhumane techniques. Some beneficial impacts could come from allowing new SA holders to be added, given that they have the proper experience with marine mammal response, as geographic coverage would increase and new rehabilitation facilities may be added to the Stranding Network.

4.2.1.4 Alternative A4- Preferred Alternative

Under Alternative A4, the Final SA criteria and the new SA template would be implemented and current and future stranding response activities would occur. Effects on biological resources from stranding response activities under Alternative A4 would be the same as those described for Alternative A2. Under Alternative A4, as new techniques and tools become available they could be permitted for use during response activities. This would likely have a beneficial impact on marine mammals as response efforts would be conducted using the best available equipment and methods. Modifications could also be made to euthanasia techniques if safer, more effective methods or chemical euthanasia solutions are developed. The use of new techniques and tools would have impacts similar to, or less than, those described under Alternative A2.

Long-term beneficial effects on marine mammals would be expected to occur with the implementation of the SA template and criteria. The template contains the requirement for periodic review and reapplication in order to stay in the stranding network. Reviews would occur by the Regional NMFS Office after the first year for new (probational) network members, every 3 years for members doing live animal response and rehabilitation, and every 5 years for organizations

responding solely to dead animals. In addition, the new agreement provides NMFS with the option to place organizations on probation or suspension, or to terminate the SA, for noted deficiencies or failure to comply with the terms and conditions of the SA. The SA criteria would make certain that SA holders in every NMFS region were held to the same standards and require the same minimum experience and qualifications. A licensed veterinarian would be highly recommended during all emergency response activities and during the transport of cetaceans. A licensed veterinarian would be required at all rehabilitation facilities. This attending veterinarian would meet qualifications as set forth in the Minimum Criteria and Rehabilitation Facility Guidelines, including: 1) having an active veterinary license in the U.S. (has graduated from a veterinary school accredited by the AVMA Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates) or has received equivalent formal education as determined by NMFS; and 2) having the appropriate registrations and licenses (*e.g.*, for handling controlled substances, including registering with the Drug Enforcement Administration [DEA]) to obtain the necessary medications for marine mammal response. This would likely increase the potential for an appropriate response, rehabilitation, and/or release, and may minimize the negative impacts associated with stranding response on biological resources. New SA holders could be added under the alternative, which would be a beneficial impact on marine mammals.

4.2.1.5 Alternative A5

Under Alternative A5, the Final SA criteria and the new SA template would be implemented and response to threatened, endangered, or rare animals would be required. Effects on biological resources from stranding response activities under Alternative A5 would be the same as those described under Alternative A2. Effects on biological resources from the implementation of SA criteria would be the same as those described under Alternative A4.

Requiring response to threatened, endangered, or rare animals would be a positive effect on those populations. However, making response to other animals optional could adversely affect those populations as they could become threatened or endangered in the future. It may also indirectly affect ESA-listed species, as non-listed species often serve as models for other animals. Limiting response to non-listed species would decrease the information gained from strandings that could be beneficial to the survival of threatened and endangered species. Responding to other species allows the detection of new diseases or hazardous conditions in the ocean, which may reduce impacts on threatened and endangered species or species of concern.

4.2.2 Carcass Disposal Alternatives

4.2.2.1 Alternative B1- No Action

Under Alternative B1, no carcass disposal would occur and carcasses would remain on the beach to naturally decompose. Federal (not including NMFS), state, and local agencies authorized under MMPA 109(h) would still be able to conduct carcass disposal of non-ESA listed species. Carcass disposal activities would likely be limited and localized. Carcasses would likely be removed to avoid having a decomposing animal on a public beach. Animal carcasses may contain POPs, toxic metals, pathogens, and/or biotoxins. Contaminant levels would likely be higher in species that feed at higher trophic levels and/or in areas where prey may be more contaminated. A literature review has been conducted to determine the persistent contaminants found in selected marine mammal species (see Appendix J). Species addressed in the review were based upon the frequency and patterns with which they strand. The review concluded that there is a limited amount of information on most species and their contaminants. Therefore, the evaluation of the potential toxicological environmental hazards posed by a decomposing carcass cannot be determined at this time.

4.2.2.2 Alternative B2- Status Quo

Under Alternative B2, current methods of carcass disposal would continue. Current carcass disposal methods under Alternative B2 include on-site burial, transport off-site (for burial or rendering), disposal at sea, and natural decomposition (left on-site). Spills of hazardous materials or wastes from vessels during at-sea carcass disposal activities could impact biological resources. Some materials could be diluted quickly by currents, only causing temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer impacts. Biological resources could be injured or killed if they are in the vicinity of a spill. Equipment used during carcass disposal activities could leak oil or other materials into sand and nearshore waters. Hazardous material leaks from equipment could impact shellfish, other invertebrates, and nearshore fish. However, these would likely be small amounts that would be flushed out and/or diluted rapidly, causing a minor, short-term impact. However, all of these impacts would be negligible when compared to other inputs of hazardous materials from vessels, sewage outfalls, runoff, industrial operations, and other beach vehicle uses.

Digging physically alters and disrupts the site. However, effects would be negligible as on-site burial would not be conducted in protected and sensitive habitats without consulting the proper authorities (see Section 5.2). Potential damage could occur as equipment may need to traverse sensitive habitats

to access the carcass for removal or disposal. Equipment used for disposal at sea and the carcass itself could hit and damage submerged sensitive habitats, such as coral reefs.

Animal carcasses may contain POPs, toxic metals, pathogens, and/or biotoxins. Contaminant levels would likely be higher in species that feed at higher trophic levels and/or in areas where prey may be more contaminated. The evaluation of the potential toxicological environmental hazards posed by a decomposing carcass cannot be determined at this time (see Appendix J). However, the potential does exist for the decay products of carcasses to be released into the surrounding environment or recycled into the food web, with subsequent negative impacts.

Animals may also contain chemical residues from substances administered by stranding response personnel, including chemical euthanasia solution and sedatives. If the animal is a rehabilitated animal that has restranded, it may also contain antibiotics, antifungals, and other medicine. These chemicals persist in the carcass at different concentrations and for different amounts of time. They would not likely create a large-scale environmental hazard, as the levels would be negligible compared to levels found in runoff and sewer discharge, and the compounds are not likely to bioaccumulate through the food web.

Contaminants from potentially toxic carcasses left on site or buried could leach into groundwater and flow into nearshore water, harming sensitive areas in and around the carcass. This impact would be minor and short-term. If contaminants enter groundwater, they would likely be flushed out quickly by tidewater and/or precipitation. Higher concentrations of contaminants may occur in nearshore waters down site from the carcass. These concentrations would be diluted and flushed out by the currents; therefore the impact on biological resources would be temporary and minor. Sediment quality would not likely be impacted by contaminants, as they would be flushed out or diluted before they could adhere to the substrate. Therefore, any organisms using sediment would not be impacted.

SAV and macroalgae could be indirectly affected by on-site burial. Contaminants from chemically euthanized carcasses could leach into groundwater and impact waters used by SAV and macroalgae. Carcass disposal at sea could cause minor, short-term, adverse effects. Equipment used for disposal at sea and the carcass itself could potentially damage SAV and macroalgae or remove SAV from sediment. Impacts would be minor, as SAV and macroalgae would grow back and organisms that use them as habitat would be able to utilize surrounding areas.

On-site carcass burial could adversely affect sea turtles nesting on beaches, depending on the location and time of year. However, carcass burial sites would not be sited near nesting sea turtles, eliminating the potential for adverse effects.

Minor, short-term adverse effects on coastal and marine birds could occur during carcass disposal. The use of equipment and the presence of people could disturb birds nesting or roosting in trees or small bushes, and may cause them to temporarily leave the area. These birds would likely return to the area once response activities ended and impacts would be temporary, as response activities would occur for a short period. Ground nesting birds could be adversely affected by transport and burial activities. Heavy equipment could crush nests and digging for burial could completely remove a nest. Personnel helping with disposal could disturb or damage a nest.

Minor, short-term adverse effects on shellfish and other invertebrates could occur during response activities. The traversing of heavy equipment over shellfish beds to access a carcass could damage or kill shellfish. Shellfish would not be negatively impacted during digging for carcass burial, as burial sites would be chosen well above the high tide line. Other invertebrates could be disturbed and negatively impacted during burial activities. Contaminants from toxic carcasses could leach into groundwater and nearshore waters and impact shellfish. Potential effects on fish may result from contaminants in nearshore waters. Impacts on shellfish and fish from contaminants would be minor, as contaminants would be flushed out and/or diluted rapidly.

Scavengers may be adversely affected if carcasses of chemically euthanized or toxic animals are left to decompose on the beach. Euthanasia solution is toxic and may injure or kill animals feeding on these carcasses, known as secondary toxicosis. In addition, scavengers may consume POPs, other toxic chemicals, and biotoxins which may bioaccumulate over time, with the potential for serious injuries or death. Diseased animal carcasses may also cause serious injuries or death if consumed by scavengers. Likewise, disposal of these carcasses at sea could also affect scavengers, such as sharks and seabirds. Negligible, short-term, adverse effects on scavengers would be expected to occur from the removal of carcasses from beaches. Carcasses provide food many animals, including foxes, coyotes, birds, and polar bears. Threatened bald eagles may feed on marine mammal carcasses left on beaches. California condors, an endangered species recently reintroduced in California, may also feed on marine mammal carcasses. California condors would not be affected, as most carcasses (mainly pinnipeds that have not been chemically euthanized) are left on beaches in California where the condors are located. Effects of carcass removal are expected to be negligible because scavengers

are not solely dependent on marine mammal carcasses for survival. In most areas, strandings are rare and not a major component of scavengers' diets.

Minor, indirect benefits may occur from carcasses towed out to sea. Disposal at sea of carcasses may create food for other organisms. However, this may lead to recycling of contaminants. Large whale carcasses have been known to become habitat and food for a variety of organisms, such as those as seen on natural whale falls (Smith and Baco 2003). Some stranding network members have coordinated carcass disposal efforts with research groups studying whale falls and the transitory benthic invertebrate communities surrounding them.

4.2.2.3 Alternative B3- Preferred Alternative

Under Alternative B3, current methods of carcass disposal would continue with a recommendation to transport chemically euthanized animal carcasses off-site. Effects from Alternative B3 would be the same as those described under Alternative B2, except for the effects from chemically euthanized animal carcasses. Under Alternative B3, these carcasses would be transported off-site to a proper landfill whenever possible, removing the risk of contamination. This would be a positive effect on protected and sensitive habitats, SAV and macroalgae, fish, shellfish, other invertebrates, and scavengers.

Under this alternative, modifications may be made to carcass disposal activities. Currently, the potential toxicological environmental hazards posed by a decomposing carcass are not known. If and when this information becomes available, additional precautions (*e.g.,* removal of certain species carcasses from beaches) would be implemented, if necessary. These modifications would have a beneficial impact on the surrounding biological resources.

4.2.3 Rehabilitation Activities Alternatives

4.2.3.1 Alternative C1- No Action

Under Alternative C1, current SAs would expire, stranding response would end, and animals would not be taken into rehabilitation. Marine mammals not taken into rehabilitation most would likely die from injuries or disease. For populations that are endangered, this could potentially affect the survival of the species. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, or birds would be expected to occur from this alternative.

4.2.3.2 Alternative C2- Status Quo

Under Alternative C2, current rehabilitation activities would continue, but the final Rehabilitation Facility Standards would not be implemented. Stranded animals would be taken into rehabilitation with the intent to release them back to the wild, if possible, once they are healthy. Biological samples may be collected from a stranded animal to help determine the medical and physiological condition of the animal, assess the best course of action, and monitor progress and appropriateness of treatment. Samples would include blood, swabs, biopsies, etc. Sample collection would likely cause minor stress to the animal, beyond the actual stranding event. Handling, lifting, and restraining an animal could cause injuries. When anesthetized or sedated, an animal may go into a dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. Anesthetized animals could develop hypothermia or hyperthermia. Administration of drugs and surgical procedures could cause injuries or death. However, all rehabilitation activities would be conducted in an attempt to help sick and injured animals. Rehabilitation would be conducted with proper veterinary oversight and the use of established and accepted methods. Most adverse impacts on animals in rehabilitation would be outweighed by the potential beneficial impact of saving an animal and returning it to the wild.

Animal euthanasia may occur, when deemed necessary by the attending veterinarian. Euthanasia procedures would be carried out by, or under the direction of, the attending veterinarian. Chemical euthanasia agents may cause hyperexcitability or violent reactions in some species. Intraperitoneal administration of a euthanasia solution may lead to the prolonged onset of action due to differential or slow absorption rates. It may also cause irritation in the surrounding tissues. Improperly administered chemical euthanasia agents or methods of delivery may prolong the pain and suffering of an animal.

Current facilities may not have enough space or resources to accommodate a stranded animal or may only rehabilitate certain animals. If no rehabilitation facility can take an animal, the animal may be euthanized. Standards for the humane treatment of marine mammals would constantly be developed, applied, and re-examined. Practices currently acceptable may not be acceptable in the future. If adaptive changes are not allowed, the success of rehabilitation would not increase. Animals may not be able to return to the wild, which may mean the animal would be euthanized or placed into permanent captivity in a public display or research facility. Removal of marine mammals from the wild would negatively effect populations that are depleted, threatened, or endangered.

The Rehabilitation Facility Standards would not be implemented, compromising animal health, the success of rehabilitation, and the potential for release to the wild. Inadequate care may increase pain and suffering of a marine mammal. Pool and pen sizes could be inadequate or contain too many animals, which would restrict animal movement and may cause aggressive behaviors between animals. New animals may not be placed into quarantine, which could introduce new pathogens to other animals currently in the rehabilitation facility, which are already compromised. Pathogens may also be introduced and spread through contaminated supplies, equipment, and personnel, by mixing of marine mammal species within the rehabilitation setting (particularly species that do not interact or whose ranges do not overlap in the wild), or by encounters between marine mammals and terrestrial mammals (particularly canids, felids, and raccoons). Any pathogen within a rehabilitation "hospital" setting has the potential to mutate or evolve into a novel organism (including those with drug resistant properties), creating a new (or drug-resistant) disease which could then be introduced into the naïve wild population upon the release of an infected animal following rehabilitation, particularly if the animal is not thoroughly evaluated prior to release.

4.2.3.3 Alternative C3- Preferred Alternative

Under Alternative C3, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. The effects on marine mammals from rehabilitation activities under this alternative would be the same as those described under Alternative C2. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, or birds would be expected to occur from rehabilitation activities under this alternative.

The Rehabilitation Facility Standards would be implemented, requiring current and future facilities to adhere to the minimum standards as part of their SA. The standards would ensure a healthy environment for animals, maximize the success of rehabilitation, and increase the potential for release to the wild. The standards cover facilities, housing, space, water quality, quarantine, sanitation practices, food handling and preparation, and veterinary medical care. Rehabilitation facilities would be required to submit the maximum holding capacity for their facility based upon the minimum space requirements in order to minimize overcrowding. Long-term beneficial impacts would be expected, as these standards would ensure that safe, healthy, and humane conditions are in place at all facilities. The standards would decrease the risk of disease transmission within the facility with the requirements for quarantine facilities and quarantine protocols for all incoming animals. Minimum quarantine and biosecurity standards include, but are not limited to: having separate filtration and

water flow systems; providing sufficient space or solid barriers between animal enclosures to prevent direct contact; and maintaining equipment and tools strictly dedicated to the quarantine area. Additional quarantine standards are described under mitigation in Section 5.2.3.

Veterinary medical care standards (Sections 1.7 [for cetaceans] and 2.7 [for pinnipeds] in the Rehabilitation Facility Standards) would ensure that veterinarians and other personnel have the appropriate knowledge and experience to properly care for and treat marine mammals. An attending veterinarian would be required to work with staff at all rehabilitation facilities and be involved in making decisions regarding medical care and husbandry of current and incoming animals. Veterinary care standards, including recommended standards, are described under mitigation in Section 5.2.3.

Standards for open ocean/bay net pens reduce the probability of disease transmission to other healthy animals in the pens or the wild population and ensure that good water quality would be maintained. Even with these standards, adverse impacts from the use of net pens may occur. Animals in net pens are still exposed to conditions that cannot be controlled, such as water temperature, HABs, and the elements. The recommended placement of net pens may not always be feasible due to geography, currents, proximity to protected areas, or proximity to economic interests (*e.g.*, aquaculture). The use of temporary pools may adversely affect animal health. Proper water quality and temperature may not be maintainable and disease transmission may occur if more than one animal is housed in a pool. Animals in outside temporary pools would also be exposed to the elements.

Under this alternative, modification of rehabilitation activities could occur. Rehabilitation activities may change with improvements in technologies, techniques, and other aspects of marine mammal medicine. These new activities would have impacts similar to, or less than, those currently conducted. The closure of rehabilitation facilities is also included under modification of activities. Animals being held at a facility would be transferred to the nearest available rehabilitation facility in the region. Impacts from the transfer of animals would include handling, lifting, restraint, and transport. Impacts from handling, lifting, and restraint are the same as those described under Alternative C2.

During transport, cetaceans may overheat (hyperthermia) or develop hypothermia during transport. Body surfaces may be exposed to the drying effects of air. Improper transport of cetaceans may cause abrasions, pressure necrosis, thermoregulatory problems, and respiratory problems. Muscular stiffness may occur from transport, but most accepted transport methods try to minimize or avoid this entirely. Stiffness would disappear within a few hours to a few days, unless there was permanent

muscle damage (Antrim and McBain 2001). Animals may also be knocked around, causing muscle damage or they may inhale exhaust fumes.

4.2.3.4 Alternative C4

Under Alternative C4, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. The rehabilitation of threatened, endangered, and rare animals would be required and the rehabilitation of other animals would be optional. The effects on marine mammals from rehabilitation activities under this alternative would be the same as those described under Alternative C2. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, or birds would be expected to occur from rehabilitation activities under this alternative. The effects on marine mammals would be the same as those described under Alternative C3.

Adverse impacts would also be expected for animals that are not rare, threatened, or endangered. Rehabilitation of all other animals would not be required, but would be optional depending on facility resources. Animals not taken into rehabilitation would be euthanized on the beach. These animals often serve as models for other species and provide valuable information that could be used during rehabilitation. For example, through the treatment and care of California sea lions (a commonly stranded pinniped along the West Coast) husbandry practices have been refined and are used to the benefit of Steller sea lions (a threatened species), including nutrition; stress reduction; animal monitoring; and veterinary techniques including drugs, sedatives, and anesthetics. Similarly, rehabilitation practices refined on Northern fur seals from the non-listed San Miguel stock off the California coast benefit Northern fur seals from the depleted Eastern Pacific stock, as well as endangered Guadalupe fur seal. Information obtained from California sea lions regarding impacts of disease and environmental conditions, such as domoic acid, provide valuable data regarding food web transfer and exposure routes, possible treatment options, and population-impacts. Due to similar physiology, much of this information may be extrapolated to other otariid species including Steller sea lions and Northern fur seals to determine how these animals may be exposed (via the food web) and affected, as well as treated. In addition, animals from the “common” species are frequently placed with rare, threatened or endangered animal to provide adequate non-human socialization. Absence of common animals, and lack of experience treating them, would lead to difficulties in adequately treating rare, threatened and endangered species. This would be an indirect adverse affect on rare, threatened, and endangered species.

4.2.4 Release of Rehabilitated Animals Alternatives

During the public comment period, particular concerns were raised regarding the release of rehabilitated ices seals in Alaskan waters. In response to these concerns, which raised issues both related to potential impacts on biological resources (conspecifics or other wild ice seal populations) and potential effects on cultural resources for subsistence harvest of ice seals, several of the alternatives would adopt mitigation measures to minimize the potential for disease transmission from rehabilitated ices seals, as described in Section 5.2.4 of this PEIS.

4.2.4.1 Alternative D1- No Action

Under Alternative D1, current SAs would expire, stranding response and rehabilitation would cease, and there would be no animals to release. All marine mammals brought in for rehabilitation would remain in captivity or be euthanized. This alternative would reduce potential impacts on wild populations, as there would no longer be the risk of introducing a diseased animal that could potentially infect other marine mammals. However, it would eliminate the potentially beneficial effects of returning animals to the wild population. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, or birds would be expected to occur from release activities under this alternative.

4.2.4.2 Alternative D2- Status Quo

Under Alternative D2, current release activities would continue, adaptive changes to release activities would not be permitted, and the final Release criteria would not be implemented. Minor, short- and long-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, and birds could occur from release activities under this alternative. Spills of hazardous materials or wastes from release vessels could impact these resources. Some materials could be diluted quickly by currents, only causing temporary impacts but others could linger in the water column or adhere to sediment particles, causing slightly longer impacts on sensitive habitats, SAV, and macroalgae. Hazardous materials could injure or kill sea turtles or marine mammals in the vicinity of a spill. Equipment used for beach release activities could leak oil or other materials into sand and nearshore waters. Sea turtles and birds could be injured and their nests may be damaged. These materials would likely be flushed out and/or diluted rapidly, causing a minor, short-term impact to sensitive habitats, SAV and macroalgae, fish, shellfish, and other invertebrates.

As required under regulations at 50 CFR 216.27, all animals would be tagged or marked prior to release. Commonly used methods of tagging delphinids include freeze branding on or below the

dorsal fin (both sides of the body) and/or the attachment of a roto-tag (cattle ear tag) to the dorsal fin. Freeze branding may cause little or momentary pain during application, which would require 15-20 seconds per brand. Initial discomfort or pain would be relieved by the appropriate anesthetic or analgesic. Discomfort may persist for some time after the procedure, but is expected to be minor. Therefore, impacts would be considered negligible and not significant. However, liquid nitrogen could spill onto an animal during the process, causing more than momentary pain. During the attachment of the roto-tag, pain would only last during the application, and sedatives or local anesthetic would be used. However, the tag site could become infected, causing pain to the animal. When the tag is shed, tissue damage may occur and the site could become infected. NMFS must be contacted if other additional tagging methods may be used, including radio, satellite, or microchip (Passive Integrated Transponder [PIT] tags) (see Section 4.2.6.2 for impacts from other tagging methods). For cetaceans other than delphinids, NMFS must be contacted to determine the appropriate identification method(s).

Pinnipeds would be given flipper tags (roto-tags), with placement dependent on the species. Tags would be attached to the hind flipper of phocids and the foreflipper of otariids (Geraci and Lounsbury 2005). Flipper tagging would cause temporary pain during attachment and the tag site may become infected. The tag may also be ripped out and the site could become infected. Animal movement may prolong or prevent healing by producing repetitive stress on the wound. Additional tagging may include radio, satellite, or microchip (PIT) tags with a variety of attachment methods (see Section 4.2.6.2 for impacts from other tagging methods).

Tagging allows an individual animal to be monitored after being released and evaluate its success in returning to the wild (Lander *et al.* 2001). If released animals appear to be compromised (*e.g.,* not feeding, ill, or interacting with people) based on tag data, animals could potentially be recaptured for further rehabilitation or permanent captivity. This would be beneficial to the individual animal and may also protect the wild population by preventing disease transmission or transfer of negative behaviors, such as human interaction. Conversely, if the tag data indicates that the animal is behaving "normally" (diving to depths indicative of feeding, swimming in normal patterns, in geographic association with other animals of the same species, avoiding people), the rehabilitation may be deemed a success, and the tag can provide basic biological data about the animal and species. For instance, the first rehabilitation and release of a Risso's dolphin occurred at the Riverhead Foundation for Marine Research and Preservation in New York (DiGiovanni *et al.* 2005). After release, this animal was tracked for 67 days. Aerial over flights showed that it was in the vicinity of other Risso's

dolphins and that it was diving up to a maximum of 600 m depth for a maximum duration of 15 minutes. This rehabilitation effort was deemed to be a success, based on this follow-up information. This is also some of the first information that has been collected on a free-ranging Risso's dolphin, so it is beneficial to basic scientific inquiries about marine mammals. For some marine mammal species, particularly those that are offshore or cryptic, tagging may be the only way to monitor these animals and gather necessary life history data (Wilson and McMahon 2006). Over time, data may be collected from a significant number of released animals (particularly those that commonly strand) that can provide population-level insights into species movement and behavior patterns.

Tagging and post-release monitoring is also beneficial in the evaluation and improvement of response, rehabilitation, and release procedures. For example, cetaceans that mass strand in the Northeast U.S. (particularly Cape Cod) are not typically rehabilitated, and are either euthanized or refloated and released off the beach. While animals that are pushed out are not generally observed restranded in the area, their ultimate fate has been unknown. Recently, satellite transmitters were deployed on two beach-released Atlantic white-sided dolphins that were part of separate mass stranding events (Rice and Cooper 2005). Both animals were tracked for over 30 days, and the tracks indicated survivorship as well as vigorous swim and dive behavior following return to offshore habitats. Some studies are also being done on classes or groups of animals that strand due to a common etiology (cause), such as domoic acid in California pinnipeds. California sea lions that have been deemed successfully rehabilitated (passed all of the pre-release screening tests) have been tracked post-release and determined to have long-term medical and behavioral problems that persist from the domoic acid intoxication, including seizures, disorientation, isolation, and not reacting to approach from humans and dogs (Thomas and Harvey 2005). Several animals restranded, and the behavior of others made survivability questionable. As a result, rehabilitation decisions are being re-examined for this and other species, including the definition of a "successful" rehabilitation.

Transport of animals to release sites could cause stress or injuries to an animal. During transport to the release site, animals may overheat in direct sun and heat without protection. Cetaceans may overheat (hyperthermia) or develop hypothermia during transport. Body surfaces may be exposed to the drying effects of air. Animals may also be knocked around, causing muscle damage or they may inhale exhaust fumes. Improper transport of cetaceans may cause abrasions, pressure necrosis, thermoregulatory problems, and respiratory problems. Muscular stiffness may occur from transport, but most accepted transport methods try to minimize or avoid this entirely. Stiffness would disappear

within a few hours to a few days, unless there was permanent muscle damage (Antrim and McBain 2001).

The release of pinnipeds on rookeries or haul-out sites could disrupt other animals. When pinnipeds are startled and disperse from rookeries, pups may be trampled or abandoned. Juvenile and adult animals may be trampled during stampedes or injured on underwater rocks and cliff faces.

Animals deemed releasable after rehabilitation would be returned to the wild, which may have a positive or negative impact on marine mammal populations. Without the use of release criteria, animals that are not medically, developmentally, or behaviorally cleared for release could be released. Releasing unhealthy animals could increase their pain and suffering. An animal that is not healthy or has behavioral issues could re-strand or die, which would counteract the care it received in rehabilitation. Animals that are not healthy could transmit diseases to wild populations (Cunningham 1996, Measures 2004). An animal that is not behaviorally ready for release may not have the skills needed to survive in the wild. The animal may not be able to forage or avoid predators. An animal may have abnormal breathing and may be unable to swim or dive properly. Animals with behavioral issues could also approach, interact, and be aggressive with people, creating hazard to themselves and public safety.

4.2.4.3 Alternative D3- Preferred Alternative

Under Alternative D3, new SAs would be issued, release activities would continue, adaptive changes to release activities would be permitted, and the final Release criteria would be implemented. Effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, birds, and marine mammals from release activities under Alternative D3 would be the same as those described under Alternative D2, except for the impacts on marine mammals. Beneficial effects would be expected for marine mammals because the release criteria would be implemented and adaptive changes would be permitted.

Under the release criteria, animals would be medically cleared by the attending veterinarian and their assessment team before a release determination is made. The medical assessment would include a hands-on physical examination and a review of the animal's complete history, diagnostic test results, and medical and husbandry records. These procedures would minimize the risk of disease introduction or transmission to the wild population.

Animals would also be developmentally and behaviorally cleared before release occurred, enhancing their chance for survival. Developmental clearance would ensure that the animal has attained a sufficient age to be nutritionally independent, including the ability to forage and hunt. Behavioral clearance would include an assessment of an animal's breathing, swimming, diving, locomotion on land (pinnipeds) foraging, and hunting abilities. An evaluation of an animal's visual and auditory functions would be conducted. For cetaceans, any behavioral conditioning would be eliminated prior to release such that the association of food rewards with humans is diminished.

An animal that has recovered from an infectious disease would be released near its original stranding site, when feasible, in order to minimize disease risks to the wild population. NMFS must be consulted when an animal cannot be released near their original stranding site to determine a preferred release site.

Adaptive changes would allow the use of new procedures and technology, such as tags and telemetry packages. New tags and telemetry packages would likely be smaller in size and weight and less invasive than those currently used. Impacts from these new activities would be similar to, or less than, those impacts described under Alternative D2 for current tagging activities. The release criteria may change as new information and data are obtained from released animals and as improvements are made in marine mammal medicine. New procedures and technologies may also increase the success of a release and the survival of an animal.

4.2.5 Disentanglement Alternatives

4.2.5.1 Alternative E1- No Action

Under Alternative E1, there would be no disentanglement network. No significant effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, or birds would be expected to occur from Alternative E1. However, gear on an entangled animal may be shed and become marine debris, which could potentially harm biological resources. The amount that may be shed would be negligible compared to the amount of gear already in the ocean.

Lines and gear may cause serious injuries to animals and restrict their ability to move, dive, and feed. If an animal cannot free itself from the entangling material it would most likely die. Without disentanglement efforts, animals would likely suffer a slow, painful death. North Atlantic right whales would be greatly affected if disentanglement efforts ceased, as entanglements are known to be a significant source of mortality. The best estimate of the size of the North Atlantic right whale

population is a range of 300 to 350. Although other population size estimates are available, the most recent Stock Assessment Report (Waring *et al.* 2007) indicates that the best estimate minimum population size for the species is 313 individually-recognized whales known to be alive in 2002. Recent models indicate that this population is likely declining, rather than remaining static or increasing (Caswell *et al.* 1999). The loss of one individual, especially a reproductively healthy female, would be a major impact on the species. For biological reasons, the number of reproductive-age females is more essential to a species' ability to maintain itself or grow than the number of males. Humpback whales and other large endangered whales would also be negatively affected if disentanglement activities ended.

4.2.5.2 Alternative E2- Status Quo

Under Alternative E2, the disentanglement network would continue the current activities with no modifications or new members added. Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds could occur from this alternative. Spills of hazardous materials or wastes from vessels could impact these biological resources. Some materials could be diluted quickly by currents, only causing temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer impacts. No impacts would be expected to occur during pinniped disentanglements on land.

Under Alternative E2, the disentanglement network would continue to disentangle or attempt to disentangle animals. Removal of life-threatening gear would not only increase the chance of survival for the individual animal, but would have a positive impact on those species that are threatened and endangered. These activities pose minimal adverse and significant beneficial impacts to the entangled animal.

Minor adverse effects on marine mammals could occur during disentanglement activities. Takes of entangled animals would occur during close approaches by aircraft (to locate entangled animals or for photo-identification) or by vessel (for documentation, general assessment, photo-identification, and disentanglement attempts). Incidental takes from close approaches are likely if other animals are in the vicinity of the entangled animal. Aerial surveys to locate entangled animals would be of a short-duration and aircraft would circle at an altitude ranging from 300-1,000 ft (91-305 m) above the animal. Harassment of marine mammals could occur if the aircraft operated below a certain altitude. Aerial surveys may cause an animal to change its behavior, such as diving rapidly. However, this

change in behavior would be short-term, with a minimal effect on the animal. Responders have reported that whales they have encountered have not exhibited evasive behavior in response to aerial approaches for the purpose of photo-identification and basic sighting data.

Animal reactions to close approaches may include swimming faster, breaching, diving, tail and fin slapping, or moving away from the vessel. Responders have reported that some whales encountered for assessment and documentation have not exhibited evasive behavior. Whales encountered closely (within 30 m) for the purpose of tagging and disentanglement efforts did exhibit evasive behavior in response to vessel approaches. These behaviors would generally be short-term, with a minimal effect on the animal. Response of the entangled animal to disentanglement attempts depends upon the species. Humpback whales are relatively easy to handle, especially if they have been entangled for a prolonged period of time. Experience has indicated that humpbacks are unlikely to be evasive or aggressive during disentanglement efforts, however there are always exceptions. Right whales tend to respond with aggressive behavior and are uncooperative. To decrease reactions from animals, approaches would be slow and from the side or behind, with minimal noise. Standby vessels maintain some distance to minimize potential whale disturbance.

During attempts to physically restrain whales, floats, buoys, and control lines would be attached. Right whales have been known to tow numerous floats and drag moderate-sized vessels. Physical restraint of the animal may increase stress or pain. Physical restraint of a pinniped may also cause injuries or death. Chemical restraint may lower a free-swimming whale's respiratory rate, slow their breathing, and decrease their swimming strength. Sedatives may be delivered through a blow-dart style syringe, which may startle the animal and cause it to react. Chemical restraint of a pinniped may initiate the dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. The short-term effects from physical and chemical restraints would be outweighed by the potential beneficial outcomes.

Potential injuries may occur when cutting line and gear off the animal. Unintentional injuries may occur as an animal moves while cutting or if control of the equipment is lost. Responders may intentionally injure an animal, when no options to safely remove gear exist and only after consideration of the possible damage. The potential for a positive outcome outweighs the short-term effects of these injuries. Potential injuries could also occur if there are hazardous material spills from vessels, including stand-by vessels, during disentanglement activities. These occurrences could cause injury or death to marine mammals in the vicinity.

During large whale disentanglement, biopsy sampling may occur via remote dart. Animal reactions to remote biopsy darting are discussed under Section 4.2.6.2, biopsy sampling. Responders report that while there is typically a low level of evasive response to the close approach for the biopsy sample, there have not been obvious reactions to the biopsy dart itself. Samples of skin or other tissue may be recovered from removed fishing gear and would have no impacts on animals.

During small cetacean disentanglement, the animal typically must be captured utilizing in-water capture techniques, such as encirclement via hoop net, followed by physical restraint. Additional animals may be captured or harassed during the rescue attempt. During pinniped capture and disentanglement activities, non-entangled animals may be disturbed off a haul-out site.

Potential adverse effects could occur, as the addition of new network members would not be allowed. Without the addition of new members, entangled animals may not be responded to, decreasing their chance of survival and increasing their pain and suffering. Modifications are not allowed, including new techniques and tools which could increase the success of disentanglement. Guidelines and training prerequisites which are currently utilized on the East Coast would not be implemented nationwide, which may mean inexperienced people could be conducting disentanglement activities on the West Coast. This would likely increase risks to already vulnerable entangled animals and the surrounding environment, as well as decrease the success of a disentanglement attempt.

4.2.5.3 Alternative E3- Preferred Alternative

Under Alternative E3, the disentanglement network would continue the current activities on the East Coast with modifications to the West Coast network. The disentanglement guidelines and training prerequisites would be implemented. Effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, and birds from Alternative E3 would be the same as those described under Alternative E2. Effects on marine mammals from close approaches, physical restraint, chemical restraint, and cutting of lines would be the same as those described under Alternative E2.

Major, long-term beneficial effects on marine mammals would be expected under Alternative E3. The disentanglement network would continue to disentangle or attempt to disentangle whales. Removal of life-threatening gear would not only increase the chance of survival for the individual animal, but would have a positive impact on those species that are threatened and endangered. New members could be added to the network which would increase the number of animals responded to. Guidelines and training prerequisites would be implemented nationwide, helping ensure that only

experienced and qualified individuals are engaged in disentanglement activities. This would likely increase the success of disentanglement and decrease the potential risk to entangled animals and the surrounding environment.

Disentanglement activities may be modified under this alternative, as new techniques and tools are developed. New tools may include safer, more effective cutting instruments and new telemetry buoys. Chemical and physical restraint techniques may be improved, including the administration of sedatives and the attachment of buoys, floats, and control lines. These new activities would have impacts similar to, or less than, those currently used during disentanglement activities.

4.2.6 Biomonitoring and Research Activities Alternatives

4.2.6.1 Alternative F1- No Action

Under Alternative F1, biomonitoring and research activities would not occur. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, or birds would be expected to occur from Alternative F1. Both beneficial and adverse effects on marine mammals would be expected. Biomonitoring and research activities would end and therefore takes of marine mammals would also end. This would be beneficial to animals, as they would no longer experience any negative impacts from these activities. However, without these research activities, important health and exposure data on marine mammal populations would no longer be collected. This would limit information on exposure of marine mammals to chemical and biological toxins. It would also hinder some research on the adverse health effects of toxin exposure for marine mammals and would restrict investigations into factors for UMEs. This could impede future conservation and management actions and ultimately result in detrimental impacts on marine mammal populations, especially those that are threatened and endangered.

4.2.6.2 Alternative F2- Status Quo

Under Alternative F2, the new ESA/MMPA permit would continue the current biomonitoring and research activities. Potential minor, short-term, adverse effects on all biological resources could occur from vessel and vehicle uses. Spills of hazardous materials or wastes from vessels could impact biological resources. Some materials could be diluted quickly by currents, only causing temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer impacts. Equipment used during beach research activities could leak oil or other materials into sand and nearshore waters during beach releases. These would likely be small amounts that would be flushed out and/or diluted rapidly, causing a minor, short-term impact. However, all of

these impacts would be negligible when compared to other inputs of hazardous materials from vessels, sewage outfalls, runoff, industrial operations, and other beach vehicle uses.

Potential minor, short-term, adverse effects on protected and sensitive habitats could include damage from vessels or researchers in the water or on the beach. Coral reefs and other habitats may be damaged from contact with a vessel or a person.

Negligible, short-term adverse effects on SAV and macroalgae could occur during research activities. Vessels used during research activities conducted in shallow waters may damage SAV and macroalgae with their propellers. Vessel operators would be aware of this potential impact and would avoid these areas, where feasible. Any damage to SAV and macroalgae would be negligible and short-term, as only a minimal amount would be disturbed and would grow back.

Minor to major, short- and long-term effects on sea turtles could occur during research activities. Activities conducted on beaches could disrupt nesting sea turtles or damage their nests.

Minor, short-term adverse effects on coastal and marine birds could occur during research activities. The close approach by vessels or aircraft, the use of equipment, or the presence of researchers on beaches could disturb birds nesting or roosting in trees or small bushes, and may cause them to temporarily leave the area. Ground nesting birds could be adversely affected by research activities. Equipment could crush nests and research personnel could disturb or damage a nest. Research conducted in nearshore waters could disturb foraging birds. This impact would be minimal and temporary, as birds could forage in nearby areas and would likely return once research activities ended.

Beneficial and adverse effects on marine mammals would be expected to occur from Alternative F2. Indirect beneficial effects would occur because valuable information on marine mammals and marine mammal health trends would be collected. This information would be used to understand stranding events, UMEs, and basic biological processes. Under this alternative, new research activities could not be conducted. This would limit the ability to collect information in areas not currently studied or to utilize new technologies and techniques during research activities. This would likely have a negative impact on marine mammals.

Adverse effects on marine mammals from biomonitoring and research activities would be expected to occur under this alternative. Takes of marine mammals would occur from close approaches, euthanasia, capture and restraint, tagging, marking, and biological sampling. General methodologies

used for biomonitoring and research are described in Appendix H and their impacts are described below. The numbers of estimated takes are listed in Appendix I.

Close Approach, Vessel and Aerial Surveys. Takes of animals would occur during close approaches by vessel or aircraft. Close approaches would occur during numerous research activities such as health assessment, biopsy sampling, breath sampling, tagging, photo identification, and collection of sloughed skin and feces. Incidental takes of non-targeted animals, including USFWS species, from close approaches are likely if they are in the vicinity of the targeted animal(s). Reactions from cetaceans may include swimming faster, breaching, diving, tail and fin slapping, or moving away from the vessel. Cetacean reactions to aerial surveys depend on the aircraft's altitude, length of pass, and species or individual behaviors. Approaches to marine mammals below certain altitudes may harass marine mammals and cause a change in behavior, or elicit behaviors, such as diving rapidly. Behaviors in response to close approaches by vessel and aircraft would generally be short-term, with a minimal effect on the animal or the population.

Pinniped reactions to vessels and aircraft are highly variable, depending on the species (Calkins and Pitcher 1982). In Steller sea lion studies, reactions ranged from none to complete and immediate departure from the haul-out site. In most cases, the potential impact to the animal is limited to disturbance; with the animal remaining at the haul-out site. When pinnipeds are startled and disperse from rookeries, pups or young may be trampled or abandoned. Juvenile and adult animals may be trampled during stampedes or injured on underwater rocks and cliff faces. The incidence of stampedes in response to aerial surveys at specific altitudes is unknown. Disturbance from aerial surveys would be dependent on plane specifications, flight patterns, and the altitude.

Capture, Restraint, and Handling. Any capture and/or restraint procedure would likely have at least some short-term effect on the behavior or activities of marine mammals. The number of times an animal would be captured, the method(s) of restraint, as well as the age and general condition of the animal are all factors that would affect an animal's response to capture. Animals could incur contusions, concussions, lacerations, nerve injuries, hematomas, and fractures in their attempts to avoid capture or escape restraint (Fowler 1978). The stress response could change an animal's reaction to many drugs, including those commonly used for chemical restraint, which could have lethal consequences. Stress could also alter an animal's immune system. Stress from capture and restraint could cause capture myopathy, which occurs when an animal cannot cool itself (Fowler 1978). Capture myopathy is characterized by degeneration and necrosis of striated and cardiac

muscles and usually develops within 7 to 14 days after significant trauma, stranding, transport, or capture.

Potential effects from anesthesia used for chemical restraint are described above. Physical restraint of a pinniped, if not properly executed, may injure or kill an animal (*e.g.* suffocation under the weight of a handler). Mechanical restraint methods may pose some risk to pinnipeds. Excessive pressure is possible using squeeze cages, which may cause trauma or interfere with adequate ventilation. Restraint boards may use a hinged guillotine to secure an animal's neck, which could obstruct the airway (Gulland *et al.* 2001).

During health assessments animals could become entangled in the capture net, which may result in injuries or death. Animals may become stressed during handling and restraint. Signs of stress include reduced respiration, prolonged struggling while being held, and arching. During a health assessment study in St. Joseph Bay, FL (July 2006), a bottlenose dolphin became entangled deep in capture net and was found dead during the extrication of other dolphins from the net. Incidental takes of non-target animals, including USFWS species, are possible during capture activities. Animals may be accidentally captured in the net and could also become entangled in the net, which may result in injuries or death.

Tagging/Attachment of Scientific Instruments- Cetaceans. During research activities, tags will not be attached to large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no tagging will occur on calves less than one year of age and mothers accompanying these animals would not specifically be targeted. However, they may be tagged if accidentally captured during health assessments. Tagging would include reactions to the close approach and the physical attachment of the tag. Reactions to close approaches are described above. Free-swimming cetaceans often react when hit by tags delivered by remote devices, such as tagging guns and crossbows. Cetaceans may also react when tags miss the animal and hit the water nearby. In most cases, the reactions of the remotely tagged animal and non-target animals last little more than a few minutes, after which behavior appears to return to normal (Watkins and Tyack 1991, Goodyear 1993, Hooker et al. 2001). The physical presence of a tag may lead to an alteration in the normal behavior of tagged animals, including a temporary disruption of feeding or mating activities. The hydrodynamic drag created by the presence of the tag on the animal should not cause an adverse impact. The proportion of the hydrodynamic drag from the tag package to the animal's size and weight is such that the energetic demand on the animal would likely be insignificant. Potential adverse effects would be minimized by using the smallest possible instrument package and the

smallest spear tip practicable. Therefore, animal disturbance would only occur during the close approach and the moment of attachment.

Suction cup tagging procedures have been analyzed by NMFS PR1 in several environmental assessments (EAs) and biological opinions, where findings resulted in no significant impact on the animals (NMFS 2004). The possibility of injury to an animal comes from the remote risk of the suction cup landing in or striking a sensitive part of the animal, such as the eye, mouth, or blowhole. However, given the skills of the experienced researchers, this risk would be minimal or non-existent. The non-invasive nature of suction cup tags eliminates the threat of infection, but not inflammation. The suction cup would not remain attached to the whale for any significant length of time (typically not longer than 48 hours), and likely releases within a few hours. The animal can easily dislodge the tag by rolling, breaching, or rubbing. An animal could sustain injuries while trying to remove the tag by rubbing against the sea floor or other animals. The tag may migrate along the skin of the animal but would not cover the blowhole, as drag would move it away from the blowhole. The ease and speed with which some animals can remove a tag indicates that it is unlikely that an animal would endure long-term stress from the attachment. Vessel strikes pose a risk with suction cup tagging, as the animal must be followed for the duration of attachment. Vessels would be close to animals and may strike both target and non-target animals.

Implantable tags used on cetaceans have a greater potential for disturbance in application and would be more invasive that suction cup tags. Implantable tags typically penetrate the surface of the blubber layer. Tags generally work their way out of the blubber after weeks or months, but some new satellite tags may remain implanted for over a year (Mate *et al.* 2007). Disturbance of the animal would mainly occur during the close approach and attachment of the tag. Responses often seen include head lifts, fluke lifts, exaggerated fluke beats on diving, quick dives, or increased swimming speeds. Other observed responses include evasive swimming behavior, fluke slaps, head lunges, and decreased surfacing rates. Observations after tagging have shown that responses are short-term (Mate *et al.* 2007). These responses would not likely injure individuals. The implanted tag would not be expected to alter the behavior of the whale, particularly with regard to feeding, reproduction, or migratory behavior. Potential adverse effects are minimized by using the smallest possible instrument package, a smaller spear tip to minimize penetration into the blubber, and minimizing the velocity of the package at impact. Inflammation would be expected to occur after tag implantation and infection would be possible. There would be a low potential for an abscess or septicemia to occur after implantation. Post-tagging swelling or indentations may occur after the tags are lost, extruded,

or migrate out. However, there is no evidence that these swellings are signs of infection of the epidermis or poor health (NMFS 2006). A NMFS PR1 EA (NMFS 2006) states that past research and permit annual reports have shown that the chance of infection from the break in the epidermis from an implantable tag is likely to be extremely low and insignificant.

During health assessment captures, animals would be tagged with either a roto-tag or radio tag on the trailing edge of the dorsal fin. No tagging would occur on young of the year animals. Mothers accompanying these animals would not specifically be targeted. However, they may be tagged if accidentally captured so that they may be monitored and/or more readily identified and avoided for future net sets. The attachment of the roto-tag or radio tag would not be considered significant, as pain would only last during the application, and local anesthesia may be used. Little tissue damage to the trailing edge of the dorsal fin would occur when the tag is released.

For saddle tags, the saddle will be raised off the surface of the dorsal fin by inserting foam washers on the pins between the skin and saddle. This will allow for water flow and heat exchange to occur, minimizing any effects from placement on the dorsal fin. Spider tags could be ripped out of the blubber, causing pain and potential infection

Tagging/Attachment of Scientific Instruments- Pinnipeds. Tagging of pinnipeds would cause temporary stress during capture and restraint to attach or implant the tag. Invasive tags would cause temporary pain during attachment or implantation. Animal movement may prolong or prevent healing of flipper tags by producing repetitive stress on the wound. Infection of the wound site would be possible. The tag may pull out of the flipper during swimming or moving on a rookery or haul-out site. The site where the tag was could become infected. There is no quantitative information on the rate of infection caused by flipper tagging (NMFS 2004).

Effects associated with implanted tags may include excessive tissue reaction, infection, and subsequent rejection of implanted materials. Elephant seals had short reactions to PIT tag implants and there were no external signs of tissue reaction (Galimberti et al. 2000). For LHX tags, pain would not occur during surgery, as animals would be anesthetized. Animals may have post-operative pain and discomfort at the incision site. Animals would be held in captive observation for a period of time (6 to 10 weeks) to ensure proper wound healing and the absence of complications. If necessary, animals may be treated with appropriate antibiotics and/or analgesics if an infection or pain occurs. LHX tags have been used in sea otters for over 20 years, and the typical reactions, both behaviorally

and physically, to the tag are innocuous (Lander et al. 2001). LHX tags were implanted into rehabilitated California sea lions with no short- or long-term effects noted (Horning and Hill 2005).

Attachment of scientific instruments to pinnipeds may have both short- and long-term adverse effects, in addition to the effects of capture and restraint. Possible short-term impacts can include a reduction in foraging activity or an increase in grooming, at the expense of other behaviors (Kenward 1987). These types of impacts would likely be present after most tagging events and may be as much a delayed result of the capture and handling as of the tag's presence. Some pinnipeds fitted with crittercams reacted during deployment (tagging) and for a short period after deployment. Few pinnipeds exhibited curiosity about the crittercam or had aggressive reactions toward it for short periods (Marshall 1998). The hydrodynamic drag created by the instrument could exert an additional energetic demand on an animal. Over time, this drag may result in reduced foraging success, increased metabolic load, and stress to the animal.

The attachments of instruments to the hair with epoxy should not cause pain if done properly. However, it may result in discomfort if the placement of the instrument causes pulling of the hair or skin during animal movement. In addition, if the ratio of resin and hardener is not correctly measured, the resulting heat-producing reaction could burn the animal's skin and pelage (Lander et al. 2001). Both the resin and hardener could cause skin irritation, resulting in itching, rashes, hives, and dermatitis. The instrument could be knocked or torn off, pulling out hair and possibly some of the underlying skin, which would then be open to infection.

Marking. Freeze branding may cause little or momentary pain to cetaceans during application, which would require 15-20 seconds per brand (typically six brands per animal). Initial discomfort or pain would be relieved by the appropriate anesthetic or analgesic. Discomfort may persist for some time after the procedure, but is expected to be minor. Potential discomfort or pain would be relieved by the appropriate anesthetic or analgesic. Therefore, impacts would be considered negligible and not significant.

Marking pinnipeds with paint applied remotely using a paint gun may stun an animal and cause momentary stress and a startle reaction. If the target animal is hit or missed, other non-target animals may be temporarily disturbed. Capturing and restraining animals for marking with paint, bleach, or dye would likely involve more stress than remote marking and may cause incidental disturbance of nearby animals. A pinniped may also be marked by gluing a tag to their fur. The epoxy could cause burns, skin irritation, or an allergic reaction. Infection would be possible if the tag was torn off.

Biopsy Sampling. The effects of close approaches needed to conduct biopsy sampling are discussed above. A careful approach generally elicits, at most, a minimal and short-lived response from whales; even those subjected to invasive biopsy procedures (NMFS 1992). A NMFS PR1 EA (NMFS 2004) concluded that, based on existing data and published research, biopsy sampling on large cetaceans (via crossbow, compound bow, dart guns, or pole spears) would not have long-term adverse effects on the target species. Published research has shown that short-term effects of biopsy darting on cetaceans would be startling or momentarily painful to the animal. No evidence of infection at the sight of penetration or elsewhere has been seen among whales resighted in days following biopsy sampling (NMFS 1992).

Minke, fin, blue, and humpback whales showed no behavioral reactions to about 45 percent of successful biopsies, taken with punch-type tips fired from crossbows (Gauthier and Sears 1999). Behavioral responses in the remainder of the biopsies ranged from tail flicks, hard tail flicks, submerging below the water surface, or some combination of these responses. Most individuals of these species resumed their normal behavior within a few minutes of the sample collection. A study by Clapham *et al.* (1993) noted that studies on biopsy procedures showed no evidence of short- or long-term significant impacts on cetaceans.

Surgical biopsy sampling of epidermis and blubber also occur during health assessment captures. Animals may exhibit signs of stress due to capture and restraint, as discussed above. Animals may experience momentary pain during the administration of local anesthesia. In rare occurrences, the biopsied area may become infected. Animals may have some soreness or pain with healing, but other adverse impacts would not be expected from blubber biopsies (Wells *et al.* 2005).

Effects of skin and blubber biopsy samples on pinnipeds would include the effects of the capture and restraint necessary for obtaining these samples are described above. In addition, there would be the potential for an infection after any of these procedures, given the unsanitary environment of rookeries. Healthy animals should be able to heal and recover from a properly performed procedure. Animals with compromised immune systems may develop major complications. The procedures may also cause more than momentary pain.

Blood Sampling. The risks of blood collection would be largely incidental to capture and restraint. Multiple attempts to obtain a blood sample would not only be stressful and cause some degree of pain; they may result in damage to the vein, clotting, and an abscess. Removing a volume of blood

too large relative to the animal's mass and ability to replace the amount can result in fatigue, anemia, weakened immunity, and problems with clotting.

Breath Sampling. Breath sampling activities on free-swimming cetaceans would include close approaches by vessels. Impacts from close approaches are described above. The use of the extended pole and the quick physical contact of the vacuum cylinder may affect an animal. The reaction of cetaceans to physical contact for breath sampling has not been adequately studied. However, the contact of the apparatus on animals is very brief, lasting only a few seconds. This physical contact is not likely to disrupt the behavior of marine mammals and would not have a significant effect on an individual.

Ultrasound Sampling. Ultrasound sampling activities on free-swimming cetaceans would include close approaches by vessels. Impacts from close approaches are described above. The use of the extended pole and the quick physical contact of the ultrasound device may affect an animal. The reaction of cetaceans to physical contact for ultrasound sampling has not been adequately studied. However, the contact of the apparatus on animals is very brief, lasting only a few seconds. This physical contact is not likely to disrupt the behavior of marine mammals and would not have a significant effect on an individual. Ultrasound sampling may occur on animals captured for other research. Impacts from capture and restraint activities are described above. Cetaceans may be sampled out of the water and improper body support could compromise cardiac and respiratory functions (Haulena and Heath 2001). Animals may overheat in direct sun and heat without protection and body surfaces may be exposed to the drying effects of air. The external ultrasound procedure itself would pose minimal to no risk of injury to an animal. Internal ultrasound procedures pose the risks of infection and perforation.

Tooth Extraction. Potential adverse effects from tooth extraction relate to the risks of capture, restraint, anesthesia, and the possibility of infection following the extraction. The procedure may result in more than momentary pain, which could temporarily interfere with foraging.

Other Sampling. Other sampling that could occur includes the collection of feces, swabs, sloughed skin, urine, and other bodily fluids. The close approach of free-swimming cetaceans to collect feces and sloughed skin would have a minor impact on the animals. The collection of pinniped feces may disturb animals on haul-out sites or rookeries. Animals may rapidly depart the area, which could result in injury or death. Skin swabs, feces, urine, and other bodily fluids may be collected from animals during health assessments. Potential adverse effects from this sampling would likely result

from capture and restraint and not from sampling itself. Efforts would be made to reduce the animal holding time.

Hair, Nails, and Vibrissae Sampling. Clipping hair, nails, and whiskers would not likely result in pain. The effects on the animal from clipping are probably incidental to the effects of capture and restraint. Pulling a whisker may cause more than momentary pain, due to the highly sensitive nature of the snout and because the hair bulb is surrounded by blood and neurons.

Administration of Drugs and Euthanasia. Delivery of anesthesia or sedation in marine mammals, especially pinnipeds, can be complicated by their anatomical and physiological specializations to life in the marine environment. Determining the proper dose is dependent on a fairly accurate assessment of the animal's weight and condition. Miscalculation of an animal's weight could lead to an overdose, which can have lethal consequences (Fowler 1986). Anesthesia or sedation may activate the dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. Phocids that have died as a result of anesthesia exhibited signs of bradycardia, tachycardia, hypoventilation, cyanosis, hyperthermia, and decreased peripheral perfusion (Haulena and Heath 2001). Other drugs that may be administered include antibiotics, antifungals, and analgesics. Potential adverse effects from all drugs include drug interactions, incorrect drug dosages, side effects, injuries, and death. Effects vary according to drug, dosage, animal, and method of administration.

Chemical euthanasia may be the most humane method available for marine mammal situations. Euthanasia may occur with an overdose of sedatives and anesthetics or with euthanasia drugs. Some euthanasia agents may cause hyperexcitability or violent reactions in animals. Intraperitoneal administration of a euthanasia solution may cause effects due to differential absorption, leading to the prolonged onset of action. It may also cause irritation in the surrounding tissues (Greer et al. 2001). Improper chemical euthanasia agents or methods of delivery may prolong the pain and suffering of an animal.

The correct use of ballistics to euthanize or humanely kill an animal would cause instantaneous unconsciousness, followed by respiratory and cardiac arrest or vice versa. Improper uses may not cause unconsciousness before death and would not be considered humane. During mass strandings, the use of ballistics may stress and exacerbate fear in the surviving animals, if they die in the vicinity. The use of ballistics and explosives require expertise for proper placement. Incorrect charge

placement may not cause instantaneous unconsciousness and may cause tissue destruction (Greer et al. 2001).

Exsanguination may occur when no other options are available, especially in cases of large whales after sedation with analgesics or anesthesia. It requires expertise in anatomical knowledge of the head and cervical spine, or the location and approaches to the heart. Prolonged pain and suffering would occur if done incorrectly. Exsanguination should never be done on a whale that was conscious and responsive (Geraci and Lounsbury 2005).

Auditory Brainstem Response (ABR)/Auditory Evoked Potential (AEP). Potential adverse effects from ABR and AEP procedures would be as a result of capture, restraint, and holding described above. The maximum sound levels presented would be lower than sound levels produced by animal whistles and echolocation clicks. Sounds may be quieter than those animals are normally exposed to on a daily basis. Therefore, impacts from the procedures themselves would not be considered significant. Short-term impacts, including inflammation and hyperemia, would be expected from the suction cups used to attach electrodes to the animal.

Diagnostic Testing and Analysis of Specimens. Diagnostic testing and the analysis of specimens would have no impact on marine mammals. Specimens would be archived in the NMMTB or other authorized laboratory and would not have any adverse impacts.

Import/Export of Marine Mammals or Marine Mammal Parts. Import and export of specimens would not have an impact on marine mammals. All specimens would be collected legally in the U.S. or other foreign countries and meet the other conditions required by the MMPA, and may be subject to additional requirements and evaluation under the Animal Welfare Act. Potential adverse effects of importing or exporting marine mammals in rehabilitation would be the result of restraint and transport. Handling, lifting, and moving an animal could cause injuries. Cetacean flippers may be crushed or overheat if stretchers do not have openings for them. Creases or seems may press into the skin, causing discomfort and possible injury. Transport of animals could cause stress or injuries to an animal. Depending on the mode of transportation, animals may overheat in direct sun and heat without protection. Animals may develop hypothermia and frostbite if transport occurs during freezing temperatures. Cetaceans may be exposed to the drying effects of air. Animals may also be knocked around in the vehicle or vessel or inhale exhaust fumes. Improper transport of cetaceans may cause abrasions, pressure necrosis, thermoregulatory problems, and respiratory problems. Cetaceans transported on airplanes are susceptible to the effects of high-altitude sickness. Most

impacts during transport would be minor and temporary and would end once the animal reached its destination.

The impacts of restraint and transport would also apply to import and export of permanently captive marine mammals (for instance, from a foreign public display facility) for health research purposes under the ESA/MMPA permit. However, the care and handling of captive animals falls under the purview of the USDA/APHIS. Any import/export activities for captive marine mammals would meet the conditions for import or export under the MMPA and would be subject to additional requirements and evaluation under the Animal Welfare Act.

4.2.6.3 Alternative F3- Preferred Alternative

Under Alternative F3, the new ESA/MMPA permit would be issued to include current and future biomonitoring and research activities. Effects on biological resources from Alternative F3 would be the same as those described under Alternative F2, with some exceptions for new research activities.

Passive Acoustic Recording. Passive acoustic recording would not have an adverse effect on marine mammals. The actual presence of the hydrophone in the water would not be expected to have any impact on marine mammals. A NMFS EA (NMFS 2004) noted that, on some occasions, researchers have noted instances of animals investigating the hydrophone. However there is no known documentation of the presence of a hydrophone, or a similar recording device, resulting in any adverse impact.

Active Acoustic Playbacks. Active acoustic playbacks would involve close approaches by one or more vessels and would have negligible adverse behavioral impacts on marine mammals, as described in Section 4.2.6.2. The source levels of the sounds produced under the proposed activities would be sufficiently low and produced at a large enough distance from the animal (minimum 100 m) to not result in levels that would be painful or overly disruptive to the animals. Previous tests indicate that sounds produced by these proposed playback equipment would be less powerful and attenuate more rapidly than other anthropogenic sources in the action area (*i.e.* cruise ships, fishing vessels, and large pleasure craft) (NMFS 2004). Incidental harassment of non-target animals (including USFWS species) is not likely, as the source levels of the sounds would be sufficiently low.

Cognitive Assessment of Sea Lions in Rehabilitation Suffering from Domoic Acid Intoxication. All methods used during the assessment will be low-impact and non-invasive, and no immediate or residual negative impacts on the animals are expected as a result of their participation in the study.

However, mortality rates are high for domoic acid exposed animals, so it is likely that a proportion of the subjects will die unpredictably during the course of the study. Based on the results of a previous 3-year study published in Goldstein et al. (2008) and in Zabka et al. (in press), it is expected that animals suffering from long-term effects of domoic acid will eventually die up to two years post exposure if they have extensive cardiac or hippocampal lesions that can result in cardiac conduction defects or seizures. Therefore, it is possible that as many as 50 sea lions may die during the cognitive assessment procedures as a result of permanent lesions due to domoic acid intoxication.

4.3 Water and Sediment Quality

This section evaluates the potential impacts on water and sediment quality as a result of the alternatives. Impacts on water and sediment quality are evaluated in context and intensity on a wide geographic scale. Therefore, while more significant impacts may occur in localized areas, the overall impact on the watershed, beach, coastline, ocean, etc. would be considered minor.

4.3.1 Stranding Agreements and Response Alternatives

4.3.1.1 Alternative A1- No Action

Under Alternative A1 stranding response from current SA holders would end once all agreements have expired. No effects on water and sediment quality would be expected to occur under Alternative A1, as stranding response activities would end.

4.3.1.2 Alternative A2- Status Quo

Under Alternative A2, the current SAs would be renewed and current stranding response activities would continue without the issuance of Final SA criteria. Minor, short-term adverse effects on water and sediment quality could occur under Alternative A2. Equipment used for transport could leak oil or other materials into sand and nearshore waters. This would likely be localized and flushed out and/or diluted rapidly, causing a minor impact. Tissue, blood, and other body fluids may contain euthanasia solution, other drugs, POPs, toxic metals, pathogens, and/or biotoxins. Chemical residues from euthanasia solution and other drugs persist in the carcass at different concentrations and for different amounts of time. They would not likely create an environmental hazard, as they would be broken down quickly and would not persist in the surrounding environment. Contaminants would also be localized and flushed out of the sand and groundwater by the tides and/or precipitation. Any contaminants entering the nearshore waters would be diluted quickly by the currents, and impacts would be minor and temporary.

Animals may also contain chemical residues from substances administered by stranding response personnel, including chemical euthanasia solution and sedatives. If the animal is a rehabilitated animal that has restranded, it may also contain antibiotics, antifungals, and other medicine. These chemicals persist in the animal at different concentrations and for different amounts of time. They would not likely create an environmental hazard, as they would be broken down quickly and would not persist in the surrounding environment.

4.3.1.3 Alternative A3

Under Alternative A3, SAs would be issued to any applicants after review, the new SA template would not be utilized, and the Final SA criteria would not be issued. Effects on water and sediment quality from stranding response activities under Alternative A3 would be the same as those described under Alternative A2.

4.3.1.4 Alternative A4- Preferred Alternative

Under Alternative A4, the Final SA criteria and the new SA template would be implemented and current and future stranding response activities would occur. Effects on water and sediment quality from stranding response activities under Alternative A4 would be the same as those described under Alternative A2.

4.3.1.5 Alternative A5

Under Alternative A5, the Final SA criteria and the new SA template would be implemented and response to threatened, endangered, or rare animals would be required. Effects on water and sediment quality from stranding response activities under Alternative A5 would be the same as those described under Alternative A2.

4.3.2 Carcass Disposal Alternatives

4.3.2.1 Alternative B1- No Action

Under Alternative B1, no carcass disposal would occur and carcasses would remain on the beach to naturally decompose. Carcasses left on the beach to naturally decompose would not cause an impact, unless the animal contained contaminants. Body fluids may contain POPs, toxic metals, pathogens, and/or biotoxins could seep into the sand beneath the animal or leach into groundwater and flow into nearshore waters. If contaminants enter groundwater, they would likely be flushed out quickly by tidewater and/or precipitation. The impact on water quality would likely be temporary and minor.

Sediment quality would not likely be impacted by contaminants, as they would be localized and flushed out or diluted before they could adhere to the substrate.

4.3.2.2 Alternative B2- Status Quo

Under Alternative B2, current methods of carcass disposal would continue. Potential effects depend on the method of carcass disposal and if the carcass was toxic from the use of euthanasia solution. Carcasses left on the beach to naturally decompose would not cause an impact, unless the animal had been chemically euthanized or contains contaminants. The evaluation of the potential toxicological environmental hazards posed by a decomposing carcass cannot be determined at this time (see Appendix J). Additionally, the types and levels of contaminants in a carcass are generally not known at the time of disposal because of the time delay in processing analytical lab tests. However, the remote potential does exist for decay products of carcasses to be released into the surrounding environment or recycled into the food web, with subsequent negative impacts. Chemical residues from euthanasia solution and other drugs persist in the carcass at different concentrations and for different amounts of time. They would not likely create an environmental hazard, as they would break down quickly and would not persist in the surrounding environment. Body fluids containing POPs, toxic metals, pathogens, and/or biotoxins could seep into the sand beneath the animal or leach into groundwater and flow into nearshore waters. If contaminants enter groundwater, they would likely be localized and flushed out quickly by tidewater and/or precipitation. Higher concentrations of contaminants may occur in nearshore waters down site from the carcass. These concentrations would be diluted and flushed out by the currents. The amount of time for contaminants to flush out of groundwater would depend upon the amount of precipitation, tides, and the permeability of the sand/sediment. The size and number of carcasses would also factor into the amount of time for contaminants to disperse. The impact on water quality would likely be localized, temporary, and minor. Sediment quality would not likely be impacted by contaminants, as they would be flushed out or diluted before they could adhere to the substrate.

Burial of carcasses could increase erosion, but this would be a negligible impact. The burial site would only be disturbed for a short-period of time and would be refilled with sand to match the surrounding ground level. Burial does not inactivate all pathogens in the carcass. Some carcasses may contain POPs, toxic metals, pathogens, and/or biotoxins; however the specific types and levels of contaminants are typically not known at the time of burial. As these carcasses decay, body fluids may leach into the sand and groundwater, potentially impacting the adjacent coastal waters and sediments. As described above, contaminants would be flushed out of groundwater and diluted in nearshore

waters by the currents. Carcasses containing euthanasia solution or other drugs would not likely persist in the environment. Impacts to water and sediment quality would be temporary and minor.

Disposal of carcasses at sea may negatively impact water and sediment quality. Carcasses of euthanized animals could release POPs, toxic metals, pathogens, and/or biotoxins into the water or food web during decomposition. However, the impact would be minor as the contaminants would dilute rapidly in the water. The material used to sink the carcass may have an adverse effect, if it could be considered a contaminant. However, Jersey (concrete) barriers would generally be used to sink a carcass and these would have no impact on water or sediment quality. Transport of the carcass offsite could temporarily increase erosion, due to the use of heavy equipment. This would be a negligible impact as equipment would only be used for a short time period (hours). Spills of hazardous materials or wastes from transport vessels could impact water and sediment quality. Impacts would be considered minor to major, depending on the material, size of spill, location, and/or vicinity of these resources. Some materials could be diluted quickly by currents, causing localized, temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer but still localized impacts.

Heavy equipment or vehicles may be necessary to transport a carcass off-site. Equipment used to transport animals could leak oil or other materials into sand and nearshore waters during operations. These would likely be small amounts that would be localized, flushed out and/or diluted rapidly, causing a minor, short-term impact. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer but still localized impacts.

Burial in a landfill would not create any negative impacts for non-toxic carcasses. If carcasses are known or assumed (based upon test results or prior knowledge of the species) to have contaminant levels that meet or exceed the local definition of hazardous waste, they would be taken to a hazardous waste landfill for proper disposal. Carcasses may be taken to a licensed rendering or incineration facility. Because the landfill, rendering, or incineration facilities have been previously licensed, all environmental impacts from these facilities have already been considered. Any impacts from these activities would be covered by the individual rendering or incinerating facility and their permits, not the MMHSRP or stranding network members.

4.3.2.3 Alternative B3- Preferred Alternative

Under Alternative B3, current methods of carcass disposal would continue with a recommendation to transport chemically euthanized animal carcasses off-site. The effects on water and sediment quality

under Alternative B3 would be the same as those described under Alternative B2. However, under Alternative B3, modifications may be made to carcass disposal activities. Currently, the potential toxicological environmental hazards posed by a decomposing carcass are not known. If and when this information becomes available, additional precautions (*e.g.*, removal of certain species carcasses from beaches) would be implemented, if necessary. These modifications would have a beneficial impact on water and sediment quality.

Composting may be added as a disposal method after on-going research is completed. By-products and finished products from composting a carcass would have little or no adverse effects on water and sediment quality or the surrounding environment (Mukhtar *et al.* 2004). Temperatures during the composting process are high enough to kill pathogens and breakdown contaminants and euthanasia solution (Geraci and Lounsbury 2005).

4.3.3 Rehabilitation Activities Alternatives

4.3.3.1 Alternative C1- No Action

Under Alternative C1, current SAs would expire, stranding response would end, and animals would not be taken into rehabilitation. No effects on water or sediment quality would be expected to occur under Alternative C1. Rehabilitation would no longer occur and therefore potential risks to water and sediment quality would be removed.

4.3.3.2 Alternative C2- Status Quo

Under Alternative C2, current rehabilitation activities would continue, but the final Rehabilitation Facility Standards would not be implemented. Minor adverse effects could occur under Alternative C2. Rehabilitation facilities that discharge directly to surface waters would have the required National Pollutant Discharge Elimination System (NPDES), state, and local permits for facility discharges. Any wastewater effluent discharged to a publicly owned treatment works (POTWs) would be required to meet municipal wastewater treatment standards and have any necessary effluent discharge permits under the Clean Water Act. Impacts from permitted discharges would already be accounted for under the respective Federal, state, and/or local regulations. Facilities discharging to POTWs would have a pretreatment plan in place if necessary, as POTWs do not remove toxic organics or metals.

Net pens could pose minimal adverse impacts to water quality because they are open to ocean and bay waters. Water and sediment near the pen would be exposed to any medicines, materials, or

equipment used in rehabilitation. There would also be an increase in pathogen and fecal exposure. Temporary pools would not have any means to treat effluent. Temporary pools could leak water containing wastes, pathogens, or other contaminants into the soil and groundwater. Temporary pools could also contaminate water and sediment when they are emptied, if the water is discharged into surface waters.

4.3.3.3 Alternative C3- Preferred Alternative

Under Alternative C3, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Effects on water and sediment quality from rehabilitation activities under Alternative C3 would be the same as those described under Alternative C2. However, under this alternative, modification of rehabilitation activities could occur. Rehabilitation activities may change with improvements in technologies, techniques, and other aspects of marine mammal medicine. Impacts on water and sediment quality from these new activities would be similar to, or less than, those currently conducted. The closure of rehabilitation facilities is also included under modification of activities. The closure of a rehabilitation facility would eliminate any potential adverse impacts on water and sediment quality

4.3.3.4 Alternative C4

Under Alternative C4, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Effects on water and sediment quality from rehabilitation activities under Alternative C4 would be the same as those described under Alternative C2.

4.3.4 Release of Rehabilitated Animals Alternatives

4.3.4.1 Alternative D1- No Action

Under Alternative D1, current SAs would expire, stranding response and rehabilitation would cease, and there would be no animals to release. No effects on water or sediment quality would be expected to occur under Alternative D1. Release of rehabilitated animals would not take place and there would be no risks to water and sediment quality.

4.3.4.2 Alternative D2- Status Quo

Under Alternative D2, current release activities would continue, adaptive changes to release activities would not be permitted, and the final Release criteria would not be implemented. Minor, short-term,

adverse effects on water and sediment quality could occur under Alternative D2. Release of rehabilitated animals would not intentionally generate any pollutants or disturb sediment. However, spills of hazardous materials or wastes from release vessels could impact water and sediment quality. Some materials could be diluted quickly by currents, causing temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer impacts. Equipment to transport animals could leak oil or other materials into sand and nearshore waters during beach releases. These would likely be small amounts that would be localized, flushed out, and/or diluted rapidly, causing a minor, short-term impact. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer but still localized impacts.

4.3.4.3 Alternative D3- Preferred Alternative

Under Alternative D3, new SAs would be issued, release activities would continue, adaptive changes to release activities would be permitted, and the final Release criteria would be implemented. Effects on water and sediment quality from Alternative D3 would be the same as those described under Alternative D2.

4.3.5 Disentanglement Alternatives

4.3.5.1 Alternative E1- No Action

Under Alternative E1, there would be no disentanglement network. No effects on water or sediment quality would be expected to occur under Alternative E1, as disentanglement activities would no longer occur.

4.3.5.2 Alternative E2- Status Quo

Under Alternative E2, the disentanglement network would continue the current activities with no modifications or new members added. Minor, short-term, adverse effects water or sediment quality could occur under Alternative E2. Disentanglement activities would not intentionally generate any pollutants or disturb sediment. However, spills of hazardous materials or wastes from disentanglement vessels could impact water and sediment quality. Some materials could be diluted quickly by currents, causing localized, temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer but still localized impacts.

4.3.5.3 Alternative E3- Preferred Alternative

Under Alternative E3, the disentanglement network would continue the current activities on the East Coast with modifications to the West Coast network. Effects on water or sediment quality from Alternative E3 would be the same as those described under Alternative E2.

4.3.6 Biomonitoring and Research Activities Alternatives

4.3.6.1 Alternative F1- No Action

Under Alternative F1, biomonitoring and research activities would not occur. No effects on water and sediment quality would be expected to occur under Alternative F1. Biomonitoring and research activities would no longer occur and therefore potential risks to water and sediment quality would be removed.

4.3.6.2 Alternative F2- Status Quo

Under Alternative F2, the new ESA/MMPA permit would continue the current biomonitoring and research activities. Minor, short-term, adverse effects on water and sediment quality could occur under Alternative F2. Biomonitoring and research activities would not intentionally generate any pollutants or disturb sediment. Spills of hazardous materials or wastes from vessels or the loss of research materials overboard could impact water and sediment quality. Some materials could be diluted quickly by currents, only causing localized, temporary impacts. Other materials could linger in the water column or adhere to sediment particles, causing slightly longer but still localized impacts. Equipment used for beach research activities could leak oil or other materials into sand and nearshore waters. These would likely be small amounts that would be flushed out and/or diluted rapidly, causing a minor, short-term impact.

Any hazardous or non-hazardous wastes from laboratories used for diagnostic testing and analyses would be covered under those laboratories and their hazardous wastes and wastewater permits, not the MMHSRP.

4.3.6.3 Alternative F3- Preferred Alternative

Under Alternative F3, the new ESA/MMPA permit would be issued to include current and future biomonitoring and research activities. Effects on water and sediment quality from Alternative F3 would be the same as those described under Alternative F2.

4.4 Cultural Resources

This section evaluates the potential impacts on cultural resources as a result of the alternatives. Section 5.4 of this PEIS describes mitigation measures that would be taken to protect cultural resources under certain alternatives. These mitigation measures include contacting the appropriate SHPO prior to undertaking actions, such as carcass burial, in areas where there is a potential for submerged or buried cultural resources to be present.

4.4.1 Stranding Agreements and Response Alternatives

4.4.1.1 Alternative A1- No Action

Under Alternative A1 stranding response from current SA holders would end once all agreements have expired. No effects on cultural resources would be expected to occur from Alternative A1. Stranding response activities would end, removing any potential risk to cultural resources.

4.4.1.2 Alternative A2- Status Quo

Under Alternative A2, the current SAs would be renewed and current stranding response activities would continue without the issuance of Final SA criteria. The use of equipment and vehicles on the beach, as well as digging, may affect cultural resources buried in sand or dunes. Equipment used in nearshore waters may affect submerged cultural resources. However, the potential for impact would be minor, as stranding events are scattered along the entire U.S. coastline. The probability that these events, and therefore response activities, may be located on a beach or in water containing cultural resources is small.

Stranding response on Native American/Alaska Native lands would be coordinated with Native American tribes, Alaska Natives, or other aboriginal peoples to accommodate cultural uses of marine mammals. Responders would also be sensitive to the fact that tribal cultures often involve ceremonial, medicinal, or subsistence uses or plants, animals (including marine mammals), and specific geographic locations. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.

4.4.1.3 Alternative A3

Under Alternative A3, SAs would be issued to any applicants after review, the new SA template would not be utilized, and the Final SA criteria would not be issued. The effects on cultural resources from Alternative A3 would be the same as those described under Alternative A2.

4.4.1.4 Alternative A4- Preferred Alternative

Under Alternative A4, the Final SA criteria and the new SA template would be implemented and current and future stranding response activities would occur. The effects on cultural resources from Alternative A4 would be the same as those described under Alternative A2.

4.4.1.5 Alternative A5

Under Alternative A5, the Final SA criteria and the new SA template would be implemented and response to threatened, endangered, or rare animals would be required. The effects on cultural resources from Alternative A5 would be the same as those described under Alternative A2.

4.4.2 Carcass Disposal Alternatives

4.4.2.1 Alternative B1- No Action

Under Alternative B1, no carcass disposal would occur and carcasses would remain on the beach to naturally decompose. No effects on cultural resources would be expected to occur from Alternative B1. Carcass disposal activities would end, removing any potential risk to cultural resources.

4.4.2.2 Alternative B2- Status Quo

Under Alternative B2, current methods of carcass disposal would continue. Minor, adverse effects on cultural resources could be expected to occur under Alternative B2. Carcass burial could damage resources located on or beneath the beach. Digging may unearth artifacts and equipment used for digging could physically impact buried resources. This would negatively impact areas such as the Pacific Islands area, where many known artifacts and habitation sites are buried on beaches. Transporting the carcass off-site has the potential to damage resources, as the equipment used could crush buried resources. However, the potential for impact would be minor, as stranding events are scattered along the entire U.S. coastline. The probability that these events, and therefore disposal activities, may be located on a beach or in water containing cultural resources is small.

Carcass disposal on Native American/Alaska Native lands would be coordinated with Native American tribes, Alaska Natives, or other aboriginal peoples to accommodate cultural uses of marine mammals. Responders would also be sensitive to the fact that tribal cultures often involve ceremonial, medicinal, or subsistence uses or plants, animals (including marine mammals), and specific geographic locations. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.

4.4.2.3 Alternative B3- Preferred Alternative

Under Alternative B3, current methods of carcass disposal would continue with a recommendation to transport chemically euthanized animal carcasses off-site. The effects on cultural resources from Alternative B3 would be the same as those described under Alternative B2.

4.4.3 Rehabilitation Activities Alternatives

4.4.3.1 Alternative C1- No Action

Under Alternative C1, current SAs would expire, stranding response would end, and animals would not be taken into rehabilitation. No effects on cultural resources would be expected to occur under Alternative C1. Rehabilitation activities would end, removing any potential risk to cultural resources.

4.4.3.2 Alternative C2- Status Quo

Under Alternative C2, current rehabilitation activities would continue, but the final Rehabilitation Facility Standards would not be implemented. Potential minor, adverse effects on cultural resources could be expected to occur under Alternative C2. The use of temporary pools could damage cultural resources, depending on where they are sited. The use of net pens may disturb or damage submerged cultural resources.

4.4.3.3 Alternative C3- Preferred Alternative

Under Alternative C3, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. The effects on cultural resources from Alternative C3 would be the same as those described under Alternative C2.

4.4.3.4 Alternative C4

Under Alternative C4, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. The effects on cultural resources from Alternative C4 would be the same as those described under Alternative C2.

4.4.4 Release of Rehabilitated Animals Alternatives

During the public comment period, particular concerns were raised regarding the release of rehabilitated ices seals in Alaskan waters. In response to these concerns, which raised issues related to potential effects on cultural resources for subsistence harvest of ice seals, several of the alternatives

would adopt mitigation measures to minimize the potential for disease transmission from rehabilitated ices seals, as described in Section 5.2.4 of this PEIS.

4.4.4.1 Alternative D1- No Action

Under Alternative D1, current SAs would expire, stranding response and rehabilitation would cease, and there would be no animals to release. No effects on cultural resources would be expected to occur from Alternative D1. Release of rehabilitated animals would end, removing any potential risk to cultural resources.

4.4.4.2 Alternative D2- Status Quo

Under Alternative D2, current release activities would continue, adaptive changes to release activities would not be permitted, and the final Release criteria would not be implemented. Minor, adverse effects on cultural resources could be expected to occur from Alternative D2. The use of equipment and vehicles on the beach during release activities may affect cultural resources buried in sand or dunes. However, the potential for impact would be minor, as release activities are scattered along the entire U.S. coastline. The probability that these activities may be located on a beach containing cultural resources is small. Archaeological studies have not been conducted in most coastal areas. Release activities conducted at sea would not affect any submerged cultural resources.

4.4.4.3 Alternative D3- Preferred Alternative

Under Alternative D3, new SAs would be issued, release activities would continue, adaptive changes to release activities would be permitted, and the final Release criteria would be implemented. The effects on cultural resources from Alternative D3 would be the same as those described under Alternative D2.

4.4.5 Disentanglement Alternatives

4.4.5.1 Alternative E1- No Action

Under Alternative E1, there would be no disentanglement network. No effects on cultural resources would be expected to occur from Alternative E1. Disentanglement activities would end, removing any potential risk to cultural resources.

4.4.5.2 Alternative E2- Status Quo

Under Alternative E2, the disentanglement network would continue the current activities with no modifications or new members added. No effects on cultural resources would be expected to occur from Alternative E2. Disentanglement activities would generally occur in open ocean areas and would not be near or in contact with any submerged cultural resources. Pinniped disentanglements may occur on beaches, but impacts to cultural resources would not be expected.

4.4.5.3 Alternative E3- Preferred Alternative

Under Alternative E3, the disentanglement network would continue the current activities on the East Coast with modifications to the West Coast network. No effects on cultural resources would be expected to occur from Alternative E3. Disentanglement activities would generally occur in open ocean areas and would not be near or in contact with any submerged cultural resources. Pinniped disentanglements may occur on beaches, but impacts to cultural resources would not be expected.

4.4.6 Biomonitoring and Research Activities Alternatives

4.4.6.1 Alternative F1- No Action

Under Alternative F1, biomonitoring and research activities would not occur. No effects on cultural resources would be expected to occur from Alternative F1. Biomonitoring and research activities would end, removing any potential risk to cultural resources.

4.4.6.2 Alternative F2- Status Quo

Under Alternative F2, the new ESA/MMPA permit would continue the current biomonitoring and research activities. Adverse effects on cultural resources would not likely occur from this alternative. Research activities conducted on beaches could potentially disturb buried resources if vehicles or other equipment is used. Research activities conducted in the water, such as health assessment captures, could damage submerged cultural resources. Activities may involve anchoring boats or nets to the bottom and positioning researchers in the water. Activities in shallow areas could potentially disturb or come in contact with artifacts and other resources. Research activities in open ocean areas would not be near or in contact with any submerged cultural resources. However, the potential for impact would be minor as research activities are scattered along the entire U.S. coastline. The probability that these activities may be located on a beach or in water containing cultural resources is small.

4.4.6.3 Alternative F3- Preferred Alternative

Under Alternative F3, the new ESA/MMPA permit would be issued to include current and future biomonitoring and research activities. The effects on cultural resources from Alternative F3 would be the same as those described under Alternative F2.

4.5 Human Health and Safety

This section evaluates the potential impacts on human health and safety as a result of the alternatives.

4.5.1 Stranding Agreements and Response Alternatives

4.5.1.1 Alternative A1- No Action

Under Alternative A1 stranding response from current SA holders would end once all agreements have expired. Response to all stranded animals, alive or dead, would not occur and animals would be left on beaches. Without response activities, people would likely approach the animal or carcass either out of curiosity or in an attempt to help. Animal carcasses and live animals may contain contaminants or zoonotic diseases that people or domestic animals may come in contact with through tissues, fluids, bites, or scratches. Live animals may bite, roll, or thrash around, causing physical injuries to people who attempt to interact with the animals.

Direct, beneficial effects would be expected for stranding response personnel. As response to stranded animals ends, the safety risks for response personnel would no longer exist.

4.5.1.2 Alternative A2- Status Quo

Under Alternative A2, the current SAs would be renewed and current stranding response activities would continue without the issuance of Final SA criteria. The general public could be affected if they approached the carcass or live animal out of curiosity or in an attempt to help. Animal carcasses and live animals may contain contaminants or zoonotic diseases that people or domestic animals may come in contact with through tissues or fluids. People may have allergic reactions to animal blubber and oils. Serious infections may occur from contact with animals. Pathogens encountered may be antibiotic resistant, making treatment more difficult. Live animals may bite, roll, or thrash around, causing physical injuries. However, the potential for adverse effects is less under this alternative than Alternative A1, as responders would be on scene, reducing the ability for the public to come into contact with an animal.

Risk to responders would also include contaminants, zoonotic diseases, and physical injuries. Contaminants, including biotoxins and petroleum products, may produce short-term affects, such as respiratory problems, lightheadedness, nausea, eye irritation, or skin irritation. Responders may have allergic reactions to animal blubber and oils. Serious infections may occur from contact with animals. Pathogens encountered may be antibiotic resistant, making treatment more difficult. Zoonotic diseases may have short-term affects including swelling, joint pain, skin lesions, and flu-like symptoms. Long-term effects from zoonotic diseases could occur, especially if they are not diagnosed properly. Physical injuries may include strains or bruises from moving an animal or from slips, trips, or falls. Workers may be injured by stepping on broken glass, rusty metal, needles, or other litter. Workers could become entangled in derelict fishing gear during water responses. Workers may also come into contact with contaminated debris, including medical wastes and sewage. Accidental injections or exposure to euthanasia solution could cause adverse effects, depending on the chemical(s) used. Etorphine can be absorbed through broken skin and mucous membranes (*e.g.* eyes, nose, and mouth). Accidental injections of paralytic agents are considered life-threatening (Greer *et al.* 2001). Responses in or close to water could result in drowning if proper safety measures are not taken. Responders in water may come into contact with sharks, jellyfish, rays, and other venomous fish.

4.5.1.3 Alternative A3

Under Alternative A3, SAs would be issued to any applicants after review, the new SA template would not be utilized, and the Final SA criteria would not be issued. Effects on human health and safety from Alternative A3 would be the same as those described under Alternative A2.

4.5.1.4 Alternative A4- Preferred Alternative

Under Alternative A4, the Final SA criteria and the new SA template would be implemented and current and future stranding response activities would occur. Effects on human health and safety from Alternative A4 would be similar to those described under Alternative A2. However, the implementation of SA criteria would ensure that responders are experienced and therefore have the knowledge to avoid or minimize health and safety risks.

4.5.1.5 Alternative A5

Under Alternative A5, the Final SA criteria and the new SA template would be implemented and response to threatened, endangered, or rare animals would be required. Effects on human health and safety from Alternative A5 would be the same as those described under Alternative A4.

4.5.2 Carcass Disposal Alternatives

4.5.2.1 Alternative B1- No Action

Under Alternative B1, no carcass disposal would occur and carcasses would remain on the beach to naturally decompose. Carcasses of most stranded animals would be left on beaches and would naturally decompose (limited carcass disposal may still occur from Federal (not including NMFS), state, and local agencies authorized under MMPA Section 109(h)). People would likely approach and touch the carcass out of curiosity. Animal carcasses may contain contaminants or zoonotic diseases that people may come in contact with through tissues or fluids. Contaminants, including petroleum products and other hazardous materials, may produce short-term affects, such as respiratory problems, lightheadedness, nausea, eye irritation, or skin irritation. If disposal activities occur during a *Karenia brevis* bloom (a HAB), aerosolized brevetoxins may be inhaled by humans and could cause respiratory problems, nausea, vomiting, and neurological symptoms. People may have allergic reactions to animal blubber and oils. Serious infections may occur from contact with carcasses. Pathogens encountered may be antibiotic resistant, making treatment more difficult. Zoonotic diseases may have short-term affects including swelling, joint pain, skin lesions, and flu-like symptoms. Long-term effects from zoonotic diseases could occur, especially if they are not diagnosed or treated properly.

Contaminated carcasses left on the beach could potentially contaminate the groundwater and/or nearshore water. Impacts would be minor and temporary, as contaminants in groundwater would likely be flushed out quickly by tidewater and/or precipitation. Contaminants in nearshore waters would rapidly be diluted and flushed out by currents. Risks to human health could occur if toxic carcasses were consumed.

The alternative would have a beneficial effect, as personnel involved in carcass disposal would no longer be exposed to health and safety risks.

4.5.2.2 Alternative B2- Status Quo

Under Alternative B2, current methods of carcass disposal would continue. Minor, short-term, adverse effects on human health and safety would be expected to occur under Alternative B2. Carcasses of stranded animals may be left to naturally decompose, buried, towed to sea, or transported off-site to a rendering facility, landfill, or compost facility. Animal carcasses may contain euthanasia solution, contaminants, or zoonotic diseases that people may come in contact with through tissues or fluids, if the carcasses are left to naturally decompose. Contaminants, including petroleum products and other hazardous materials, may produce short-term affects, such as respiratory problems, lightheadedness, nausea, eye irritation, or skin irritation. If disposal activities occur during a *Karenia brevis* bloom (a HAB), aerosolized brevetoxins may be inhaled by humans and could cause respiratory problems, nausea, vomiting, and neurological symptoms. People may have allergic reactions to animal blubber and oils. Serious infections may occur from contact with carcasses. Pathogens encountered may be antibiotic resistant, making treatment more difficult. Zoonotic diseases may have short-term affects including swelling, joint pain, skin lesions, and flu-like symptoms. Long-term affects from zoonotic diseases could occur, especially if they are not diagnosed or treated properly.

Carcasses containing environmental contaminants left on the beach or buried could potentially contaminate the groundwater and/or nearshore water. Impacts would be minor and temporary, as contaminants in groundwater would likely be flushed out quickly by tidewater and/or precipitation. Contaminants in nearshore waters would rapidly be diluted and flushed out by currents. Chemically euthanized carcasses left on the beach or buried would not likely effect human health. Risks to human health could occur if toxic or chemically euthanized carcasses were consumed.

Persons involved with the disposal risk physical injuries from using equipment to bury, transport off-site, or tow the carcass out to sea. Persons could be hit or crushed by equipment or may risk drowning when towing the carcass out to sea. Carcasses that are disposed in shipping lanes or resurface could cause vessel accidents.

4.5.2.3 Alternative B3- Preferred Alternative

Under Alternative B3, current methods of carcass disposal would continue with a recommendation to transport chemically euthanized animal carcasses off-site. Effects on human health and safety under Alternative B3 would be the same as those described under Alternative B2, with one exception. Chemically euthanized animal carcasses would not be buried on the beach whenever possible,

minimizing the risk of humans coming in contact with these carcasses. This would be a beneficial impact on health and safety. However, carcasses containing environmental contaminants could still be buried and contaminate the groundwater and/or nearshore water. Impacts would be minor and temporary, as contaminants in groundwater would likely be flushed out quickly by tidewater and/or precipitation. Contaminants in nearshore waters would rapidly be diluted and flushed out by currents. Risks to human health would still exist if toxic carcasses were consumed.

Under this alternative, modifications may be made to carcass disposal activities. Currently, the potential toxicological environmental hazards posed by a decomposing carcass are not known. If and when this information becomes available, additional precautions (*e.g.,* removal of certain species carcasses from beaches) would be implemented, if necessary. These modifications would have a beneficial impact on human health and would remove the risk of toxic carcasses being consumed.

4.5.3 Rehabilitation Activities Alternatives

4.5.3.1 Alternative C1- No Action

Under Alternative C1, current SAs would expire, stranding response would end, and animals would not be taken into rehabilitation. A beneficial effect on human health and safety would be expected to occur from Alternative C1. Rehabilitation of marine mammals would no longer occur and risks to marine mammal workers would end.

4.5.3.2 Alternative C2- Status Quo

Under Alternative C2, current rehabilitation activities would continue, but the final Rehabilitation Facility Standards would not be implemented. Minor, short-term, adverse effects on human health and safety could be expected to occur from under Alternative C2. Animal induced injuries would include bites or physical injuries from being hit by a fin, tail, or other body part. Working on wet surfaces may cause bruises, slips, trips, or falls. Drowning is a possibility as work would occur around or in pools and pens. Physical injuries may occur from the use of other equipment.

Rehabilitation staff may be exposed to contaminants, potential zoonotic pathogens, euthanasia solution, animal drugs, and chemicals used for sanitation purposes. Contaminants, including petroleum products and other hazardous materials, may produce short-term affects, such as respiratory problems, lightheadedness, nausea, eye irritation, or skin irritation. If disposal activities occur during a *Karenia brevis* bloom (a HAB), aerosolized brevetoxins may be inhaled by humans and could cause respiratory problems, nausea, vomiting, and neurological symptoms. Serious

infections may occur from contact with animals. Pathogens encountered may be antibiotic resistant, making treatment more difficult. Zoonotic diseases may have short-term affects including swelling, joint pain, skin lesions, and flu-like symptoms. Long-term affects from zoonotic diseases could occur, especially if they are not diagnosed properly.

Accidental injections or exposure to euthanasia solution could cause adverse effects, depending on the chemical(s) used. Etorphine can be absorbed through broken skin and mucous membranes (*e.g.* eyes, nose, and mouth). Accidental injections of paralytic agents are considered life-threatening (Greer *et al.* 2001). Accidental injections and exposure to other drugs used in animal treatment could occur and affects would depend upon the drug. Facility personnel may come into contact with harmful chemicals used for cleaning or maintaining pool water quality. Improperly stored or handled pool chemicals can be highly reactive and may generate high temperatures, release toxic vapors, or ignite nearby combustible materials. Reactivity may be triggered by the inadvertent mixing of a pool chemical with an incompatible material or wetting the chemical with water (EPA 2001).

4.5.3.3 Alternative C3- Preferred Alternative

Under Alternative C3, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Effects on human health and safety from Alternative C3 would be the same as those described under Alternative C2, with one exception. The Rehabilitation Facility Standards would be implemented under Alternative C3, which would have a beneficial effect on health and safety. While some of these measures may currently occur at rehabilitation facilities, the standards would ensure that all facilities would be implementing the most effective safety measures. The standards would require safety plans for the direct handling of all species seen at the facility. Personnel would be trained to identify potential zoonotic diseases and prevent their transmission from animal to human. Staff would also be trained to properly handle contaminated equipment and proper sanitation techniques. Safety equipment such as eye protection, protective clothing, and eye flushing stations, would be provided.

4.5.3.4 Alternative C4

Under Alternative C4, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Effects on human health and safety from Alternative C4 would be the same as those described under Alternative C3.

4.5.4 Release of Rehabilitated Animals Alternatives

4.5.4.1 Alternative D1- No Action

Under Alternative D1, current SAs would expire, stranding response and rehabilitation would cease, and there would be no animals to release. A beneficial effect on human health and safety would be expected from Alternative D1. Release activities would cease and risks to marine mammal workers would end.

4.5.4.2 Alternative D2- Status Quo

Under Alternative D2, current release activities would continue, adaptive changes to release activities would not be permitted, and the final Release criteria would not be implemented. Minor, short-term, adverse effects could be expected from Alternative D2. Physical injuries, such as strains, cuts, and bruises, may occur while lifting and moving an animal for transport. Injuries from animals, such as bites or being hit by flukes may occur. Exposure to liquid nitrogen, used for freeze branding, may occur while pouring liquid nitrogen or coming in contact with the brand. Liquid nitrogen can cause rapid freezing and tissue damage to skin, eyes, and other exposed body parts. Vessel collisions, fire, capsizing, running aground, and inclement weather during cetacean release activities can result in injuries, including bruises, cuts, drowning, and lightning strikes.

4.5.4.3 Alternative D3- Preferred Alternative

Under Alternative D3, new SAs would be issued, release activities would continue, adaptive changes to release activities would be permitted, and the final Release criteria would be implemented. Effects on human health and safety from Alternative D3 would be the same as those described under Alternative D2.

4.5.5 Disentanglement Alternatives

4.5.5.1 Alternative E1- No Action

Under Alternative E1, there would be no disentanglement network. A beneficial effect on marine mammal responder health and safety would be expected under Alternative E1. Disentanglement operations would end and responders would no longer be at risk of injury. However, adverse impacts on public health and safety could occur if individuals attempted to disentangle an animal themselves. Risks would include serious physical injuries and drowning.

4.5.5.2 Alternative E2- Status Quo

Under Alternative E2, the disentanglement network would continue the current activities with no modifications or new members added. Responders put themselves at risk during all disentanglements. The boat could become entangled in the lines connected to the whale. Animal movements may cause serious physical injuries, knock a person overboard, or capsize the boat. Drowning is a very real threat to responders. Responders could also become entangled in restraint lines onboard the boat or while attempting to cut lines from the animal. Responders could come into contact with drugs used for the chemical restraint of animals. Under this alternative, no responders would enter the water to cut lines.

Modifications, including new techniques and tools, are not allowed. Without modifications, hazards to responders would still occur and could feasibly increase. Human safety risks would also increase without the implementation of disentanglement guidelines and training prerequisites. Less experienced individuals would not have the skills and knowledge to avoid or minimize dangerous situations, putting themselves and others at risk.

Potential adverse effects on public health and safety could occur. Individuals may attempt to disentangle an animal, putting themselves at risk of serious physical injuries and drowning.

4.5.5.3 Alternative E3- Preferred Alternative

Under Alternative E3, the disentanglement network would continue the current activities on the East Coast with modifications to the West Coast network. Risks to responders and safety measures would be the same as those described under Alternative E2. However, there would be less risk under this alternative, as modifications which could reduce threats to responders, would be allowed. New techniques and tools could decrease the time necessary for disentanglements, therefore reducing the time responders are on the water and in contact with animals. New tools, such as cutting instruments, may reduce the potential for injuries. Modifications of safety measures would also reduce threats to responders. Implementation of disentanglement guidelines and training prerequisites would increase the number of experienced responders. Experienced responders would have the skills and knowledge to avoid or minimize dangerous situations. Even with experienced responders and safety measures, there would still be potential for adverse effects on human health and safety.

Potential adverse effects on public health and safety could occur. Individuals may attempt to disentangle an animal, putting themselves at risk of serious physical injuries and drowning. However,

the public may decide not to interfere if they know there are qualified, experienced, and authorized individuals to conduct disentanglement activities. This may reduce some of the potential health and safety impacts.

4.5.6 Biomonitoring and Research Activities Alternatives

4.5.6.1 Alternative F1- No Action

Under Alternative F1, biomonitoring and research activities would not occur. A beneficial effect on human health and safety would occur under Alternative F1. Biomonitoring and research activities would cease and risks to researchers would end.

4.5.6.2 Alternative F2- Status Quo

Under Alternative F2, the new ESA/MMPA permit would continue the current biomonitoring and research activities. Personnel working on sample analyses in laboratories may come into contact with harmful chemicals. Physical injuries may be sustained from the use of laboratory equipment or sharp instruments.

All researchers conducting activities outdoors, either on land or vessel, risk sunburn, heat exhaustion, or heat stroke in hot weather or hypothermia in cold weather. Researchers conducting activities on pinniped rookeries and haul-out sites risk attacks by the animals. Besides a physical injury, bites or other contact may expose researchers to zoonotic diseases.

Sampling animals from vessels pose a variety of safety hazards. The use of crossbows, poles, and other equipment used for tagging and sampling could cause serious physical injuries. Risks would also include vessel collisions, capsizing, and drowning. Walking on wet boat decks increases the chance of slips, trips, and falls.

Cetacean capture-release health assessments create many scenarios where human health and safety may be adversely impacted. Bruises, cuts, drowning, and other physical injuries could occur from vessel collisions, fire, capsizing, running aground, and inclement weather. Entanglement in the capture net may lead to cuts, bruises, and drowning. Physical injury may occur if appendages or a person becomes caught between rafted boats. Exposure to liquid nitrogen, used for freeze branding, may occur while pouring liquid nitrogen or coming in contact with the brand. Liquid nitrogen can cause rapid freezing and tissue damage to skin, eyes, and other exposed body parts. Restraint and handling of the animal may expose personnel to zoonotic diseases. Physical injuries may result if the

animal thrashes around during restraint and sampling activities. Accidental needle sticks and exposure to chemicals may occur during the sampling process. Activities in water may expose individuals to harmful animals, such as venomous rays and skates, sharks, jellyfish, and sea lice. Shallow environments may have shells and other hard parts that can scrape or cut skin.

4.5.6.3 Alternative F3- Preferred Alternative

Under Alternative F3, the new ESA/MMPA permit would be issued to include current and future biomonitoring and research activities. Effects on human health and safety from Alternative F3 would be the same as those described under Alternative F2.

4.6 Socioeconomics

This section evaluates the potential impacts on socioeconomics as a result of the alternatives.

4.6.1 Stranding Agreements and Response Alternatives

4.6.1.1 Alternative A1- No Action

Under Alternative A1 stranding response from current SA holders would end once all agreements have expired. Moderate, long-term beneficial direct effects to current stranding network members would be expected to occur under Alternative A1. Allowing SAs to expire would mean that network members would no longer respond to stranding events, leading to a reduction, if not an elimination, of costs incurred from response activities. However, businesses or individuals whose only function is stranding response would be adversely affected. Businesses would close and individuals would lose their jobs. There may also be minor to moderate indirect adverse effects to those SA holders whose response and/or rehabilitation activities attract external funding. Federal, state, and local government agencies authorized under MMPA Section 109(h) would benefit from the absence of private stranding network members. These agencies would likely compete and receive funding from the Prescott Grant program to enhance their stranding response programs.

Negligible adverse effects may be borne by accommodations and restaurants adjacent to stranding sites. The alternative would reduce the occurrences of temporary local beach closures associated with stranding activities. However, the elimination of SAs would reduce response activities and increase the instances of dead marine mammals left to decompose on the beach (either by not removing carcasses and/or the increased likelihood of stranded animals being left to die). Carcasses may be removed by other Federal, state, or local governments authorized under the MMPA Section 109(h).

Decomposing carcasses left on-site would remain in an unsightly state for longer durations without assistance in their removal, and the duration would increase for larger sized animals. The unappealing sight and smell could reduce tourism activity at that particular beach, as visitors may choose to spend their money at other beaches or alternative recreation sites located further inland. However, tourists may want to see a live stranded animal or a carcass, which could create a beneficial impact on surrounding business.

4.6.1.2 Alternative A2- Status Quo

Under Alternative A2, the current SAs would be renewed and current stranding response activities would continue without the issuance of Final SA criteria. Minor to moderate, long-term adverse effects to stranding network members would be expected to occur under Alternative A2. Current SA holders would continue their response activities and would continue to incur operating costs associated with these activities. However, SA holders whose response activities attract external funding may see minor to moderate, indirect beneficial impacts.

Negligible adverse effects to tourism businesses, such as accommodations and restaurants, could be expected from Alternative A2. Some carcasses may still be left on-site to decompose naturally. The unappealing sight and smell could reduce tourism activity at that particular beach, as visitors may choose to spend their money at other beaches or alternative recreation sites located further inland. However, tourists may want to see a live stranded animal, a carcass, or the response activities, which could create a beneficial impact on surrounding business.

4.6.1.3 Alternative A3

Under Alternative A3, SAs would be issued to any applicants after review, the new SA template would not be utilized, and the Final SA criteria would not be issued. Minor to moderate adverse effects on current stranding network members would likely occur under Alternative A3. Operating expenses for current network members may be offset by the addition of new SA holders. As the number of SA holders increases, travel time and expense should reduce, as there would likely be greater coverage for a particular geographic area. Given that the funding sources for network activities are likely finite, increased competition for funds may result in reduced opportunities for current network members. However, fundraising experience, established relationships with donors, and familiarity with competitive funding opportunities (*i.e.,* Prescott Grant Program), should provide current network members with continued access to funds.

New SA holders would likely bear minor to moderate adverse economic impacts due to the operating costs related to their new response activities and limited fundraising experience and opportunities. The extent of the impact on these new network members would depend on the nature of their pre-existing capacity, their authorized functions (dead animal response, live animal response, and/or rehabilitation), and their fundraising history. New SA holders cooperating within large organizations, for example, may have sufficient facilities and financial resources to ensure economic independence or fundraising success.

Negligible beneficial effects on tourism businesses would likely occur under Alternative A3. Maintaining the current stranding network and adding new participants would enhance responsiveness to nearby live and dead marine mammals.

4.6.1.4 Alternative A4- Preferred Alternative

Under Alternative A4, the Final SA criteria and the new SA template would be implemented and current and future stranding response activities would occur. Alternative A4 is similar to Alternative A3, but under Alternative A4 the Final SA criteria would be implemented. Moderate to major, adverse effects to the current SA holders would be expected to occur. As the Final SA criteria are more stringent than what is currently in place, existing SA holders may need more training or may need to alter existing practices in order to meet the new criteria. However, the level of impacts would depend on the current practices of SA holders. For SA holders who would require no or few changes to meet the new criteria, impacts would be small. Similarly, larger facilities who engage in a wide variety of activities, in addition to stranding response and rehabilitation activities would bear a relatively lower burden in terms of costs. New SA holders, and current SA holders that have difficulty implementing the new SA criteria, would bear moderate to major, adverse impacts depending on their ability to take on new response and rehabilitation activities. With the addition of new SA holders, existing stranding network members may face competition for donations and other, presumably finite, sources of funds available for marine mammal stranding and rehabilitation activities.

Negligible beneficial effects on tourism businesses would likely occur under Alternative A4, similar to those described under Alternative A3.

4.6.1.5 Alternative A5

Under Alternative A5, the Final SA criteria and the new SA template would be implemented and response to threatened, endangered, or rare animals would be required. Minor to major, long-term adverse effects to SA holders would be likely to occur. These impacts are similar to those described in Alternatives A3 and A4, but they would also depend on the proportion of stranded marine mammals that are not rare, threatened, or endangered and whether or not the network member chooses to continue responding to those animals. While implementation of the Final SA criteria may increase operating costs, the impact may be offset if there was a reduction in responses to stranding events under Alternative A5. The reduction in responses could occur if new SA holders covered geographic areas previously covered by another network member.

Negligible beneficial effects on tourism businesses would likely occur under Alternative A5, similar to those described under Alternative A3.

4.6.2 Carcass Disposal Alternatives

4.6.2.1 Alternative B1- No Action

Under Alternative B1, no carcass disposal would occur and carcasses would remain on the beach to naturally decompose. Carcasses would be left wherever they naturally occurred. Removal of non-ESA listed carcasses could be conducted by Federal (not including NMFS), state, and local agencies authorized under MMPA 109(h), but this would likely be localized and limited. Minor to moderate beneficial effects are likely to occur for existing stranding network members that participate in other activities besides response and carcass disposal. The elimination of carcass disposal activities would lower operating costs for these members.

Carcasses left on-site to decompose would remain in an unsightly state for a longer period of time without assistance in their removal. The duration would increase for larger sized animals. Some strandings sites may be in areas of human activity, including commercial areas such as beachfront hotels, casinos, businesses, or natural areas (national parks, seashore, or NERRs). This could result in negligible, adverse impacts in terms of lost revenues, restaurants, and parks in the immediate vicinity of the carcass(es), if the public chose to avoid the area. The resulting unappealing sight and odors could reduce tourism activity at that particular beach, as visitors may choose to spend their money at other beaches or alternative recreation sites further inland. However, negligible, short-term beneficial effects on surrounding businesses may occur if people visit the area to view the carcass.

4.6.2.2 Alternative B2- Status Quo

Under Alternative B2, current methods of carcass disposal would continue. Negligible adverse effects on tourism activities could occur from Alternative B2. Under current response activities, some carcasses may be left on beaches. Carcasses may be left in areas of recreational and tourism activities, such as beachfront hotels or natural areas. However, carcasses would not be left on actively used beaches. Carcasses could be left on remote beaches that may be part of a national park, seashore, or NERR. The foul odors and the sight of a decomposing animal may result in visitors avoiding the area. This impact would be negligible, as visitors could still participate in activities within the area not located near the carcass. However, negligible, short-term beneficial effects on surrounding businesses may occur if people visit the area to view the carcass.

Stranding network participants currently authorized for dead marine mammal response would likely bear minor to moderate adverse effects due to continued time and expense associated with carcass disposal activities.

4.6.2.3 Alternative B3- Preferred Alternative

Under Alternative B3, current methods of carcass disposal would continue with a recommendation to transport chemically euthanized animal carcasses off-site. Alternative B3 is similar to Alternative B2, except that Alternative B3 recommends (but would not require) the removal of chemically euthanized carcasses to an off-site location. The economic impacts from Alternative B3 would be the same as those described under Alternative B2, with one exception. Chemically euthanized carcasses would be removed and towed off-site to a hazardous waste landfill. Towing animals off-site would be expensive and the cost would be incurred by the stranding network member. The adverse effect on individual members would be negligible, minor, or major, depending on the number of animals chemically euthanized. The costs of transporting the chemically euthanized carcass off-site could vary depending on the size of the animal, transport distance, or the means of transport. Some stranding network members may bear a greater cost burden if stranding events tend to involve large animals, multiple carcasses, or if the carcass needs to be transported a great distance for disposal. Adverse effects could also occur due to increased costs affiliated with rendering or incinerating activities or fees imposed by the disposal site, including the need to obtain local or state permits for beach or at sea disposal.

Negligible negative impacts on local tourism businesses could occur under Alternative B3. Transporting chemically euthanized carcasses off-site would reduce the instances when an unsightly

carcass would deter visitors from a particular location. However, other carcasses may be left at stranding sites.

4.6.3 Rehabilitation Activities Alternatives

4.6.3.1 Alternative C1- No Action

Under Alternative C1, current SAs would expire, stranding response would end, and animals would not be taken into rehabilitation. Major, long-term, adverse effects on facilities that focus primarily on rehabilitation activities could occur under Alternative C1. Many facilities in this category may cease operation, unless their activities could be shifted (*e.g.,* they are able to redirect rehabilitation efforts to animals other than marine mammals). Larger facilities that also engage in other activities may experience a minor, long-term positive effect in terms of the reduced operating costs from the elimination of rehabilitation activities.

4.6.3.2 Alternative C2- Status Quo

Under Alternative C2, current rehabilitation activities would continue, but the final Rehabilitation Facility Standards would not be implemented. Minor to moderate, adverse effects on rehabilitation facilities would be expected, as continued expenses would be incurred from rehabilitation activities. Rehabilitation facilities would operate as they currently do and therefore continue to incur supply, equipment, personnel, and maintenance expenses.

4.6.3.3 Alternative C3- Preferred Alternative

Under Alternative C3, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Alternative C3 would be the same as Alternative C2, with two exceptions. Alternative C3 would issue new SAs and implement the Rehabilitation Facility Standards. Minor to major, adverse effects on rehabilitation facilities would be expected to occur from this alternative. The Rehabilitation Facility Standards would be implemented and facilities would need to upgrade to comply with the minimum standards, in order to maintain or obtain their SAs. The level of impact would depend on each facility, if they need to upgrade, and how much they would need to upgrade to meet the minimum standards. Current rehabilitation facilities were contacted to determine the estimated costs of upgrading each facility. The East Coast facility that responded to NMFS' request for information estimated that it would cost $75,000 to upgrade its pinniped rehabilitation facilities. Of the West Coast facilities that responded, the total estimated costs to upgrade facilities ranged from $0 (a facility where the standards were

already met) and $48,000 (cetacean and pinniped facility) on the low end to $1.9 million and $7 million (both pinniped facilities) on the high end. Excluding the facility that reported $7 million in impacts, the average impact among the facilities that responded is estimated to be $518,334.

4.6.3.4 Alternative C4

Under Alternative C4, new SAs would be issued, rehabilitation activities would continue, and the final Rehabilitation Facility Standards would be implemented. Alternative C4 would be the same as Alternative C3, with the exception that the rehabilitation of non-ESA and non-rare marine mammals would be optional. Alternative C4 would adversely affect rehabilitation facilities in the same manner as Alternative C3. Alternative C4 could adversely affect facilities to a lesser extent, however, since under the rehabilitation of non-rare and non-ESA species would only be optional.

4.6.4 Release of Rehabilitated Animals Alternatives

4.6.4.1 Alternative D1- No Action

Under Alternative D1, current SAs would expire, stranding response and rehabilitation would cease, and there would be no animals to release. Eelease activities would cease as stranding response and rehabilitation activities ended. Eliminating activities related to the release of rehabilitated marine mammals would eliminate the expenses related to these activities.

4.6.4.2 Alternative D2- Status Quo

Under Alternative D2, current release activities would continue, adaptive changes to release activities would not be permitted, and the final Release criteria would not be implemented. Minor to moderate, adverse effects on rehabilitation facilities would be expected, as continued expenses would be incurred from release activities. Facilities that release more animals, larger species of marine mammals, or those that need to travel greater distance to release animals would incur a greater share of expenses.

4.6.4.3 Alternative D3- Preferred Alternative

Under Alternative D3, new SAs would be issued, release activities would continue, adaptive changes to release activities would be permitted, and the final Release criteria would be implemented. Alternative D3 would be the same as Alternative D2, except that new SA holders could be added and the release criteria would be implemented. Minor to moderate, adverse effects may be borne by rehabilitation facilities. Costs may increase at each facility in order to comply with the release

criteria. However, the possible addition of rehabilitation facilities could help offset the release activities and costs for some facilities.

4.6.5 Disentanglement Alternatives

4.6.5.1 Alternative E1- No Action

Under Alternative E1, there would be no disentanglement network. Minor to moderate, beneficial effects on current participants could occur from the elimination of expenses incurred from disentanglement activities.

4.6.5.2 Alternative E2- Status Quo

Under Alternative E2, the disentanglement network would continue the current activities with no modifications or new members added. Minor to moderate, adverse effects would continue to be borne by participants engaged in disentanglement activities.

4.6.5.3 Alternative E3- Preferred Alternative

Under Alternative E3, the disentanglement network would continue the current activities on the East Coast with modifications to the West Coast network. In addition, the Disentanglement Guidelines and training prerequisites would be implemented nationwide. East Coast participants already follow these guidelines and training prerequisites, and therefore no additional impacts would be expected. Minor to moderate, adverse effects would be borne by West Coast participants due to modifications of current operations and training expenses.

4.6.6 Biomonitoring and Research Activities Alternatives

4.6.6.1 Alternative F1- No Action

Under Alternative F1, biomonitoring and research activities would not occur. No effects on socioeconomics would be expected to occur under Alternative F1.

4.6.6.2 Alternative F2 Status Quo

Under Alternative F2, the new ESA/MMPA permit would continue the current biomonitoring and research activities. Minor to moderate, adverse effects could occur under Alternative F2 depending on the nature of current biomonitoring and research activities and the ongoing personnel and research expenses.

4.6.6.3 Alternative F3- Preferred Alternative

Under Alternative F3, the new ESA/MMPA permit would be issued to include current and future biomonitoring and research activities. Minor to moderate, adverse effects could occur under Alternative F3 depending on the nature of new biomonitoring and research activities and the ongoing personnel and research expenses.

1 **Table 4-2. Summary Matrix of Impacts**

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Stranding Agreements & Response					
Alternative A1- No Action No Action- SA's expire, stranding response would end.	Moderate, adverse effects on marine mammals, as stranded animals would be removed from the population. Valuable information on marine mammal health would not be collected. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Minor, short-term adverse effects as the public interact with stranded animals. Beneficial effects as response personnel no longer needed.	Moderate, long-term beneficial direct effects on stranding network members, as there would be reduction, if not an elimination, of costs. Minor to moderate indirect adverse effects to SA holders whose activities attract external funding. Potential adverse effects if stranded animals reduce the visual and aesthetic such that other beach uses decrease while the stranded animal is decomposing. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Alternative A2- Status Quo Status Quo- Current SAs would be renewed, current stranding response activities continue. Final SA criteria would not be issued.	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, shellfish, and birds from equipment use or leaks on beaches/nearshore waters and the presence of responders. Minor to moderate, adverse effects on marine mammals would be expected from response activities and if new SAs are not issued.	Minor, short-term adverse effects on surrounding sand and nearshore waters could occur from equipment leaks and euthanasia solution or other environmental contaminants in tissue, blood, and other body fluids.	Potential minor, adverse effects on submerged cultural resources or resources buried in sand from equipment and vehicle use on beaches and nearshore waters. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.	Minor, short-term adverse effects on the public (interacting with a stranded animal) and stranding responders (*e.g.*, physical injury and zoonotic diseases).	Minor to moderate, long-term adverse effects to stranding network members from operating costs associated with these activities. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Alternative A3 SAs issued to any applicants after review, new SA template would not be utilized. Final SA criteria would not be issued. Current and future activities included.	Same effects on biological resources as Alternative A2. Some beneficial impacts could come from allowing new SA holders to be added, given that they have the proper experience with marine mammal response, as geographic coverage would increase and new rehabilitation facilities may be added.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A2.	Minor to moderate, long-term adverse effects on network members from operating expenses. New involvement with response activities would help offset expense of these activities. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding.
Alternative A4 (Preferred) Final SA criteria would be implemented, new SA template would be utilized, current and future activities included.	Same effects on biological resources as Alternative A2. Beneficial impacts from use of new techniques and tools during response activities and ability to add new SA holders. Long-term beneficial effects on marine mammals would be expected to occur with the implementation of SA criteria.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A2, with one exception. SA criteria would ensure that responders are experienced and have the knowledge to avoid or minimize health and safety risks.	Alternative A4 is similar to Alternative A3, but under Alternative A4 the Final SA criteria would be implemented. Moderate to major, adverse effects to the current SA holders would be expected to occur, as existing SA holders may need more training or may need to alter existing practices in order to meet the new criteria. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.

Table 4-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Stranding Agreements & Response					
Alternative A5 Final SA criteria would be implemented, new SA template would be utilized, and response to threatened endangered or rare animals would be required.	Same effects from stranding response activities as Alternative A2, with two exceptions. Beneficial effect on threatened, endangered, or rare animals and an adverse effect on other species. Same effects from the implementation of SA criteria as Alternative A4.	Same effects as Alternative A2.	Same effects as Alternative A2.	Same effects as Alternative A4.	Minor to major, long-term adverse effects to SA holders similar to those described in Alternatives A3 and A4, but they would also depend on the proportion of stranded marine mammals that are not rare, threatened, or endangered and whether or not the network member chooses to continue responding to those animals. Negligible adverse effects to businesses adjacent to stranding sites. Potential beneficial effects if people come to see stranding event.
Carcass Disposal					
Alternative B1- No Action No Action- SA's expire, no carcass disposal would occur, carcasses would be left where stranded.	Potential adverse effects could occur from leaving carcasses on the beach to naturally decompose. Animal carcasses may contain contaminants, which could negatively impact the surrounding environment. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	Potential adverse effects could occur from leaving carcasses on the beach to naturally decompose. Animal carcasses may contain contaminants, which could negatively impact the surrounding water and sediment quality.	No effects on cultural resources.	Minor, short-term adverse effects as the public interact with stranded animals. Contaminated or chemically euthanized carcasses could potentially contaminate the groundwater and/or nearshore water. Beneficial effect on personnel involved in carcass disposal, as they would no longer be exposed to risks.	Negligible adverse impacts in terms of lost revenues, restaurants, and parks in the immediate vicinity of the carcass(es), if the public chose to avoid the area. Potential beneficial effects if people come to see stranding event
Alternative B2- Status Quo Status Quo- Current methods of carcass disposal continue.	Minor to moderate, short- and long-term adverse effects, as animal carcasses may contain persistent environmental contaminants or euthanasia solution, which could negatively impact the surrounding environment. Other adverse effects from burial, equipment use, spills of hazardous materials or wastes from equipment or vessels. Disposal at sea might allow contaminants to re-enter the marine environment, but would provide a benefit by serving as a food sources for marine organisms.	Minor, short-term adverse effects on water and sediment quality could occur from equipment leaks; euthanasia solution or other contaminants in tissue, blood, and other body fluids; spills of hazardous materials or wastes from vessels. Burial and equipment use may have a negligible impact on erosion.	Potential minor, long-term, adverse effects on submerged cultural resources or resources buried in sand from beach burial, and equipment and vehicle use on beaches and nearshore waters. There would not be any effects on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.	Minor and major, short- and long-term adverse effects as the public interacts with a stranded animal. Contaminated or chemically euthanized carcasses left on the beach or buried could potentially contaminate the groundwater and/or nearshore water, making it unhealthy for humans to swim near the carcass site. Workers involved in disposal could be exposed to zoonotic diseases, contaminants, and euthanasia solution.	Negligible adverse impacts in terms of lost revenues, restaurants, and parks in the immediate vicinity of the carcass(es), if the public chose to avoid the area. Potential beneficial effects if people come to see stranding event
Alternative B3 (Preferred) Status Quo with the recommendation to transport chemically euthanized animal carcasses off-site.	Same effects as Alternative B2, with one exception. Chemically euthanized carcasses would not be buried on-site, minimizing some of the adverse effects.	Same effects as Alternative B2.	Same effects as Alternative B2.	Same effects as Alternative B2 with one exception. Recommended that chemically euthanized animal carcasses not be buried on the beach, which would minimize the health and safety risks associated with beach burial.	Effects would be the same as those described under Alternative B2, except that chemically euthanized carcasses would be moved off-site and the cost would be incurred by the stranding network member. Adverse effects would be negligible, minor, or major, depending on the number of carcasses.

Table 4-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Rehabilitation Activities					
Alternative C1- No Action No Action- Current SAs would expire, stranding response would cease, and animals would not be rehabilitated.	Moderate, long-term, adverse effects as marine mammals would not be taken into rehabilitation and most would likely die from injuries or disease. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to rehabilitation personnel would end.	Potential major, long-term, adverse effects on facilities that focus primarily on rehabilitation activities. Facilities may cease operation, unless their activities could be shifted. Larger facilities that engage in other activities may experience a minor, long-term positive effect in terms of the reduced operating costs from the elimination of rehabilitation activities.
Alternative C2- Status Quo Status Quo- Current rehabilitation activities would continue. Final Rehabilitation Facility Standards would not be implemented.	Minor to major, short- and long-term, beneficial and adverse effects on marine mammals. Potential adverse effects from sampling, anesthesia, disease, euthanasia, and not implementing the Rehabilitation Facility Standards No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	Minor adverse effects due to use of open ocean/bay net pens and temporary pools and contamination from wastes, pathogens, etc. Rehabilitation facilities would have necessary permits for wastewater discharges.	Potential minor to major adverse effects on from the use of temporary pools and net pens, depending on where they are sited. Net pens may disturb or damage submerged cultural resources.	Minor, short-term, direct adverse effects on rehabilitation personnel, including physical injuries, exposure to chemicals, and exposure to zoonotic diseases.	Current rehabilitation facilities would continue to bear minor to major, long-term adverse effects. Rehabilitation facilities would operate as they currently do and therefore continue to incur supply, equipment, personnel, and maintenance expenses.
Alternative C3 (Preferred) New SAs would be issued, rehabilitation activities continue. Final Rehabilitation Facility Standards would be implemented.	Same effects as Alternative C2, with one exception. Rehabilitation Facility Standards would decrease the risk of disease transmission ensure a healthy environment, maximize the success of rehabilitation, and increase the potential for release to the wild. Would reduce animal pain and suffering.	Same effects as Alternative C2.	Same effects as Alternative C2.	Same effects as Alternative C2, with one exception. Health and safety standards in the rehabilitation facility standards would have a beneficial effect.	Minor to major, adverse effects on rehabilitation facilities. Facilities would need to upgrade to comply with the minimum facility standards. Level of impact would depend on each facility, if they need to upgrade, and how much they would need to upgrade to meet the minimum standards.
Alternative C4 New SAs would be issued, rehabilitation activities would continue. Rehabilitation of threatened endangered and rare animals would be required; response to other animals would be optional. Final Rehabilitation Facility Standards would be implemented.	Same effects as Alternative C3, with a few exceptions. Adverse effects on animals that are not rare, threatened, or endangered. These animals often serve as models for other species and this would be an indirect adverse affect on rare, threatened, and endangered species.	Same effects as Alternative C2.	Same effects as Alternative C2.	Same effects as Alternative C3.	Alternative C4 would adversely affect rehabilitation facilities in the same manner as Alternative C3. Alternative C4 could adversely affect facilities to a lesser extent, however, since under the rehabilitation of non-rare and non-ESA species would only be optional.
Release of Rehabilitated Animals					
Alternative D1- No Action No Action- Current SAs would expire, stranding response and rehabilitation would cease, and therefore there would be no animals to release.	Adverse effects as marine mammals would not be released back to the wild, which negatively impacts all species, but especially threatened or endangered species. Beneficial effect on wild populations, as there would not be the risk of introducing a diseased animal that could potentially infect other marine mammals. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to release personnel would end.	Beneficial effects as the end of release activities would eliminate the expenses related to these activities.

Table 4-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area				
	Biological Resources	**Water & Sediment Quality**	**Cultural Resources**	**Human Health & Safety**	**Socioeconomics**
Release of Rehabilitated Animals					
Alternative D2- Status Quo Status Quo- Current release activities would continue. Adaptive changes to release activities would not be permitted. Final release criteria would not be implemented.	Minor, short- and long-term, adverse and beneficial effects on marine mammals. Release activities (tagging, marking, and transport) may have adverse effects. Released animal could carry a zoonotic disease and infect wild population. Adverse effects on all biological resources from equipment use, spills of hazardous materials or wastes from equipment or vessels.	Minor, short-term, direct adverse effects could occur from spills of hazardous materials or wastes from release vessels or leaks from equipment into sand or surrounding waters.	Minor, long-term, adverse effects on cultural resources buried in sand from equipment and vehicle use on beaches.	Minor, short-term, direct adverse effects on release personnel, including physical injuries and exposure to chemicals.	Minor to moderate, adverse effects as continued expenses would be incurred from release activities. Facilities that release more animals, larger species of marine mammals, or those that need to travel greater distance to release animals would incur a greater share of expenses.
Alternative D3 (Preferred) New SAs would be issued, release activities continue. Final release criteria would be implemented and would include adaptive management of release activities.	Same effects as Alternative D2, with one exception. Release criteria would be implemented and may reduce the effects on marine mammals.	Same effects as Alternative D2.	Same effects as Alternative D2.	Same effects as Alternative D2	Minor to moderate, adverse effects as costs may increase at each facility in order to comply with the release criteria. Possible addition of facilities could help offset the release activities and their costs.
Disentanglement Activities					
Alternative E1- No Action No Action- No disentanglement network.	Major, long-term adverse effects on marine mammals from ending the Disentanglement Network as animals would have increased pain and suffering and would most likely die. No significant effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds. Gear on an entangled animal may be shed and become marine debris, which could potentially harm biological resources.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks to responders would end. Potential adverse impacts on public health if individuals attempt to disentangle an animal.	Minor to moderate, beneficial effects on current participants could occur from the elimination of expenses incurred from disentanglement activities.
Alternative E2- Status Quo Status Quo- Disentanglement network would continue current activities, no modifications or new members added	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, birds, and marine mammals from spills of hazardous materials or wastes from vessels. Minor to major, short- and long-term, beneficial and adverse effects on marine mammals. Disentanglement would continue; new responders could not be added. Animal adverse reactions to close approaches, physical/chemical restraint, or be injured during the process.	Minor, short-term, adverse effects could occur from spills of hazardous materials or wastes from release vessels.	No effects on cultural resources.	Adverse effects on responders, including physical injuries, exposure to chemicals, potentially death. Potential adverse impacts on public health if individuals attempt to disentangle an animal.	Minor to moderate, adverse effects would continue to be borne by participants engaged in disentanglement activities.

Table 4-2. Summary Matrix of Impacts (continued)

Alternatives	Impact Area: Biological Resources	Water & Sediment Quality	Cultural Resources	Human Health & Safety	Socioeconomics
Disentanglement Activities					
Alternative E3 (Preferred) Disentanglement network would continue current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.	Same effects as Alternative E2, except that new responders and techniques could be added and Disentanglement Guidelines/training would be in place to reduce adverse effects.	Same effects as Alternative E2.	No effects on cultural resources.	Same effects as Alternative E2. There would be less risk under this alternative, as modifications new tools and techniques and the Disentanglement Guidelines/training could reduce safety risks.	No impacts to East Coast participants. Minor to moderate, adverse effects would be borne by West Coast participants due to modifications of current operations and training expenses.
Biomonitoring & Research Activities					
Alternative F1- No Action No Action- Biomonitoring and research activities would not occur.	Adverse effects on marine mammals as important health information would no longer be collected. No effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, and birds.	No effects on water and sediment quality.	No effects on cultural resources.	Beneficial effects would be expected as risks from research activities would end.	No effects on socioeconomics.
Alternative F2- Status Quo Status Quo- New ESA/MMPA permit would continue current biomonitoring and research activities.	Minor, short-term adverse effects on protected and sensitive habitats, SAV and macroalgae, sea turtles, fish, shellfish, other invertebrates, birds, and marine mammals from spills of hazardous materials or wastes from vessels or leaks from equipment into sand or surrounding waters. Protected and sensitive habitats and SAV and macroalgae could be damaged by vessels/researchers. Sea turtles/birds and their nests could be disturbed/ damaged. Fish may be caught in nets or disturbed. Minor to major, short- and long-term, adverse effects on marine mammals from close approach, tagging, marking, restraint, handling, capture, transport, sampling, and other activities. Long-term beneficial effects from collection of health information.	Minor, short-term, direct adverse effects could occur from spills of hazardous materials or wastes from release vessels or leaks from equipment into sand or surrounding waters.	Adverse effects would not likely occur. Potential effects on submerged cultural resources or resources buried in sand from equipment and vehicle use on beaches and vessel use in nearshore waters.	Minor, short-term, direct adverse effects on research personnel, including physical injuries, exposure to chemicals, and exposure to zoonotic diseases.	Minor to moderate, adverse effects could occur depending on the nature of biomonitoring and research activities and the ongoing personnel and research expenses.
Alternative F3 (Preferred) New ESA/MMPA permit would be issued to include current and future biomonitoring and research activities.	Same effects as Alternative F2, with other adverse effects from new research activities. The increase in research activities would have a beneficial affect on marine mammals, as more health information would be collected.	Same effects as Alternative F2.	Same effects as Alternative F2.	Same effects as Alternative F2.	Minor to moderate, adverse effects could occur depending on the nature of new biomonitoring and research activities and the ongoing personnel and research expenses.

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5. Mitigation

5.1 Introduction

The purpose of mitigation is to avoid, minimize, or eliminate negative impacts on the affected resources from a proposed action. Mitigation measures have been developed for alternatives where a significant impact would likely occur. Measures are described under each resource area and alternative, as necessary.

5.2 Biological Resources

5.2.1 Stranding Agreements and Response Alternatives

Under Alternatives A2, A3, A4, and A5, measures would be taken to avoid protected and sensitive habitats, where feasible. However, many strandings occur in protected areas, including: national parks, monuments, seashores, and forests; NMSs; NERRs; wilderness areas; fishery management areas; and state and local parks. When response activities must occur in these areas, the proper authorities would be contacted to coordinate the response activities, to determine the manner in which a response may occur (if it is permitted at all), and to minimize impacts of a response. In situations where EFH may be impacted by response activities, the appropriate NMFS EFH Coordinator would be contacted. Nesting sea turtles and birds would be avoided during responses, and response activities would be coordinated with the USFWS and/or appropriate state agency/agencies to ensure there would be no adverse impacts. Article II, Part C, Number 2 of the SA template requires stranding network participants to coordinate with Federal, state, and local officials and employees in matters supporting the purposes of their SA (see Appendix C). The SA template (Article III and Article IV, Part B, Number 4) would require SA holders to make every reasonable effort to assist in the clean-up of beach areas where activities such as necropsy or specimen collection were conducted, by removing trash and other debris, and disposing of or assisting in the disposal of offal and other waste parts from the carcass. NMFS would develop spill prevention best management practices for responders to use to reduce the incidence of spills from equipment, euthanasia solution, etc. These measures would help protect the surrounding biological resources, particularly when the response was conducted in a sensitive area.

Capture and restraint procedures would be performed or directly supervised by qualified personnel and if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Only

personnel experienced in capture and sampling techniques would be used to complete the activities as quickly as possible. For pinnipeds, responders would carry out activities efficiently, such that the total time they are occupying beach haul-out areas, and total number of times a site is disturbed, are minimized. Response to stranded pinnipeds in a rookery situation would not be authorized under a SA, but would only be performed under the authority of the MMHSRP ESA/MMPA permit in coordination with the Permit Holder/PI. Experienced personnel would be used during capture and restraint to complete the activities as quickly as possible.

To prevent interactions with Florida manatees or sea turtles during on-water capture activities, vessel personnel would be informed that it is illegal to intentionally or unintentionally harm, harass, or otherwise "take" manatees or sea turtles. Netting activities would ease if a manatee or sea turtle is sighted in the vicinity of the vessel. If a manatee or sea turtle is accidentally captured, the vessel would immediately be stopped and either turned off or put in neutral. Tension on the net would be released to allow the animal the opportunity to free itself. Caution would be exercised when attempting to assist the animal in freeing itself. The appropriate USFWS Field Office and NMFS PR1 would be contacted immediately to report any incidents.

Tagging animals for immediate release would be performed or directly supervised by qualified personnel. Pinniped flipper tags would be placed appropriately, so animals would not walk on or be irritated by them. The tag and/or instrument size and weight would be kept to the minimum needed to collect the desired data to minimize the potential for increased energetic costs of or behavioral responses to larger tags. Tag placement would be selected so that it will not interfere significantly with an animal's ability to forage or conduct other vital functions.

Potential adverse impacts from euthanasia would be minimized by the measures described below. Under Article IV, Part A, Number 1 of the SA template (Appendix C), euthanasia of animals would only be performed by the attending veterinarian or by a person acting on behalf of the attending veterinarian (*i.e.,* under direct coordination or supervision). Euthanasia procedures would follow approved guidelines, such as those listed in the 2000 Report of the AVMA on Euthanasia (AVMA 2001) or the CRC Handbook of Marine Mammal Medicine (Greer *et. al* 2001). Persons using controlled drugs would comply with all applicable Federal and state laws and regulations. This would include DEA regulations and any applicable state veterinary practice laws and regulations. Stranding network members would be authorized to euthanize ESA-listed species under the MMHSRP ESA/MMPA permit. In addition to the previous measures, euthanasia of ESA-listed species would require authorization and coordination with the appropriate NMFS regional stranding coordinator.

Potential impacts from the transport of animals to rehabilitation facilities could be minimized by following the APHIS "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Ch 1, Subpart E). If a commercial vehicle is used to transport an animal, these standards should be complied with. The "Live Animal Regulations" published by the International Air Transport Association (IATA) may also be used to minimize transport impacts (IATA 2006). Both sets of standards have specifications for containers, food and water requirements, methods of handling, and care during transit.

The Marine Mammal Oil Spill Response Guidelines (Appendix L) would be followed to prevent any potential impacts during response. The guidelines include information on data collection and chain-of-custody procedures. Stranding responders would work with the Federal On-Scene Coordinator (FOSC) for oil spill response and consult with NMFS on appropriate response measures.

Potential impacts from hazing would be minimized by using visual observations during the use of all acoustic deterrents. If a change in animal behavior is observed (other than moving away from the sound), the acoustic deterrent source would be shutdown. Procedures for the use of acoustic deterrents around ESA-listed species would be developed. Procedures for hazing killer whales are currently being drafted. Airguns would not be used around mysticetes to minimize any potential injuries. Seal bombs would not be used in the vicinity of an oil spill. Additional mitigation for hazing threatened and endangered species may be included as conditions of the ESA/MMPA permit.

The MMHSRP would follow all mitigation measures for response to threatened and endangered species set forth by NMFS PR1 as conditions of their ESA/MMPA permit.

5.2.2 Carcass Disposal Alternatives

Under Alternatives B2 and B3, stranding network members would contact and coordinate with Federal, State, and/or local agencies prior to carcass disposal. Article II, Part C, Number 2 of the SA template requires stranding network participants to coordinate with Federal, state, and local officials and employees in matters supporting the purposes of their SA (see Appendix C). Beach burial and disposal in State waters would only occur after state and/or local authorities have given permission to conduct such activities. If necessary, stranding network members would obtain a permit to conduct these disposal activities. Burial in shoreline areas may be restricted for the protection of sensitive habitats, such as nesting shorebirds, vegetation, or dunes. Burial would not occur in wetland areas. Carcasses may be buried in upland areas where body fluids would not likely leach into groundwater.

Burial would also be deep enough so that carcasses would not be dug up by scavengers or uncovered by wave action.

If carcasses are known or assumed (based upon test results or prior knowledge of the species) to have contaminant levels that meet or exceed the definition of hazardous waste under EPA, state, and/or local regulations, they would be taken to an EPA-designated hazardous waste landfill for proper disposal.

Non-toxic carcasses may be disposed in Federal waters without a permit. At-sea disposal of carcasses that are known to be hazardous waste may require EPA approval and a permit. These carcasses would be disposed of in an EPA designated ocean dumping site. All EPA dumping sites are managed to avoid or minimize impacts to the marine environment. Materials used to sink carcasses would be chosen to avoid or minimize any impacts to the marine environment.

During carcass disposal and removal activities, measures would be taken to avoid protected and sensitive habitats. When these areas cannot be avoided, the proper authorities would be contacted to coordinate the disposal activities and minimize impacts. In situations where EFH may be impacted by response activities, the appropriate NMFS EFH Coordinator would be contacted. Activities would also be coordinated with State and/or local agencies to avoid or minimize impacts to nesting sea turtles or birds.

5.2.3 Rehabilitation Activities Alternatives

If NMFS selects Alternative A3 or A4 for SAs and response, it would implement the Final SA criteria (Appendix C) as mitigation for Alternatives C3 and C4. Under the SA criteria (Part C, Number 3) the rehabilitation facility should have and maintain an attending veterinarian experienced in marine mammal care that would be willing to assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation. Also, the attending veterinarian should provide a schedule of veterinary care that includes a review of the husbandry records; visual and physical examinations of all marine mammals in rehabilitation; and a periodic visual inspection of the facilities, protocols, Standard Operating Procedures, and case records. All documentation of the attending veterinarian's experience would be submitted to NMFS for review prior to issuing an SA. Under Part C, Number 4 of the SA criteria the rehabilitation facility should have sufficient physical and financial resources to maintain appropriate animal care. The stranding network participant would have to submit a facility operation manual to NMFS for review prior to the issuance of an SA. All operations would be consistent with NMFS and other applicable Federal and

State policies, guidelines, directives, regulations, and laws. Facilities would be reviewed by NMFS for compliance with their SA every 3 years, and may be put on probation, suspended, or have their SA terminated for any violations or non-compliance.

Veterinary medical care standards (Sections 1.7 [for cetaceans] and 2.7 [for pinnipeds] in the standards) would ensure that veterinarians and other personnel have the appropriate knowledge and experience to properly care for and treat marine mammals. Veterinarians must have: arrangements to obtain and store medications required for the animals housed at the rehabilitation facility; access to a list of expert veterinarians to contact for assistance; and a minimum skill level to treat species most commonly encountered at the facility. Veterinary care would comply with any applicable state veterinary practice laws and regulations for the state in which the facility is located. Examples of the recommended standards for veterinarians include: completion of a course offering basic medical training with marine mammals; one year of clinical experience working with the marine mammal(s) most frequently admitted to the facility; one year of clinical veterinary experience post graduation; and membership in the International Association for Aquatic Animal Medicine.

Potential adverse impacts under Alternative C3 and C4 from disease transmission would be minimized by measures in the Rehabilitation Facility Standards. Under Section 1.4 (cetaceans) and Section 2.4 (pinnipeds), quarantine facilities would be available and quarantine protocols would be in place for all incoming animals. Minimum quarantine standards include, but are not limited to: having separate filtration and water flow systems; providing sufficient space or solid barriers between animal enclosures to prevent direct contact; and maintaining equipment and tools strictly dedicated to the quarantine area. An evaluation and written veterinarian approval would be required before placing animals together after the quarantine period has been met. Standards include measures to reduce the spread of disease from open ocean/bay pens. Standards also include measures to prevent disease transmission from domestic and wild terrestrial animals to marine mammals and vice versa. All quarantine standards are described in Section 1.4 (for cetaceans) and Section 2.4 (for pinnipeds) of the standards.

Handling and restraint procedures would be performed or directly supervised by qualified personnel and if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Only personnel experienced in handling and sampling techniques would be used in order to complete the activities as quickly as possible.

Potential adverse impacts from euthanasia under Alternative C3 and C4 would be minimized by the measures described below. Under Article IV, Part A, Number 1 of the SA template (Appendix C) and Section 9.0 of the Rehabilitation Facility Standards, euthanasia of animals would only be performed by the attending veterinarian or by a person acting on behalf of the attending veterinarian (*i.e.,* under direct authorization or supervision). Persons administering the euthanasia should be knowledgeable and trained to perform the procedure, and competent in the performance of the technique. Each facility would have a written euthanasia protocol signed and periodically reviewed by the attending veterinarian. Euthanasia procedures would follow approved guidelines, such as those listed in the 2000 Report of the AVMA on Euthanasia (AVMA 2001) or the CRC Handbook on Marine Mammal Medicine (Greer *et. al* 2001). Persons using controlled drugs would comply with all applicable Federal and state laws and regulations. This would include DEA regulations and any applicable state veterinary practice laws and regulations. In addition to the measures listed above, rehabilitation personnel would require further authorization to euthanize ESA-listed species under the MMHSRP ESA/MMPA permit. Euthanasia of ESA-listed species would require authorization and coordination with the appropriate NMFS regional stranding coordinator.

The Marine Mammal Oil Spill Response Guidelines (Appendix L) would be followed to ensure that rehabilitation facilities that accept oiled animals are properly equipped to handle their care. The guidelines specify housing requirements and considerations, including ventilation, quarantine, water supply, and waste water. The guidelines include information on data collection and chain-of-custody procedures. Rehabilitation facilities would work with the FOSC for oil spill response and consult with NMFS on appropriate rehabilitation measures.

5.2.4 Release of Rehabilitated Animals Alternatives

If NMFS selects Alternative A3 or A4 for SAs and response, it would implement the Final SA criteria (Appendix C) as mitigation for Alternative D3. Under the SA criteria (Part C, Number 3) the rehabilitation facility should have and maintain an attending veterinarian, on staff or consulting, experienced in marine mammal care that would be willing to assume responsibility for diagnosis, treatment, and medical clearance for release. All documentation of the attending veterinarian's experience would be submitted to NMFS for review prior to issuing an SA. Part C, Number 4 of the SA criteria requires the rehabilitation facility to have sufficient physical and financial resources to maintain appropriate animal care, including release activities.

Potential adverse impacts under Alternative D3 from disease transmission would be minimized by measures in the release criteria (Appendix C). Animals would be medically cleared by the attending veterinarian and their assessment team before a release determination is made. The medical assessment would include a hands-on physical examination. A review of the animal's complete history, including all stranding information, diagnostic test results, and medical and husbandry records would also occur. NMFS would require some diagnostic testing to determine the risk to the health of wild marine mammal populations. Additional testing would be required if the animal was part of a UME. These procedures would minimize the potential for disease transmission from a released animal to the wild population.

Additional measures to minimize the potential for disease transmission from rehabilitated ice seals (bearded, ringed, ribbon, and spotted seals) would be implemented in the NMFS Alaska Region. NMFS would not authorize responders to transport stranded ice seals beyond the geographic areas where they strand for the purposes of rehabilitation and release back to the wild. NMFS would review the following situations on a case-by-case basis: 1) an ice seal out-of-habitat; 2) ice seals as part of an official UME; and 3) stranded spotted seals in Bristol Bay, AK. NMFS would work with Alaska Native organizations (co-managers of these species) to determine the best possible solution for those ice seals. After consultation with these organizations, NMFS may re-evaluate this policy at any time, particularly with regard to changes in the status of ice seal populations and their habitat.

Other potential impacts to released animals would be mitigated by the release criteria. In addition to a medical assessment, behavioral and developmental assessments would be conducted before a release determination. Developmental clearance would reasonably ensure that the animal has attained a sufficient age to be nutritionally independent, including the ability to forage and hunt. Behavioral clearance would include an assessment of an animal's breathing, swimming, diving, locomotion on land (pinnipeds) foraging, and hunting abilities. An evaluation of an animal's visual and auditory functions should be conducted if possible. Any behavioral conditioning must be eliminated prior to release such that the association of food rewards with humans is diminished.

Handling and restraint procedures necessary for release would be performed or directly supervised by qualified personnel and if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Only personnel experienced in handling and sampling techniques would be used to complete the activities as quickly as possible. The veterinarian would also provide emergency procedures if necessary. For pinnipeds, personnel would carry out release activities efficiently, to

minimize the total time spent on the rookery/haul-out. Experienced personnel would be used during handling and restraint to complete the release activities as quickly as possible. Potential impacts from the transport of animals from rehabilitation facilities to release sites could be minimized by following the APHIS "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Ch 1, Subpart E). If a commercial vehicle is used to transport an animal, these standards should be complied with. The "Live Animal Regulations" published by the IATA may also be used to minimize transport impacts (IATA 2006). Both sets of standards have specifications for containers, food and water requirements, methods of handling, and care during transit.

The weight and dimensions of the instrument package relative to the animal's size and mass, and duration of attachment, are important considerations in choosing a tag (Wilson and McMahon 2006). The tag size would be kept to the minimum needed to collect the desired data to minimize the potential for increased energetic costs of or behavioral responses to larger tags, but ensuring an adequate battery life to sustain the tag over the expected tag attachment duration (tags are expected to fall off after the failure of a corrodible link or the molt of a pinniped). Tag placement should be selected that will not interfere significantly with an animal's ability to forage or conduct other vital functions. Pinniped flipper tags would be placed appropriately, so animals would not walk on or be irritated by them. A local anesthetic or analgesic would be administered prior to tagging or freeze branding an animal to minimize pain during application.

5.2.5 Disentanglement Alternatives

Under Alternative E3, impacts to all biological resources from a potential hazardous material spill would be mitigated by the implementation of training prerequisites and the Disentanglement Guidelines. The use of trained personnel and proper equipment and protocols would reduce the potential for spills.

Disentanglements of ESA-listed cetaceans and pinnipeds would be authorized under the MMHSRP ESA/MMPA permit, with express consent of the Permit Holder/PI. The MMHSRP would follow all mitigation measures set forth by NMFS PR1 as conditions of their ESA/MMPA permit, and all activities will be conducted in consultation with and with the consent of the Permit Holder/PI. For large whale disentanglements, responders would approach animals gradually, with minimal noise to reduce any reaction. Responders would approach at slow speeds, avoid making sudden changes in speed or pitch, and avoid using reverse gear. Additional caution would be taken when approaching mothers and calves. Only responders with extensive experience operating vessels near large whales

would be involved in the vessel approaches. Responders would only include those individuals who have been sufficiently trained in large whale disentanglement according to the Disentanglement Guidelines (Appendix C). NMFS should develop more comprehensive guidelines for large whale disentanglement, as the current guidelines focus primarily on criteria for responder levels. Additional guidelines should include general protocols, policies, and procedures. NMFS should develop a database or other way to track qualifications of personnel.

Small cetacean and pinniped disentanglement activities would be authorized under an SA. Only personnel experienced in small cetacean capture techniques would perform rescue activities. For disentanglements of pinnipeds on beach sites, responders would carry out activities efficiently, to minimize disturbance and the amount of time responders occupy the haul-out.

For both small cetacean and pinniped disentanglements, NMFS should develop standard disentanglement protocols for these species and a training program similar to the Large Whale Disentanglement Network. In addition, NMFS may develop an additional Article or multiple Articles to be incorporated into the SA to authorize certain facilities (with personnel that have been trained and certified) to conduct capture/rescue and disentanglement activities.

5.2.6 Biomonitoring and Research Alternatives

The following mitigation measures are for actions proposed under Alternatives F2 and F3.

5.2.6.1 Existing Mitigation Measures in NMFS PR1 Permits

The MMHSRP would follow all mitigation measures set forth by NMFS PR1 as conditions of their ESA/MMPA permit. All NMFS PR1 marine mammal permits contain conditions intended to minimize the potential adverse effects of the research activities on the animals. These conditions are based on the type of research authorized, the species involved, information in the literature and from researchers themselves about the effects of particular research techniques and the responses of animals to these activities. Specifically, the following conditions would be stated as requirements in the MMHSRP's ESA/MMPA permit:

- ***General Approach Measures, Including Precautionary Measures for Young and Females with Young.*** Researchers would exercise caution when approaching animals and must retreat from animals if behaviors indicate the approach may be interfering with reproduction, feeding, or other vital functions. For females with young, researchers would immediately terminate efforts if there is any evidence that the activity may be interfering with pair-

bonding or nursing and would not position the research vessel between the female and calf/pup. Researchers may not biopsy sample or tag cetacean calves less than six months of age or females attending calves less than six months of age.

- ***Photography and Filming.*** The Permit Holder/PI and all researchers/CIs working under the proposed permit would obtain prior approval by NMFS PR1 for non-research related use of photographs, video, and/or film that were taken to achieve the research objectives, that such activities would not influence the conduct of research in any way, and any film approved for use would include a credit, acknowledgement, or caption indicating that the research was conducted under a permit issued by NMFS under the authority of the MMPA and/or ESA.
- ***Research Personnel.*** The Permit Holder/PI would ultimately be responsible for all activities of any individual who is operating under the authority of the proposed permit. Addition of CIs would be approved by the Permit Holder/PI after reviewing their qualifications and research plans. All research personnel would be required to serve a research function and would be qualified to perform that function.
- ***Reporting Conditions.*** An annual report would be submitted and reviewed by NMFS PR1 for each year the permit is valid. For each marine mammal part taken, imported, exported, or affected, the annual report would include: a description of the part and its assigned identification number; source, collector, country of origin, and authorizing government agency (for imported samples) for each sample reported; a summary of the research analysis conducted on the samples; and a description of the disposition of any marine mammal parts. For live animal activities, the report would include a description of the species, numbers of animals, locations of activities, and types of activities for: live captures; stranding response/disentanglement of marine mammals and endangered/threatened species; specimen collections; euthanasia (including reason for euthanasia and the drugs used); and incidental harassment during activities. The report would include descriptions of the animals' reactions, measures taken to minimize disturbance, research plans for the forthcoming year, and an indication as to when or if any results have been published or otherwise disseminated during the year. At the end of the proposed permit, a final report would be submitted that includes: a reiteration of the objectives, a summary of the research results and how they pertain to or further the research goals stated in the permit application and NMFS conservation plans; and an indication of where and when the research results would be published.
- ***Research in Cooperation with Commercial Vessels.*** The permit specifically would not authorize the conduct of research activities aboard or in cooperation with commercial marine

mammal viewing vessels or aircraft while they are engaged in such commercial activity. Further, the permit would not authorize cooperation with any vessel or aircraft carrying any non-essential passengers (*i.e.* not essential for the conduct of the research) who either pay a fee in return for being allowed onboard the vessel or aircraft, or who, prior to or after the trip, give "donations" to the PI, CI(s) or Research Assistant(s).

- ***Research Coordination.*** The Permit Holder/PI would be required to notify the appropriate NMFS Regional office at least two weeks in advance to coordinate the dates and locations of the authorized activities. The permit holder would also be required to coordinate with other researchers conducting the same or similar studies on the same species, in the same locations, and at the same time.
- ***Import/Export of Marine Mammal Parts.*** No animal would be harassed or killed for the express purpose of providing specimens to be obtained and/or imported under the proposed permit actions. Parts imported under the authority of the proposed permit would be taken in a humane manner, and in compliance with the ESA, MMPA, Fur Seal Act, and any applicable foreign law. Importation of marine mammal parts is subject to the provisions of 50 CFR parts 14, 216, and 222. Any specimen(s) of species listed in the Appendices to CITES would be accompanied by valid CITES documentation from the exporting country, and, in the case of Appendix-I species, from the USFWS.
- ***Biological Samples.*** All specimen materials collected or obtained under this authority would be maintained according to accepted curatorial standards. After completion of initial research goals, any remaining samples would be deposited into a *bona fide* scientific collection which meets the minimum standards of collection curation and data cataloging as established by the scientific community.
- ***Additional Required Permits.*** The Permit Holder/PI would be required to obtain appropriate authorizations needed from other state or Federal agencies and would be reminded that the NMFS PR permit does not provide authorization for requirements under another state or Federal agencies' jurisdiction. This would include obtaining necessary permits for research conducted in a NMS, national park, foreign country, etc.

5.2.6.2 Mitigation Measures Common to Specific Research Activities

A number of "good practice or protocol" measures are commonly followed by qualified, experienced personnel to minimize the potential risks associated with some of the research activities under the proposed permit actions. Consistent with the NMFS PR1 issuance criteria requiring personnel

authorized to take marine mammals under a permit to have qualifications commensurate with their duties, only qualified, experienced personnel would be allowed to perform intrusive procedures such as remote biopsy sampling and attachment of intrusive tags. Efforts would be made to avoid duplicate sampling of known animals through sharing of sighting and photo-identification information among permit holders. The following outlines common mitigation measures associated with specific research activities and/or species.

Mitigation for Close Approach, Vessel and Aerial Surveys. To minimize disturbance and ensure adequate opportunities for photo-identification, tagging, and sampling, the researchers would approach animal(s) gradually from behind or alongside, rather than head on. An approach is defined as a continuous sequence of maneuvers involving a vessel, aircraft, or researcher's body in the water, including drifting, directed toward an animal(s) for the purposes of conducting authorized research which involves one or more instances of coming closer than 100 yards (91.4 m) to a large whale(s) or 50 yards (45.7 m) to a small cetacean (s), seal(s), or sea lion(s). Researchers would approach at slow speeds, avoid making sudden changes in speed or pitch, and avoid using reverse gear. The amount of time spent in close proximity to an animal(s) would be limited to the minimum necessary to meet research objectives. Whenever possible, four-stroke engines would be used, as they are quieter than two-stroke engines. Researchers would leave the vicinity of an animal(s) if the animal(s) shows a response to the presence of the research vessel or aircraft. Approaches to an individual animal would be limited and efforts to approach an individual would be discontinued of the animal displays avoidance behaviors, such as a change in its direction of travel or departures from normal breathing and/or dive patterns. Only personnel with extensive experience operating vessels and aircraft near animals would be involved in close approaches.

If manatees are encountered during vessel surveys or other vessel activities, researchers would obey all speed zones and manatee no entry zones. If manatees are observed prior to an encounter, care would be taken to slowly maneuver away from the direction of the animals. If a manatee is encountered while on the water, a minimum distance of 50 ft (15.2 m) would be maintained at all times. If a manatee(s) approaches, vessel engines would be placed in neutral until the animal has passed. If manatees are located during aerial surveys, altitudes would be increased to 1,000 ft (300 m), and surveys would ceases if the manatees appear to be affected by the over flight. The USFWS' Jacksonville Office and NMFS PR1 would be contacted immediately to report any injuries that occur as a result of authorized research.

Mitigation for Capture, Restraint, and Handling. These procedures would be performed or directly supervised by qualified personnel and an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Only personnel experienced in capture and sampling techniques would be used in order to complete the activities as quickly as possible. The precautionary measures for young and females with young described above would be followed during cetacean capture/release activities. During capture/release activities, female animals determined to be in late-term pregnancy (late 2nd and 3rd trimester) will be tagged with a roto-tag so they can be avoided in subsequent sets, and then immediately released.

Pinniped research activities would be carried out efficiently, to minimize the total time researchers are occupying the rookery/haul-out and the total number of times a site is disturbed. Stays on rookeries longer than five hours are justified only when it prevents additional disturbance of the site on subsequent days. To avoid respiratory distress, ischemia (restricted blood flow), or nerve damage, animals would be positioned properly (*i.e.,* ventrally recumbent) during anesthesia (Dierauf 1990). Respiration and pCO_2 (measure of carbon dioxide in the blood) would be monitored and oxygen administered, as needed to avoid prolonged breath holding during gas anesthesia, which can result in cardiac hypoxia (lack of oxygen to the heart muscle). Qualified personnel would be prepared to control or assist ventilations when using sedatives. An emergency kit would be readily available to respond to complications or emergencies. The animal's body temperature would be closely monitored and steps would be taken to avoid hypo- and hyperthermia. Drug doses would be calculated on the researcher's best estimate of an animal's lean body mass and metabolic rate.

To prevent interactions with Florida manatees or sea turtles during capture activities, vessel personnel would be informed that it is illegal to intentionally or unintentionally harm, harass, or otherwise "take" manatees or sea turtles. Netting activities would ease if a manatee or sea turtle is sighted in the vicinity of the vessel. If a manatee or sea turtle is accidentally captured, the vessel would immediately be stopped and either turned off or put in neutral. Tension on the net would be released to allow the animal the opportunity to free itself. Caution would be exercised when attempting to assist the animal in freeing itself. The appropriate USFWS Field Office and NMFS PR1 would be contacted immediately to report any incidents.

Mitigation for Attachment of Tags and Scientific Instruments. Pinniped flipper tags would be placed appropriately, so animals would not walk on or be irritated by them. Care would be taken when attaching scientific instruments to pinnipeds to prevent thermal burns. The correct proportions

of epoxy hardener and resin catalyst would be used to prevent a "hot" mix and the minimum practical amount of epoxy would be used to prevent burning the animal. To minimize the risk of infections from implantable tags, appropriate instrument sterilization and sterile surgery techniques would be used.

Measures to minimize the effects of attaching scientific instruments to cetaceans would include the use of stoppers to reduce the force of impact and limit the depth of penetration of the tips of subdermal tags. Arrow tips would be disinfected between and prior to each use, to minimize the risk of infection and cross-contamination. Suction cup mounted tags would be placed behind a cetacean's blowhole so that there is no risk of any migration of the suction cup resulting in obstruction of the blowhole. A take would be considered to have occurred with any attempt made to tag an animal from a crossbow, air gun, or pole, even if that attempt is unsuccessful. No tagging takes would occur on large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no tagging would occur for calves less than one year of age.

The tag and/or instrument size and weight would be kept to the minimum needed to collect the desired data to minimize the potential for increased energetic costs of or behavioral responses to larger tags. Tag attachment methods would be minimally invasive, to minimize potential pain or infection. Tag placement would be selected so that it will not interfere significantly with an animal's ability to forage or conduct other vital functions. All tagged animals should receive follow-up monitoring, including visual observations where feasible, to evaluate any potential effects from tagging activities.

Mitigation for Marking. After freeze branding, the skin would be returned to normal temperature as quickly as possible using water.

Mitigation for All Sampling Procedures. These procedures would be performed or directly supervised by qualified personnel and an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. A marine mammal veterinarian or other qualified personnel would monitor the physiologic state of each animal (*e.g.*, by monitoring respiratory rate and character, heart rate, body temperature, and behavioral response to handling and sampling procedures). Animals that are physically restrained but continue to struggle or show signs of stress would be released immediately to minimize the risk that continued stress would lead to capture myopathy.

Mitigation for Biopsy Sampling. During cetacean biopsy sampling, a take would be considered to have occurred with any attempt made to biopsy dart an animal from a crossbow, air gun, or pole, even if that attempt is unsuccessful. In addition, no biopsy sampling takes would occur on large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no biopsy sampling would occur for calves less than one year of age. Sterile, disposable biopsy punches would be used to minimize the risk of infection and cross-contamination. Where disposable equipment is not available, liquid chemical sterilants would be used with adequate contact times (as indicated on the product label) to affect proper sterilization. Instruments would be rinsed with sterile water or saline before use on animals. Care would be taken to avoid contact of equipment disinfectants with an animal's skin, and disinfectant agents would be changed periodically to avoid growth of resistant strains of microorganisms.

Mitigation for Blood Sampling. The volume of blood taken from individual animals at one time would not exceed more than 0.5-1 percent of its body weight, depending on taxa (Dein et al. 2005). Qualified researchers should not need to exceed three attempts (needle insertions) per animal when collecting blood. If an animal cannot be adequately immobilized for blood sampling, efforts to collect blood would be discontinued to avoid the possibility of serious injury or mortality from stress. Sterile, disposable needles would be used to minimize the risk of infection and cross-contamination. Where disposable equipment is not available, liquid chemical sterilants would be used with adequate contact times (as indicated on the product label) to affect proper sterilization. Instruments would be rinsed with sterile water or saline before use on animals. Care would be taken to avoid contact of equipment disinfectants with an animal's skin, and disinfectant agents would be changed periodically to avoid growth of resistant strains of microorganisms.

Mitigation for Ultrasound Sampling. Rectal and vaginal transducer probes will be well lubricated during sampling. Care will be taken to avoid introducing foreign matter into the vaginal canal. Sedation may be used to minimize animal discomfort. Ultrasound procedures on cetaceans will take place in water as often as possible.

Mitigation for Incidental Mortality. To ensure that the total number of observed mortalities does not exceed permitted levels, the Permit Holder/PI would notify NMFS PR1 of research-related mortalities by phone as soon as possible after the incident, preferably within 24-72 hours. Within two weeks of the incident, unless other arrangements have been made, the Permit Holder/PI must submit a written report that includes a complete description of the events surrounding the incident and identification of steps that will be taken to reduce the potential for additional incidents.

Mitigation for Exposure to Playbacks and Other Acoustic Research. A particular playback trial would be suspended if the exposed cetaceans show strong reactions, as indicated by sustained breaching and other activities commonly associated with stressed or agitated cetaceans. Other mitigation for this research would be included as conditions of the ESA/MMPA permit.

Additional Mitigation for USFWS Marine Mammal Species. If sea otters, walrus, or manatees are injured or killed during research activities, research would be suspended. A report would be sent to the USFWS, Division of Management Authority, the appropriate USFWS Field Office, and NMFS PR1.

5.2.6.3 Mitigation Measures for Other Biological Resources

Measures would be taken to avoid protected and sensitive habitats during research projects. If activities would occur within the boundaries of a federally protected area, the appropriate personnel would be notified. Notification would include specific dates, locations, and participants involved in the activities. If necessary, permits would be obtained to conduct research in these areas.

Nesting sea turtles and birds would be avoided during activities. If necessary, activities would be coordinated with the appropriate State agency/agencies to ensure there would be no adverse impacts.

5.3 Water and Sediment Quality

5.3.1 Stranding Agreements and Response Alternatives

The SA template (Article III and Article IV, Part B, Number 4) would require SA holders to make every reasonable effort to assist in the clean-up of beach areas where their activities, such as necropsy or specimen collection, contributed to the soiling of the site. NMFS would develop spill prevention best management practices for responders to use to reduce the incidence of spills from equipment, euthanasia solution, etc. These measures would help protect the surrounding environment, including water and sediment quality.

5.3.2 Carcass Disposal Alternatives

Carcass burial on beaches and disposal in State waters would only occur after state and/or local authorities have given permission to conduct such activities. Stranding network members, in coordination with NMFS (if necessary), would obtain any permits necessary and follow any conditions or mitigation set forth in the permits. Approval from state and/or local authorities would ensure that impacts to water and sediment quality would be minimal. The SA template (Article III

and Article IV, Part B, Number 4) would require SA holders to make every reasonable effort to assist in the clean-up of beach areas where their activities, such as necropsy or specimen collection, contributed to the soiling of the site. These measures would help protect the surrounding environment, including water and sediment quality.

If carcasses are known or assumed (based upon test results or prior knowledge of the species) to have contaminant levels that meet or exceed the definition of hazardous waste under EPA, state, and/or local regulations, they would be taken to an EPA-designated hazardous waste landfill for proper disposal.

Non-toxic carcasses may be disposed in Federal waters without a permit. Disposal of carcasses that are known to be hazardous waste at sea may require EPA approval and a permit. These carcasses would be disposed of in an EPA designated ocean dumping site. All EPA dumping sites are managed to avoid or minimize impacts to the marine environment. Materials used to sink carcasses would be chosen to avoid or minimize any impacts to the marine environment.

5.3.3 Rehabilitation Activities Alternatives

Rehabilitation facilities would have any required NPDES, state, and local permits, for facility discharges directly to surface waters. Facilities discharging to POTWs would have any necessary effluent discharge permits and a pretreatment plan in place to meet municipal wastewater treatment standards. Water used in temporary pools would be discharged into a sewer drain, where available, and would be taken to a wastewater treatment plant. No mitigation measures are in place for water drainage into nearshore waters or the use of net pens. The development of a monitoring plan is recommended to determine impacts and potential mitigation measures.

5.3.4 Release of Rehabilitated Animals Alternatives

If hazardous materials or wastes were discharged during release activities, stranding network members would notify the appropriate Federal, state, or local authorities.

5.3.5 Disentanglement Alternatives

If hazardous materials or wastes were released during disentanglement activities, responders would notify the appropriate Federal, state, or local authorities.

5.3.6 Biomonitoring and Research Alternatives

If hazardous materials or wastes were released during biomonitoring and research activities, personnel would notify the appropriate Federal, state, or local authorities.

5.4 Cultural Resources

5.4.1 Stranding Agreements and Response Alternatives

Under Alternatives A2, A3, A4, and A5, potential damage to cultural resources during stranding response may be avoided by contacting the appropriate SHPO or other local authorities prior to any major land disturbance. Known cultural resources would be avoided during transport and removal activities. If cultural resources are discovered during response operations, all work would cease and the SHPO would be contacted.

Stranding response on Native American/Alaska Native lands would be coordinated with the Tribal Historic Preservation Officer (THPO), Native American tribes, Alaska Natives, or other aboriginal peoples to accommodate cultural uses of marine mammals. Responders would also be sensitive to the fact that tribal cultures often involve ceremonial, medicinal, or subsistence uses or plants, animals (including marine mammals), and specific geographic locations. These measures would be taken to minimize or eliminate any potential impacts on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.

The SA template (Article III and Article IV, Part B, Number 4) would require SA holders to make every reasonable effort to assist in the clean-up of beach areas where their activities, such as necropsy or specimen collection, contributed to the soiling of the site. These measures would help protect the surrounding environment, which may include undiscovered cultural resources.

5.4.2 Carcass Disposal Alternatives

Under Alternatives B2 and B3, potential damage to cultural resources would be avoided by contacting the appropriate SHPO or other local authorities before selecting a beach burial site. The proximity of cultural resources to a site may change the method of carcass disposal, if necessary. Known cultural resources would be avoided during transport and removal activities. If cultural resources are discovered during burial operations, all work would cease and the SHPO would be contacted.

Carcass disposal on Native American/Alaska Native lands would be coordinated with the THPO, Native American tribes, Alaska Natives, or other aboriginal peoples to accommodate cultural uses of

marine mammals. Responders would also be sensitive to the fact that tribal cultures often involve ceremonial, medicinal, or subsistence uses or plants, animals (including marine mammals), and specific geographic locations. These measures would be taken to minimize or eliminate any potential impacts on Alaska Natives, Native American tribes, or other aboriginal people's cultural uses of coastal resources.

5.4.3 Rehabilitation Activities Alternatives

If cultural resources are discovered during activities under Alternatives C2 and C3, all activities would cease and the SHPO/THPO would be contacted. Known cultural resources would be avoided during rehabilitation activities.

5.4.4 Release of Rehabilitated Animals Alternatives

If cultural resources are discovered during release activities under Alternatives D2 and D3, all activities would cease and the SHPO/THPO would be contacted. Known cultural resources would be avoided during release activities.

5.4.5 Disentanglement Alternatives

No mitigation measures are necessary, as impacts would not be expected under the disentanglement alternatives.

5.4.6 Biomonitoring and Research Alternatives

Under Alternatives F2 and F3, impacts to cultural resources during biomonitoring and research activities would be avoided by contacting the appropriate SHPO/THPO or other local authorities prior to any projects that may disturb or damage resources. Known cultural resources would be avoided during research activities. If cultural resources are discovered during these activities, all work would cease and the SHPO/THPO would be contacted.

5.5 Human Health and Safety

5.5.1 Stranding Agreements and Response Alternatives

For Alternatives A4 and A5, the SA template (Article II, Part C, Number 5) recommends Stranding Network participant organizations to take precautions against injury or disease to any network personnel, volunteers, and the general public when working with live or dead marine mammals. The SA template also requires the stranding network participant to notify the NMFS Regional coordinator

within 24 hours of detecting and/or confirming any zoonotic diseases in an animal which could affect human health. In addition, the SA template (Article III and Article IV, Part B, Number 4) would require SA holders to make every reasonable effort to assist in the clean-up of beach areas where their activities, such as necropsy or specimen collection, contributed to the soiling of the site. NMFS would develop spill prevention best management practices for responders to use to reduce the incidence of spills from equipment, euthanasia solution, etc. These measures would help protect the surrounding environment and public health.

All SA holders engaged in stranding response would have a health and safety plan for personnel and volunteers that is presented to and reviewed by NMFS as part of their application for a new or renewal SA. Measures that may be utilized by SA holders to reduce health and safety risks during responses include, but are not limited to, the use of protective clothing, face protection, and eye protection. Other elements that may be included in a health and safety plan where feasible are: the use of life jackets and wet or dry suits during water responses; rotation of responders to minimize the amount of exposure and reduce fatigue; availability of first-aid kits and facilities for clean-up; and training for responders in first-aid and CPR. A proper first-aid kit and a person trained in the treatment of drug accidents should be present if etorphine or paralytic agents are used for euthanasia.

Risks from the consumption of marine mammal meat would be reduced by continuing to inform Alaska Natives on the potential for contaminants and disease. This is currently done by NMFS through the co-management process with Alaska Natives.

Marine mammal oil spill response guidelines have been developed for the MMHSRP (Appendix L). The guidelines would serve as mitigation for impacts under Alternatives A2, A3, A4, and A5. Personnel involved in spill response activities would have to comply with all applicable worker health and safety laws and regulations. The primary Federal regulations are the OSHA standards for Hazardous Waste Operations and Emergency Response (HAZWOPER) (29 CFR 1910.120). Oil spill response personnel may be required to have HAZWOPER training, depending on the extent of their involvement and state regulations. Recommended training for response includes first-aid, Cardio Pulmonary Resuscitation (CPR), the Incident Command System (ICS), aircraft and boating safety, and general oil spill response. Recommended personal protective equipment includes full eye protection, oil resistant clothing, gloves, ear protection, and respiratory protection. The Material Safety Data Sheet (MSDS) for the spilled material would be reviewed and all recommended precautions would be followed. Response personnel would be periodically monitored to determine

exposure. Marine mammal stranding network members would be responsible for training and certifying their employees and volunteers.

5.5.2 Carcass Disposal Alternatives

For Alternatives B2 and B3, the SA Template (Article II, Part C, Number 5) recommends Stranding Network participant organizations to take precautions against injury or disease to any network personnel, volunteers, and the general public when working with live or dead marine mammals. The SA template also requires the Stranding Network participant to notify the NMFS Regional coordinator within 24 hours of detecting and/or confirming any diseases of concern in an animal which could affect human health. Response workers would be required to have sufficient protection against infection with zoonotic pathogens, contaminants, and other risks associated with handling decomposing carcasses. Workers would be required to wear, as necessary, protective clothing, gloves, face masks and safety goggles. Equipment used to move and dispose of carcasses would be cleansed and disinfected to reduce the risk of zoonotic pathogens or other possible contaminants. The marine mammal oil spill response guidelines (Appendix L) would serve as mitigation for impacts under Alternatives B2 and B3. These mitigation measures would be the same as those discussed above for oil spill response to stranded animals.

The burial or disposal at sea (in state waters) of a carcass would only occur after state and/or local authorities have given permission to conduct such activities. Stranding network members would obtain any permits necessary to conduct carcass burial on beaches or other suitable locations and disposal in state waters. This would include any permits or coordination with the State's health department, to ensure that public health and safety would be protected.

5.5.3 Rehabilitation Activities Alternatives

For Alternatives C3 and C4, the SA template (Article II, Part C, Number 5) recommends Stranding Network participant organizations to take precautions against injury or disease to any network personnel, volunteers, and the general public when working with live or dead marine mammals. The SA template also requires the stranding network participant to notify the NMFS Regional coordinator within 24 hours of detecting and/or confirming any diseases of concern in an animal which could affect human health. The implementation of the Rehabilitation Facility Standards would also serve as mitigation for Alternatives C3 and C4. Section 10 of the standards would require health and safety plans that identify all of the safety issues that may be a factor when working closely with wild marine mammals. Plans would include specific information for the direct handling of all species seen at the

facility. Personnel would be trained to identify potential zoonotic diseases and prevent their transmission from animal to human. Staff would be trained to properly handle contaminated equipment and proper sanitation techniques (Section 4).

Rehabilitation facilities would follow OSHA regulations regarding personnel protective equipment (29 CFR 1910, subpart I). Safety equipment would be provided, including eye protection, protective clothing, and eye flushing stations. OSHA regulations (29 CFR 1910, subpart D) provide measures to reduce slips, falls, and other physical injuries in the workplace. Protocols for appropriate handling of chemicals would be available, including all MSDS. Hazardous materials and toxic substances would be handled and stored according to OSHA regulations (29 CFR 1910, subpart H and subpart Z). A proper first-aid kit and a person trained in the treatment of drug accidents would be present if etorphine or paralytic agents were used for euthanasia.

The marine mammal oil spill response guidelines would serve as mitigation for impacts under Alternatives C2, C3, and C4. Personnel involved in the rehabilitation of oiled marine mammals should have HAZWOPER training. Training on the ICS, first-aid, CPR, crisis management, marine mammal oil spill response, and hazard communication are recommended. Recommended personal protective equipment includes full eye protection, oil resistant clothing, gloves, ear protection, and respiratory protection. The MSDS for the spilled material would be reviewed and all recommended precautions would be followed. Rehabilitation personnel and facilities would be periodically monitored to determine exposure. Facilities would have adequate ventilation to protect against the toxic effects of volatile agents. Marine mammal stranding network members would be responsible for training and certifying their employees and volunteers.

5.5.4 Release of Rehabilitated Animals Alternatives

For Alternatives D2 and D3, the SA template (Article II, Part C, Number 5) recommends Stranding Network participant organizations to take precautions against injury or disease to any network personnel, volunteers, and the general public when working with live marine mammals. Under Alternatives D2 and D3, all SA holders involved in the release of rehabilitated animals would have a health and safety plan. All release personnel would be trained appropriately to avoid or minimize health and safety hazards.

5.5.5 Disentanglement Alternatives

Under Alternatives E2 and E3, safety measures utilized by responders would include immersion suits, life jackets, helmets, and a small closed knife that is available to cut lines and gear in an emergency situation. Typically, a standby vessel (usually a USCG or NOAA vessel) would accompany the responders in case additional assistance is required. Experienced responders would not attempt disentanglement, or would end an attempt, if it was too dangerous. Under Alternative E2, training would be required for East Coast responders in order to be certified for disentanglement. Under Alternative E3, training would be required for responders nationwide in order to be certified for disentanglement. Training would depend upon their level of involvement (see Appendix C, Disentanglement Guidelines). The appropriate training would ensure that responders know the potential safety risks and the methods to avoid or minimize these risks. While these safety measures may reduce some risks, there would always be potential for adverse effects on human health and safety.

5.5.6 Biomonitoring and Research Alternatives

Safety protocols have been developed for health assessment studies. The use of life vests would be required, in order to comply with NOAA's Small Boat Safety Program and policies (NAO 209-125). Gloves and other protective clothing would be used during sampling. Gloves and protective eyewear would be required during the use of liquid nitrogen. It is recommended that at least one emergency medical technician would be present for health assessment activities conducted in water or offshore. If possible, USCG personnel would accompany the research vessels to assist in an emergency and to keep other vessels away from the site.

Health and safety plans would be developed for all permitted research actions. Only experienced personnel would be conducting research, which would reduce health and safety risks. NOAA's Small Boat Safety Program and policies (NAO 209-125) and policies on NOAA employees on non-NOAA vessels (NAO 209-115, as applicable) would be followed to reduce risks during vessel operations. NOAA's Aviation Safety Policy (NAO 209-124) would be followed to minimize hazards during aircraft operations.

For diagnostic testing and specimen analyses, each individual laboratory should have a Chemical Hygiene Plan, as described in 29 CFR 1910.1450. A Chemical Hygiene Plan would contain work practices, policies, and procedures that ensure a safe environment. Researchers would receive training on the hazards of chemicals used in the laboratory and be provided with the proper

equipment for their safe handling, including respiratory protection. These measures would eliminate most of the risks associated with laboratory work.

5.6 Socioeconomics

5.6.1 Stranding Agreements and Response Alternatives

Stranding network members may be able to use available funds from the Prescott Grant Program to help offset costs incurred by response activities.

5.6.2 Carcass Disposal Alternatives

Stranding network members may be able to use available funds from the Prescott Grant Program to help offset costs incurred by carcass disposal activities.

5.6.3 Rehabilitation Activities Alternatives

To minimize the impacts of implementing the Rehabilitation Facility Standards, NMFS would provide a reasonable process for facilities to be upgraded to meet the minimum standards. Substandard facilities may be improved using funds that may be available through the Prescott Grant Program. Prescott funds may also be used to improve facilities that meet the minimum standards, with the goal to achieve or exceed the recommended standards.

5.6.4 Release of Rehabilitated Animals Alternatives

Stranding network members may be able to use available funds from the Prescott Grant Program to help offset costs incurred by release activities.

5.6.5 Disentanglement Alternatives

Disentanglement training expenses would be covered by the MMHSRP. This would eliminate most expenses associated with training.

5.6.6 Biomonitoring and Research Alternatives

Some biomonitoring and research expenses would be covered by the MMHSRP, eliminating some of the socioeconomic impact to personnel.

6. Cumulative and Other Impacts

6.1 Resource Specific Cumulative Impact Analysis

A cumulative impact is defined as the incremental impact of the Proposed Actions and alternatives when added to past, present, and reasonably foreseeable actions. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their impacts. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over a period of time.

The cumulative impacts analysis considers past, present, and planned or reasonably foreseeable programs and projects that could affect each resource area and may add to the incremental impacts of the Proposed Actions and alternatives in the action area. Because the size of the action area is extensive, local projects will not be analyzed; instead general threats to each resource area will be analyzed. Future, reasonably foreseeable MMHSRP actions that are not fully analyzed in the PEIS are listed in Table 6-1. For the purposes of this PEIS, only those resources identified in Section 3.0 that might be impacted by the Proposed Actions and alternatives will be discussed in this section.

Table 6-1. Reasonably Foreseeable MMHSRP Actions

MMHSRP Action	Description	Timeline
Standards for Rehabilitation Facilities/Release Criteria	Currently, these standards and criteria can only be implemented as guidelines. A proposed rule would be written to make these into regulations for all future rehabilitation facilities and activities. At a minimum, an EA would be prepared to assess any impacts associated with the proposed rule that have not been addressed in this PEIS, including a Regulatory Impact Review.	1-2 years (after release of this PEIS)
Rehabilitation Facility Inspection Program	The NMFS' MMHSRP has an interagency agreement with APHIS to plan and possibly implement an inspection program for rehabilitation facilities, based upon the Standards for Rehabilitation Facilities.	2008-2009
Public Viewing Guidelines	Public viewing at rehabilitation facilities is only allowed under MMPA regulations (50 CFR 216.27 (c)(5)) if the NMFS Regional Director or the NMFS Office of Protected Resources Director has specifically authorized the activities and they are conducted in a matter consistent with the requirements applicable to public display. Public viewing guidelines would be developed by NMFS and may be included in the Rehabilitation Facility Standards and any associated regulations. At a minimum, an EA would be prepared to assess any impacts associated with the proposed guidelines.	Undetermined

Table 6-1. Reasonably Foreseeable MMHSRP Actions (continued)

MMHSRP Action	Description	Timeline
Human Interaction Handbook and Data Sheet	A human interaction handbook and data sheet will undergo necessary clearance procedures and will be used by the National Stranding Network.	2009
Workshop on Candidates for Rehabilitation	The NMFS' MMHSRP will hold a workshop regarding decisionmaking during response activities to determine animals that are good rehabilitation candidates. Guidelines to determine good rehabilitation candidates would be developed.	2009
Disentanglement Network- Use of Divers in Water	A workshop is being planned regarding the use of divers for disentanglement activities. The workshop attendees would include national and international professionals involved in disentanglement activities.	2009
Research on Humane Chemical Euthanasia	NMFS will continue to support and fund research on humane methods of chemical euthanasia. This includes research regarding the environmental impacts of chemical euthanasia solutions.	Continuous

6.1.1 Biological Resources

The response, rehabilitation, and release activities of the MMHSRP would have a beneficial cumulative effect on marine mammals. The MMHSRP would continue to rehabilitate and return animals to the wild that would have died otherwise. Returning threatened and endangered animals back to the wild would have a large impact on the survival of these species. With the implementation of the release criteria, the threat of releasing diseased animals would be eliminated or minimized. Without the release criteria, a potential cumulative adverse impact could occur if diseased animals were released and infected wild populations. The MMHSRP, combined with other NMFS activities, would have beneficial cumulative impacts on all marine mammals. Other NMFS activities include: the North Atlantic Right Whale Ship Strike Reduction Strategy; Marine Mammal Conservation Plans; ESA Recovery Plans; Take Reduction Plans; and issuance of incidental harassment authorizations, Incidental harassment authorizations require implementation of mitigation so that activities that may unintentionally take marine mammals are subject to standards that achieve a negligible impact on species or stocks and the least practicable adverse effect on marine mammals.

Research activities of the MMHSRP, combined with all other past, present, and future marine mammal research authorized by permits from the NMFS PR1, could have cumulative adverse impacts on marine mammals. All research activities include takes of marine mammals. Activities have the potential to interrupt mating, feeding, and diving behaviors as well as injure or kill animals. Takes may be occurring on the same individual or group of animals and could be disrupting essential

behaviors. NMFS PR1 currently has 193 scientific research and enhancement permits issued for marine mammals. Of these permits, 35 are general authorizations for Level B Harassment (Swails pers.comm.). However, the MMHRSP activities and other permitted research activities could result in cumulative beneficial impacts on marine mammals. The information gained from these activities may lead to ways to protect and conserve all marine mammals and increase those animals that are declining.

The Standards for Rehabilitation Facilities and release criteria cannot be enforced unless they are incorporated into regulations. These regulations would have beneficial cumulative impacts on marine mammals. By law, Stranding Network participants would have to adhere to these regulations. Participants who are in violation of these regulations could be put on probation, suspended, or have their SA terminated, according to the Final SA Criteria (Appendix C). The rehabilitation facility regulations would ensure that rehabilitated animals would have the appropriate veterinary care in a healthy environment, maximizing the success rate of rehabilitation. The release criteria regulations would ensure that only healthy animals are released back to the wild, minimizing potential impacts to the wild population and ensuring a better survival rate for the released animal.

The Rehabilitation Facility Inspection program would complement the rehabilitation facility regulations. Facilities would be inspected to ensure compliance with the regulations. NMFS would send a qualified individual to each rehabilitation facility to document existing facilities and to advise each facility of their areas of weakness. Once the Standards have been approved, inspections will be carried out on a rotating 1-3 year interval to ensure compliance. This program along with other MMHSRP activities would have beneficial cumulative impacts on marine mammals.

Currently, public viewing of animals in rehabilitation is only allowed under MMPA regulations (50 CFR 216.27(c)(5)) if the NMFS Regional Director or the NMFS Office of Protected Resources Director has specifically authorized the activities and they are conducted in a matter consistent with the requirements applicable to public display. NMFS would clarify the definition of public viewing for animals undergoing rehabilitation in 50 CFR 216.27(c)(5) to differentiate it from permanently captive animals on public display. NMFS would establish guidelines that govern when public viewing of rehabilitating marine mammals would be authorized. NMFS would work with APHIS to develop public viewing guidelines that ensure the requirements of the MMPA and the Animal Welfare Act are met. The guidelines would be designed to protect animal health and to ensure that the potential for a successful rehabilitation would not be compromised. At a minimum, an EA would be prepared to assess any impacts associated with the proposed guidelines. The guidelines would be

available for review by the MMC, current rehabilitation facilities, and the public. Significant cumulative effects on marine mammals would not be expected from this activity.

The NMFS' MMHSRP will hold a workshop regarding decisionmaking during response activities to determine which animals are good rehabilitation candidates. Guidelines would be developed for stranding responders to use to determine good rehabilitation candidates on the beach. These guidelines would minimize the number of animals brought into rehabilitation facilities that are poor candidates for successful rehabilitation and release. The workshop would also address criteria for making immediate disposition determinations (*e.g.*, beach release and relocation and release). Cumulative effects on marine mammals would not be expected from this activity.

A human interaction handbook and data sheet have been developed by the Cape Cod Stranding Network and the Virginia Aquarium Stranding Response Team. These documents will undergo necessary clearance procedures and be used by the National Stranding Network. These materials will be used to provide stranding network personnel with the tools needed to evaluate marine mammals for signs of human interaction and to collect human interaction data consistently in all NMFS jurisdictional regions. Cumulative effects on marine mammals would not be expected from this activity.

6.1.2 Water and Sediment Quality

The MMHSRP's activities would not likely add to the cumulative effects on water and sediment quality from other activities. Sewage outfalls, agricultural runoff, stormwater runoff, industrial operations, shipping operations, and coastal development all have an effect on water and sediment quality. The potential impacts from the MMHSRP's activities would be negligible compared to these impacts.

6.1.3 Cultural Resources

For the preferred alternatives, the adoption of mitigation measures that would include contact with the appropriate SHPO, where warranted, and special release considerations for ice seals, the MMHSRP's activities would be expected to have only minor potential for impacts on cultural resources, and would not incrementally contribute to a cumulatively significant impact to these resources.

6.1.4 Human Health and Safety

Currently, public viewing of animals in rehabilitation is only allowed under MMPA regulations (50 CFR 216.27 (c)(5)) if the NMFS Regional Director or the NMFS Office of Protected Resources Director has specifically authorized the activities and they are conducted in a matter consistent with the requirements applicable to public display. NMFS would establish guidelines that govern when public viewing of rehabilitating marine mammals would be authorized. At a minimum, an EA would be prepared to assess any impacts associated with the proposed guidelines. The guidelines would be designed to protect human health; therefore significant cumulative effects on public health and safety would not be expected.

The MMHSRP is in the process of planning a workshop to discuss the use of divers in the water during disentanglement activities. The workshop would likely be held sometime in 2007. Workshop attendees will include national and international professionals involved with disentanglement. Other countries have used divers to disentangle animals and the workshop will discuss the potential ways this could be implemented in the U.S. If the Disentanglement Network would decide to use divers in the water, a major amendment to the MMHSRP's ESA/MMPA permit would be necessary. This would require at minimum, an EA to analyze the impacts on human health and safety, biological resources, and any other resource that may be affected.

6.1.5 Socioeconomics

The Rehabilitation Facility Standards and release criteria cannot be enforced unless they are incorporated into regulations. The PEIS has taken a general look at potential impacts of requiring rehabilitation facilities to comply with the standards. However, at minimum, an EA would be necessary to fully assess the socioeconomic impacts of making these standards into regulations. An EA would be prepared to assess any impacts associated with the proposed rule that have not been addressed in this PEIS, including a Regulatory Impact Review. This action is anticipated to happen within one to two years after the release of this PEIS.

Release of pinnipeds on the West Coast could have an adverse cumulative impact. Pinniped conflicts with commercial and recreational fisheries are ongoing. California sea lions and harbor seals remove catch and damage gear in all types of fisheries, including gillnet, purse seine, trap and live bait fisheries. Along the West Coast, seals and sea lions have taken threatened and endangered salmon passing through the fish ladders. The conflict has resulted in economic losses for some commercial fisheries and impaired the recovery of salmon stocks. Recreational fishers frequently move their

boats when sea lions are present, and incur additional fuel costs and loss of fishing time. The release of pinnipeds would add individuals to already growing populations and could contribute to an increase in interactions with the commercial and recreational fisheries, causing more economic losses. Space conflicts between pinnipeds and humans have occurred at harbors and beaches, such as Children's Pool in La Jolla, California. More animals hauled out on beaches may deter beach visitors, and impact revenue gained from beachgoers. Currently no released pinnipeds have been documented in any of these conflicts. Released pinnipeds or their offspring could be involved in future conflicts, which may have an adverse cumulative impact on socioeconomics.

The NMFS' MMHSRP will hold a workshop regarding decisionmaking during response activities to determine animals that are good rehabilitation candidates. Guidelines would be developed for stranding responders to use to determine good rehabilitation candidates on the beach. These guidelines would minimize the number of animals brought into rehabilitation facilities that are poor candidates for successful rehabilitation and release. This action would likely reduce expenditures of resources on non-releasable animals and may be a beneficial impact for rehabilitation facilities.

6.2 Unavoidable Adverse Impacts

Unavoidable adverse impacts on marine mammals would occur from the MMHSRP's activities. During response and rehabilitation activities, animals may still exhibit adverse reactions, sustain injuries or die, despite the best efforts made by Stranding Network participants and the proposed mitigation measures. Disentanglement activities would always require a vessel close approach, which may produce adverse reactions from animals. However, these activities would be conducted to help animals, and the long-term beneficial impacts would outweigh the short-term adverse impacts. Research activities would impact marine mammals even with the proposed mitigation measures. Animals may have adverse reactions to research activities, or may be injured or die despite the use of best available science and techniques.

Unavoidable impacts on human health and safety would occur from the MMHSRP's activities. Even with the proposed mitigation measures, there would still be a risk to marine mammal personnel safety and public safety. Some risk would always be present when working with wild animals, as their behavior is unpredictable. Disentanglement activities would always be dangerous, due to animal behavior and working on the open ocean. Public safety would be impacted, as there would be a lag time between when an animal is reported and when a Stranding Network participant gets to the scene.

Between this time, people could still come in contact with the animal, risking physical injuries or potential zoonotic diseases.

6.3 Irreversible and Irretrievable Commitment of Resources

Irreversible commitments of resources are actions which disturb either a non-renewable resource or a renewable resource to the point that it can only be renewed over a long period of time (*i.e.* decades). Irretrievable commitments are losses of resources that occur for a shorter period of time. For the alternatives, most resource commitments are neither irreversible nor irretrievable. Many potential adverse impacts are short-term and temporary. Others may have a longer effect that can be reduced through the proposed mitigation measures in Section 5.

6.4 Relationship Between Short-term Uses and Long-term Productivity

This NEPA required consideration addresses the question of whether the alternatives would be providing short-term benefits at the cost of future generations. Based on the analyses presented under Section 4, Environmental Consequences, no long-term loss of productivity would be expected. The MMHSRP's response, rehabilitation, release, and research activities would contribute to the long-term productivity of marine mammals.

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8. References

AAZV 2006 — American Association of Zoo Veterinarians (AAZV). 2006. Guidelines for the Euthanasia of Nondomestic Animals. C.K. Baer (ed.). 111 pp.

ADFG 2005 — Alaska Department of Fish and Game (ADFG). 2005. Watchable Wildlife, Wings Over Alaska- Alaska Bird Checklist. ADFG, Division of Wildlife Conservation, Juneau, AK. Available online: <*http://wildlife.alaska.gov/viewing/wings/woa_checklist.pdf*>. Accessed April 7, 2006.

Antrim and McBain 2001 — Antrim, J. and J.F. McBain. 2001. Marine Mammal Transport. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Arkush 2001 — Arkush, K.D. 2001. Water Quality. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

ASHPO 2006 — American Samoa Historic Preservation Office (ASHPO). 2006. Cultural History of American Samoa. Available online: <*http://ashpo.org/history.htm*>. Accessed May 2006.

AVMA 2001 — American Veterinary Medical Association (AVMA). 2001. 2000 Report of the American Veterinary Medical Association Panel on Euthanasia. *Journal of the American Veterinary Medical Association* 18(5): 669-696. Available online: <*http://www.avma.org/issues/animal_welfare/euthanasiapdf*>. Accessed September 20, 2006.

Bricker *et al.* 1999 — Bricker, S.B., C.G. Clement, D.E. Pirhalla, S.P. Orlando, and D.R.G. Farrow. 1999. National Estuarine Eutrophication Assessment: Effect of Nutrient Enrichment in the Nation's Estuaries. NOAA, National Ocean Service, Special Projects Office and the National Centers for Coast Ocean Science. Silver Spring, MD.

Cabrera 2005 — Cabrera, G.S. 2005. Historic and Cultural Sites of the CNMI: The National Register Sites. Commonwealth of the Northern Mariana Islands Division of Historic Preservation, Saipan, CNMI.

Carretta *et al.* 2007 — Carretta, J.V., K.A. Forney, M.M. Muto, J. Barlow, J. Baker, B. Hanson, and M.S. Lowry. *U.S. Pacific Marine Mammal Stock Assessments: 2006*. U.S. Department of Commerce, *National Oceanic and Atmospheric Administration Technical Memorandum NOAA-TM-NMFS-SWFSC-398*, 321 pp.

Caswell *et al.* 1999 — Caswell, H., M. Fujiwara, and S. Brault. 1999. Declining survival probability threatens the North Atlantic right whale. *Proceedings of the National Academy of Sciences of the United States of America* 96: 3308-3313.

Calkins and Pitcher 1982 — Calkins, D.G. and K.W. Pitcher. 1982. Population assessment, ecology and trophic relationships of Steller sea lions in the Gulf of Alaska. U.S. Department of Commerce, NOAA, OCSEAP Final Report 19 (1983), pp 445-546.

Castro *et al.* 2006 — Castro, F., P. Houk, D. Chambers, and C. Tanaka. 2006. Commonwealth of the Northern Mariana Islands Integrated 305 (b) and 303 (d) Water Quality Assessment Report. Commonwealth of the Northern Mariana Islands, Division of Environmental Quality. Available online: <*http://www.deq.gov.mp/305b_2006_Final.pdf*>. Accessed May 2006.

CDFG 2001 California Department of Fish and Game (CDFG). 2001. California's Living Marine Resources: A Status Report. California Department of Fish and Game, The Resources Agency, Sacramento, CA. Available online: <*http://www.dfg.ca.gov/mrd/status/status2001.html*>. Accessed May 2006.

CIMS 2006 Chesapeake Information Management System (CIMS). 2006. Crabs and Shellfish. Available online: <*http://www.chesapeakebay.net/crabshell.htm*>. Accessed May 2006.

Clapham *et al.* 1993 Clapham, P.J., P.J. Palsboll, and D.K. Mattila. 1993. High-energy behaviors in humpback whales as a source of sloughed skin for molecular analysis. *Marine Mammal Science* 9(2): 213-220.

Clark and Niles 2000 Clark, K.E. and L.J. Niles. 2000. Version 1.0. U.S. Shorebird Conservation Plan, North Atlantic Regional Shorebird Plan. New Jersey Division of Fish and Wildlife, Endangered and Nongame Species Program, Woodbine, NJ.

Cleghorn 2001 Cleghorn, J.N. 2001. Repatriation of Human Remains at Marine Corps Base Hawaii. *Cultural Resource Management*, Volume 24, No. 03. Available online: <*http://crm.cr.nps.gov/archive/24-03/24-03-13.pdf*>. Accessed May 2006.

CNMI 2001 Commonwealth of the Northern Mariana Islands (CNMI). 2001. Shipwrecks, Grounding, Marine Debris and Dredging. Commonwealth of the Northern Mariana Islands Coastal Resource Management. Available online: <*http://www.crm.gov.mp/marine/wreck_debris/debris.htm*>. Accessed May 2006.

Cowan *et al.* 2001 Cowan, D.F., C. House, and J.A. House. 2001. Public Health. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Craig 2002 Craig, P. 2002. Status of Coral Reefs in American Samoa. In: Rogers, Z. et al. 2002. The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2002. National Oceanic and Atmospheric Administration, National Ocean Service, National Centers for Coastal Ocean Science, Silver Spring, MD.

Cunningham 1996 Cunningham, A.A. 1996. Disease risks of wildlife translocations. *Conservation Biology*. 10(2): 349-353.

Dein *et al.* 2005 Dein, F.J., D.E. Toweill, and K.P. Kenow. 2005. Care and use of wildlife in field research. In: *Techniques for wildlife investigations and management.* C.E. Braun, ed. The Wildlife Society, Bethesda, MD.

Dierauf 1990 Dierauf, L.A. 1990. Pinniped husbandry. In: *CRC Handbook of Marine Mammal Medicine: Health, Disease, and Rehabilitation.* L.A. Dierauf, ed. CRC Press LLC, Boca Raton, FL.

DiGiovanni *et al.* 2005 DiGiovanni R.A., K.F. Durham, J.N. Wocial, R.P. Pisciotta, R. Hanusch, A.M. Chaillet, A.D. Hallett, A.M. Sabrosky, and R.A. Scott. 2005. Rehabilitation and Post-Release Monitoring of a Male Risso's Dolphin (*Grampus griseus*) Released in New York Waters. In *Abstracts of the 16th Biennial Conference on the Biology of Marine Mammals*, San Diego, California, 12 – 16 December 2005.

DOC/NOAA and DOI 2006 U.S. Department of Commerce/ National Oceanic and Atmospheric Administration (DOC/NOAA) and U.S. Department of the Interior (DOI). 2006. Marine Protected Areas of the United States: Explore the Inventory. Available online: <*http://www3.mpa.gov/exploreinv/explore.aspx*>. Accessed April 2006.

Elliott and McKnight 2000 — Elliott, L. and K. McKnight (eds.). 2000. U.S. Shorebird Conservation Plan, Lower Mississippi/Western Gulf Coast Shorebird Planning Region. Prepared by the Gulf Coastal Prairie Working Group and the Mississippi Alluvial Valley/West Gulf Coastal Plain Working Groups for the USFWS. USFWS, Arlington, VA. Available online: <*http://www.fws.gov/shorebirdplan/RegionalShorebird/downloads/MAVWGC1.doc*>. Accessed April 7, 2006.

EPA 2001 — Environmental Protection Agency (EPA). 2001. Chemical Safety Alert: Safe Storage and Handling of Swimming Pool Chemicals. EPA 550-F-01-003. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Washington, D.C. Available online: <*http://www.epa.gov/ceppo/*>. Accessed September 5, 2006.

EPA 2002 — EPA. 2002. *National Water Quality Inventory 2000 Report*. EPA-841-R-02-001. U.S. Environmental Protection Agency, Office of Water. Washington, D.C. Available online: <*http://www.epa.gov/305b/2000report/*>. Accessed April 2006.

EPA 2005 — EPA. 2005. *National Coastal Condition Report II*. EPA-620/R-03-002. U.S. Environmental Protection Agency, Office of Research and Development/Office of Water. Washington, D.C. Available online: <*http://www.epa.gov/owow/oceans/nccr/2005/downloads.html*>. Accessed April 2006.

FLMNH 2005 — Florida Museum of Natural History (FLMNH). 2005. International Shark Attack File Statistics for the USA Locations with the Highest Shark Attack Activity Since 1990. University of Florida, Florida Museum of Natural History. Available online: <*http://www.flmnh.ufl.edu/fish/sharks/statistics/statsus.htm*>. Accessed April 28, 2006.

Fowler 1978 — Fowler, M.E., ed. 1978. Zoo and Wild Animal Medicine. W.B. Saunders Company, Philadelphia.

Fowler 1986 — Fowler, M.E., ed. 1986. Zoo and Wild Animal Medicine. 2nd Edition. W.B. Saunders Company, Philadelphia.

Gage 1993 — Gage, L.J. 1993. Marine Mammals. *In* Zoo and Wild Animal Medicine: Current Therapy, 3rd edition. M.E. Fowler, D.V.M., ed. W.B. Saunders Company, Philadelphia.

Gauthier and Sears 1999 — Gauthier, J. and R. Sears. 1999. Behavioral response of four species of balaenopterid whales to biopsy sampling. *Marine Mammal Science* 15(1): 85-101.

GEPA 2000 — Guam Environmental Protection Agency (GEPA). 2000. Management of Contaminated Harbor Sediments in Guam, Coastal Zone Management Act Section 309, Guam Harbors Sediment Project, Phase III Final Report. Available online: <*http://www.guamepa.govguam.net/programs/epr/sediment_report.pdf*>. Accessed May 2006.

Geraci and Lounsbury 2005 — Geraci, J.R. and V.J. Lounsbury. 2005. Marine Mammals Ashore: A Field Guide for Strandings, Second Edition. National Aquarium in Baltimore, Baltimore, MD.

GMP 2004 — Gulf of Mexico Program (GMP). 2004. *Seagrass Habitat in the Northern Gulf of Mexico: Degradation, Conservation and Restoration of a Valuable Resource*. Available online: <*http://gulfsci.usgs.gov/gom_ims/pdf/pubs_gom.pdf*>. Accessed April 13, 2006.

Goldstein *et al.* 2008 — Goldstein, T., J.A. Mazet, T.S. Zabka, G. Langlois, K.M. Colegrove, M. Silver, S. Barqu, F. Van Dolah, T. Leighfield, P.A. Conrad, J. Barakos, D.C. Williams, S. Dennison, M. Haulena, and F.M. Gulland. Novel symptomatology and changing epidemiology of domoic acid toxicosis in California sea lions (*Zalophus californianus*): an increasing risk to marine mammal health. *Proceedings of the Royal Society B/Biological Sciences* 275(1632): 267-276.

Goodyear 1993 — Goodyear, J.D. 1993. A sonic/radio tag for monitoring dive depths and underwater movements of whales. *Journal of Wildlife Management* 57:503-513.

Greer *et al.* 2001 — Greer, L.L., J. Whaley, and T.K. Rowles. Euthanasia. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Gulland *et al.* 2001 — Gulland, F.M.D., M. Haulena, and L.E. Dierauf. Seals and Sea Lions. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Hamilton *et al.* 1998 — Hamilton, P.K., M.K. Marx, and S.D. Kraus. 1998. Scarification analysis of North Atlantic right whales (*Eubalaena glacialis*) as a method of assessing human impacts. Final report to the NMFS Northeast Fisheries Science Center, Contract No. 4EANF-6-004.

HAS 2002 — HAS (Hawaii Audubon Society). 2002. Checklist of the Birds of Hawaii. Available online: <*http://www.hawaiiaudubon.com/checklist/checklist2002.pdf*>. Accessed April 7, 2006.

Haulena and Heath 2001 — Haulena, M. and R. B. Heath. Marine Mammal Anesthesia. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Hickey *et al.* 2003 — Hickey, C., W.D. Shuford, G.W. Page, and S. Warnock. 2003. Version 1.1. The Southern Pacific Shorebird Conservation Plan: A Strategy for Supporting California's Central Valley and Coastal Shorebird populations. PRBO Conservation Science, Stinson Beach, CA.

Hodge 2001 — Hodge, R.P. 2001. Alaska Department of Fish and Game, Wildlife Notebook Series: Turtles. Available online: <*http://www.adfg.state.ak.us/pubs/notebook/amphibia/turtle/php*>. Accessed April 10, 2006.

Hooker *et al.* 2001 — Hooker, S.K., R.W. Baird, S. Al-Omari, and H. Whitehead. 2001. Behavioral reactions of northern bottlenose whales (*Hyperoodon ampullatus*) to biopsy darting and tag attachment procedures. *Fishery Bulletin* 99:303-308.

Hunter *et al.* 2002 — W.C. Hunter, J. Collazo, B. Noffsinger, B. Winn, D. Allen, B. Harrington, M. Epstein, and J. Saliva. 2002. U.S. Shorebird Conservation Plan, Southeastern Coastal Plains-Caribbean Region Report. Available online: <*http://www.fws.gov/shorebirdplan/RegionalShorebird/downloads/SECPCRRev02.pdf*>. Accessed April 7, 2006.

IATA 2006 — International Air Transport Association (IATA). 2006. *Live Animal Regulations.* 33rd Edition. International Air Transport Association, Montreal, Quebec, Canada.

Jensen and Silber 2003 — Jensen, A. and G. Silber. 2003. *Large Whale Ship Strike Database.* U.S. Department of Commerce, *National Oceanic and Atmospheric Administration Technical Memorandum NMFS-F/OPR-25,* 37 pp.

Kenward 1987 — Kenward, R. 1987. Wildlife Radio Tagging: Equipment, Field Techniques, and Data Analysis. Academic Press, San Diego, CA.

Knowlton *et al.* 2001 — Knowlton, A.R., M.K. Marx, H.M. Pettis, P.K. Hamilton, and S.D. Kraus. 2001. Scarification analysis of North Atlantic right whales (*Eubalaena glacialis*): monitoring rates of entanglement interaction. Report to the National Marine Fisheries Service. Available from: New England Aquarium, Boston, MA.

Lander *et al.* 2001 — Lander, M.E., A.J. Westgate, R.K. Bonde, and M.J. Murray. 2001. Tagging and Tracking. In: *CRC Handbook of Marine Mammal Medicine.* Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Marshall 1998 — Marshall, G.J. 1998. Crittercam: an animal-borne imaging and data logging system. *Marine Technology Society Journal* 32(1): 11-17.

Mate *et al.* 2007 — Mate, B., R. Mesecar, and B. Lagerquist. 2007. The evolution of satellite-monitored radio tags for large whales: one laboratory's experience. *Deep Sea Research II* 54:224-247.

Mazet *et al.* 2004 — Mazet, J.A.K., T.D. Hunt, and M.H. Ziccardi. 2004. *Assessment of the Risk of Zoonotic Disease Transmission to Marine Mammal Workers and the Public: Survey of Occupational Risks.* Prepared for the United States Marine Mammal Commission. Prepared by: Wildlife Health Center, School of Veterinarian Medicine, University of California, Davis. Davis, CA.

Measures 2004 — Measures, L.N. Marine mammals and "wildlife rehabilitation" programs. Canadian Science Advisory Secretariat Research Document 2004/122. Fisheries and Oceans Canada. Available online: <*http://www.dfo-mpo.gc.ca/csas/csas/DocREC/2004/RES2004_122_E.pdf*>. Accessed January 4, 2007.

Mukhtar *et al.* 2004 — Mukhtar, S., A. Kalbasi, and A. Ahmed. 2004. Composting. In: *Carcass Disposal: A Review*. National Agricultural Biosecurity Center, Kansas State University, Manhattan, KS.

Nelson *et al.* 2007 — Nelson, M., M. Garron, R.L. Merrick, R.M. Pace III, T.V.N. Cole. 2007. Mortality and serious injury determinations for baleen whale stocks along the United States eastern seaboard and adjacent Canadian Maritimes, 2001-2005. U.S. Department of Commerce, *Northeast Fisheries Science Center Reference Document 07-05,* 18 pp.

NMFS 1992 — National Marine Fisheries Service (NMFS). 1992. Environmental Assessment on the Effects of Biopsy Darting and Associated Approaches on Humpback Whales (*Megaptera novaeangliae*) and Right Whales (*Eubalaena glacialis*) in the North Atlantic. 13 pp.

NMFS 2003 — NMFS. 2003. North Atlantic Right Whale 2003 Stock Assessment. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD. Available online: <*http://www.nmfs.noaa.gov/pr/pdfs/sars/ao03northatlanticrightwhalewesternstock.pdf*>. Accessed October 18, 2006.

NMFS 2004 NMFS. 2004. Environmental Assessment on the Effects of the Issuance of Eleven National Marine Fisheries Service Permitted Scientific Research Activities on Marine Mammal and Sea Turtle Species in the U.S. Territorial Waters and High Seas of the North Pacific Ocean (Including the Gulf of Alaska and Bering Sea), Arctic Ocean (Including the Chukchi Sea and Beaufort Sea), Southern Ocean (Including Waters of Antarctica), and Foreign Territorial Waters of Mexico (Gulf of California Only), Canada, Russia, Japan, and the Philippines. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD.

NMFS 2005a NMFS 2005. Salmon Populations. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Seattle, WA. Available online: <*http://www.nwr.noaa.gov/ESASalmon-Listings/Salmon-Populations/Index.cfm*>. Accessed April 2006.

NMFS 2005b NMFS. 2005. North Atlantic Right Whale 2005 Stock Assessment. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD. Available online: <*http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2005whnr-w.pdf*>. Accessed October 18, 2006.

NMFS 2006a NMFS. 2006. General Fact Sheet: Atlantic *Acropora* corals. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Silver Spring, MD. Available online: <*http://www.nmfs.noaa.gov/pr/pdfs/species/acropora_factsheet040312.pdf*>. Accessed May 2006.

NMFS 2006b NMFS. 2006. Environmental Assessment on the Effects of the Issuance of Four National Marine Fisheries Service Scientific Research Permits and Three Permit Amendments on the Eastern North Pacific Southern Resident Killer Whale (*Orcinus orca*) and Other Marine Mammals in the U.S. Territorial Waters, Exclusive Economic Zones, and High Seas of the Eastern North Pacific Ocean Along the Coast of the U.S. from Southeastern Alaska to Central California, and Coastal Inlets and Estuaries of these States. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD.

NMFS 2008a NMFS. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, WA.

NMFS 2008b NMFS. 2007. Marine Mammal Unusual Mortality Events. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD Available online: <*http://www.nmfs.noaa.gov/pr/health/mmume/*>. Accessed June 2007.

NMFS 2008c NMFS 2008. Conservation Plan for the Cook Inlet beluga whale (*Delphinapterus leucas*). National Marine Fisheries Service, Juneau, Alaska.

NMS 2005 National Marine Sanctuaries (NMS). 2005. Encyclopedia of the National Marine Sanctuaries. National Oceanic and Atmospheric Administration, National Ocean Service, National Marine Sanctuaries, Silver Spring, MD. Available online: <*http://marinelife.noaa.gov/*>. Accessed April 2006.

NMS 2006 National Marine Sanctuaries (NMS). 2006. Press Release: Historic Schooners Added to National Register of Historic Places. April 24, 2006. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Marine Sanctuaries. Available online:

<*http://sanctuaries.noaa.gov/news/press/2006/pr042406.html*>. Accessed May 2, 2006.

NOAA CSC 2001 — NOAA, Coastal Service Center (CSC). 2001. *Guide to the Seagrasses of the United States of America (Including U.S. Territories in the Caribbean).* National Ocean and Atmospheric Administration, Coastal Service Center. Charleston, SC. Available online: <*http://www.csc.noaa.gov/benthic/cdroms/sav_cd/pdf/guide.pdf*>. Accessed April 14, 2006.

NPS 2005 — National Park Service (NPS). 2005. Abandoned Shipwreck Act Guidelines, Part IV: Shipwrecks in the National Register of Historic Places. U.S. Department of the Interior, National Park Service. Washington, D.C. Available online: <*http://www.cr.nps.gov/archeology/submerged/NRShips.htm*>. Accessed April 21, 2006.

NPS 2006 — NPS. 2006. National Register Information System Database. Available online: <*http://www.nr.nps.gov/*>. Accessed April 21, 2006.

NRCS 2006 — Natural Resources Conservation Service (NRCS). 2006. Cultural Resources Training Series, Part 1. U.S. Department of Agriculture, National Resources Conservation Service, National Employee Development Center. Fort Worth, TX. Available online: <*http://www.nedc.nrcs.usda.gov/catalog/cultres.html*>. Accessed April 2006.

NRDC 2005 — Natural Resources Defense Council (NRDC). 2005. *Testing the Waters 2005: A Guide to Water Quality at Vacation Beaches.* Available online: <*http://www.nrdc.org/water/oceans/ttw/ttw2005.pdf*>. Accessed April 28, 2006.

NWHICRER 2006 — Northwestern Hawaiian Island Coral Reef Ecosystem Reserve (NWHICRER). 2006. Maritime Archaeology. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Marine Sanctuaries. Available online: <*http://hawaiireef.noaa.gov/research/MA/welcome.html*>. Accessed April 21, 2006.

OCNMS 1993 — Olympic Coast National Marine Sanctuary (OCNMS). 1993. Olympic Coast National Marine Sanctuary Final Environmental Impact Statement. National Oceanic and Atmospheric Administration, National Ocean Service. Available online: <*http://olympiccoast.noaa.gov/protection/pubdocs/feis_tablecontents.htm*l>. Accessed April 2006.

OCNMS 2004 — OCNMS. 2004. Seaweeds List. Available online: <*http://olympiccoast.noaa.gov/living/seaweeds/seaweedlist.html*>. Accessed April 13, 2006.

Parker and King 1998 — Parker, P.L. and T.F. King. 1998. National Register Bulletin (#38), Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Park Service, U.S. Department of the Interior, Washington, D.C. Available online: <*http://www.cr.nps.gov/nr/publications/bulletins/nrb38/index.htm*>.

Puttock *et al.* undated — Puttock, C., I. Abbott, J. Fisher, N. Harbottle, and R. Estrella. Undated. Invasive Algae Database. Bishop Museum, Honolulu, HI. Available online: <*http://www2.bishopmuseum.org/algae/results1.asp*>. Accessed April 2006.

Rice and Cooper 2005 — Rice, J.M. and R.W. Cooper. 2005. Monitoring the Movements of Beach-Released Mass Stranded Dolphins with Satellite Telemetry. In *Abstracts of the 16th Biennial Conference on the Biology of Marine Mammals*, San Diego, California, 12 – 16 December 2005.

Smith and Baco 2003 — Smith, C.R. and A.R. Baco. 2003. Ecology of whale falls at the deep-sea floor. *Oceanography and Marine Biology: an Annual Review* (41): 311-354.

Stephan *et al.* 2000 — Stephan, C.D., R.L. Peuser, and M.S. Fonseca. 2000. Evaluating Fishing Gear Impacts to Submerged Aquatic Vegetation and Determining Mitigation Strategies. Atlantic States Marine Fisheries Commission. Washington, D.C. Available online: <*http://www.asmfc.org/publications/habitat/gearImpactsReport.pdf*>. Accessed April 13, 2006.

Stilson *et al.* 2003 — Stilson, M.L., D. Meatte, and R.G. Whitlam. 2003. A Field Guide to Washington Archaeology. Washington State Department of Archaeology and Historic Preservation, Olympia, WA. Available online: <*http://www.oahp.wa.gov/pages/Documents/documents/FieldGuidetoWAArch.pdf*>. Accessed April 2006.

Swails pers.comm. — Swails, K. Personal communication between Ms. Kathryn Swails (NMFS PR1) and Sarah Howlett (NMFS) regarding the number of marine mammal scientific research and enhancement permits. January 22, 2009.

Thomas and Harvey 2005 — Thomas, K. and J.T. Harvey. 2005. Movements, Dive Behavior, and Survivability of California Sea Lions (*Zalophus californianus*) Post-Rehabilitation for Domoic Acid Toxicity. In *Abstracts of the 16th Biennial Conference on the Biology of Marine Mammals*, San Diego, California, 12 – 16 December 2005.

USCG 1999 — United States Coast Guard (USCG). 1999. *Hawaii Area Contingency Plan*. U.S. Department of Transportation, U.S. Coast Guard, Marine Safety Office Honolulu, HI. Available online: <*http://www.uscg.mil/d14/units/msohono/hacp/*>. Accessed April 2006.

USCG 2005 — USCG. 2005. Boating Statistics 2004. Commandant Publication P16754.18. U.S. Department of Homeland Security, U.S. Coast Guard, Washington, D.C. Available online: <*http://www.art4use.com/06campaign/06-campaign/web-content/statistics/uscg-boating-statistics-2004.pdf*>. Accessed May 2006.

USFWS 2003 — United States Fish and Wildlife Service (USFWS). 2003. Gulf of Mexico Sturgeon Unit Maps. Available online: <*http://www.fws.gov/alabama/gs/unitmaps.htm*>. Accessed April 7, 2006.

USFWS 2005 — USFWS. 2005. Seabird Conservation Plan, Pacific Region. USFWS, Migratory Birds and Habitat Programs, Pacific Region, Portland, OR.

USFWS 2009 — USFWS. 2009. Threatened and Endangered Species System (TESS). Available online: <*http://ecos.fws.gov/tess_public/StartTESS.do*>. Accessed February 2009.

Waring *et al.* 2007 — Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley, eds. 2007. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments- 2006* (Second Edition). U.S. Department of Commerce, *National Oceanic and Atmospheric Administration Technical Memorandum NMFS-NE-201*.

Watkins and Tyack 1991 — Watkins, W.A. and P.L. Tyack. 1991. Reaction of sperm whale (*Physeter catodon*) to tagging with implanted sonar transponder and radio tags. Marine Mammal Science 7:409-413.

WDFW 1997 — Washington Department of Fish and Wildlife (WDFW). 1997. Forage Fish. Washington Department of Fish and Wildlife, Fish Management Program, Olympia, WA. Available online: <*http://wdfw.wa.gov/fish/forage/forage.htm*>. Accessed May 2006.

WDFW 2006 — WDFW. 2006. Recreational Groundfish in Washington. 2006. Washington Department of Fish and Wildlife, Olympia, WA. Available online: <*http://wdfw.wa.gov/fish/bottomfish/index.htm*>. Accessed May 2006.

Wells *et al.* 2005 — Wells, R.S., V. Tornero, A. Borrell, A. Aguilar, T.K. Rowles, H.L. Rhinehart, S. Hoffman, W.M. Jarman, A.A. Hohn, and J.C. Sweeney. 2005. Integrating life-history and reproductive success data to examine potential relationships with organochlorine compounds for bottlenose dolphins (*Tursiops truncatus*) in Sarasota Bay, Florida. *Science of the Total Environment* 349: 106-119.

Wilderness.net 2006 — Wilderness.net. 2006. The National Wilderness Preservation System. Wilderness Institute at the University of Montana's College of Forestry and Conservation, the Arthur Carhart National Wilderness Training Center, and the Aldo Leopold Wilderness Research Institute. Available online: <*http://www.wilderness.net/index.cfm?fuse=NWPS*>. Accessed September 2006.

Wilson and McMahon 2006 — Wilson, R.P. and C.R. McMahon. 2006. Measuring devices on wild animals: what constitutes acceptable practice? *Frontiers in Ecology and the Environment*. 4(3): 147-154.

Worthy 2001 — Worthy, G.A.J. 2001. Nutrition and Energetics. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

VI DPNR 2001 — U.S. Virgin Islands Department of Planning and Natural Resources (VI DPNR). 2001. *2000 Water Quality Assessment for the United States Virgin Islands*. Division of Environmental Protection, Department of Planning and Natural Resources, Government of the Virgin Islands of the United States. Available online: <*http://www.dpnr.gov.vi/dep/pubs/305b2000.pdf*>. Accessed October 25, 2006.

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9. Glossary

Biotoxin- A poisonous substance produced by a living organism (*e.g.* brevetoxin, saxitoxin).

Brucellosis- An infectious disease caused by the bacteria of the genus *Brucella* and may be passed to humans by contact with infected animals or animal products. Human symptoms include fever, sweats, headaches, back pain, and physical weakness.

Caliciviruses- Marine mammals may have the calicivirus San Miguel Sea Lion Virus, which causes skin lesions (skin vesicles) in marine mammals and potential premature births. In humans, caliciviruses cause hepatitis, diarrhea, and hemorrhaging.

Cetacean- A marine mammal of the order Cetacea, including whales, dolphins, and porpoises.

***Clostridium* spp.-** Large genus of Gram-positive bacteria with four main species that can cause diseases in humans. Food poisoning, gangrene, colitis, and death may result from infections.

Conspecifics- Members of the same species.

Critical habitat- Specific areas within the geographical area occupied by the species at the time of listing (under the ESA), if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and specific areas outside the geographical area occupied by the species if the agency (USFWS or NMFS) determines that the area itself is essential for conservation.

Delphinid- Marine mammals of the family Delphinidae, including the killer whale (*Orcinus orca*), bottlenose dolphin (*Tursiops truncatus*), and the long-finned pilot whale (*Globicephala melas*).

Depleted species- Defined by the MMPA as any case in which: (a) the Secretary of Commerce, after consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals, determines that a species or population stock is below its optimum sustainable population; (b) a State determines that such species or stock is below its optimum sustainable population; or (c) a species or population stock is listed as a threatened species or endangered species under the ESA.

Distinct Population Segment (DPS)- A vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. Distinct population segments may be listed as threatened or endangered under the ESA.

Endangered species- Defined under the ESA as "any species which is in danger of extinction throughout all or a significant portion of its range."

Endocarditis- Inflammation of the inner lining of the heart due to an infection.

Epizootic- An outbreak of disease in an animal population.

Erysipelothrix rhusiopathiae- A pathogenic bacteria that causes systemic disease which typically causes red, hard patches on the skin, with swelling and pain. More severe cases can result in acute septicemia and death.

Essential Fish Habitat (EFH)- Defined under the Magnuson-Stevens Fishery Conservation and Management Act as waters and substrate that are necessary to the fish species for spawning, breeding, feeding, or growth to maturity.

Etorphine (Immobilon®)- A powerful synthetic narcotic analgesic related to morphine used in veterinary medicine for tranquilizing large animals (e.g. elephants). It is a controlled class II drug under the Drug Enforcement Administration.

Evolutionary Significant Unit (ESU)- A Pacific salmon population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species.

Exsanguination- The fatal process of total blood loss which may be used as a mode of euthanasia in marine mammals.

Fomites- Substances that absorb, hold, and transport infectious disease agents

Gastroenteritis- Inflammation of the stomach and large and small intestines caused by a virus, resulting in vomiting or diarrhea.

Giardiasis- A diarrheal illness caused by a one-celled, microscopic parasite, which lives in the intestines and is passed in the stool. It is found in drinking and recreational waters.

Harassment- Under the 1994 amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which: has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B Harassment).

Harmful algal bloom (HAB)- A diverse array of blooms of both microscopic and macroscopic marine algae which produce: toxic effects on humans and other organisms; physical impairment of fish and shellfish; nuisance conditions from odors and discoloration of waters or habitats.

Humane- In the context of euthanasia is defined by the MMPA means "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

Hyperthermia- An acute condition which occurs when the body produces or absorbs more heat than it can dissipate; also referred to as heat stroke or sunstroke.

Hyponatremia- Low blood sodium. In marine mammals it is manifested by anorexia, followed by uncoordinated or spastic movements progressing to a generalized muscle quivering over the entire body, especially the flippers.

Hypothermia- Condition in which body temperature drops below the level required for normal metabolism and/or bodily function to take place.

Immunosuppression- State in which the ability of the body's immune system to fight infections or disease is decreased.

Leptospirosis- An infectious disease caused by the bacteria of the genus *Leptospira* that affects humans and animals. Causes tubular necrosis (kidney disorder) in marine mammals. Human symptoms include high fever, severe headache, muscle ache, chills, and vomiting.

***Morbillivirus*-** A highly contagious and lethal genus of virus (Family Paramyxoviridae) that has been responsible for more significant marine mammal die-offs due to infectious disease than any other pathogen to date.

***Mycobacterium* spp.-** A genus of bacteria that includes many pathogens known to cause serious diseases. In marine mammals, may cause dermal abscesses and pulmonary tuberculosis (infection of the lungs). In humans, may cause skin lesions, pulmonary tuberculosis, and skin tuberculosis.

***Mycoplasma* (Seal Finger)-** Bacteria which may cause mycoplasmal pneumonia (infection of the lungs) in marine mammals. In humans, may cause skin lesions and infection may progress to arthritis, cellulitis (inflammation of the connective tissue of the skin), or tenosynovitis (inflammation of the fluid-filled sheath that surrounds the tendon).

Mysticete- A whale that has baleen (plates of keratinized tissue that hang from the upper jaw) instead of teeth (suborder Mysticeti). Examples include the humpback whale (*Megaptera novaeangliae*), gray whale (*Eschrichtius robustus*), and minke whale (*Balaenoptera acutorostrata*).

Odontocete- Toothed whales (suborder Odontoceti). Examples include the sperm whale (*Physeter macrocephalus*), beluga whale (*Delphinapterus leucas*), harbor porpoise (*Phocoena phocoena*), and bottlenose dolphin (*Tursiops truncatus*).

Otariid- Sea lions and fur seals (family Otariidae). Examples include the Steller sea lion (*Eumetopias jubatus*) and the Northern fur seal (*Callorhinus ursinus*).

Pathology- The scientific study of the nature of disease and its causes, processes, development, and consequences.

Persistent Organic Pollutant (POP)- Chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in fatty tissue of living organisms, and are toxic to humans and wildlife.

Phocid- True or earless seals (family Phocidae). Examples include the Hawaiian monk seal (*Monachus schauinslandi*), and the harbor seal (*Phoca vitulina*).

Pinniped- Marine mammals in the suborder Pinnipedia with all four limbs modified into flippers, including seals, sea lions, and walruses.

Polychlorinated Biphenyls (PCBs)- A group of toxic, carcinogenic organic compounds previously used for industrial purposes.

Polycyclic Aromatic Hydrocarbon (PAH)- Chemical compounds that consist of fused aromatic rings; many are known or suspected carcinogens.

Rehabilitation- Treatment of beached and stranded marine mammals taken with the intent of restoring the marine mammal's health and, if necessary, behavioral patterns.

Salmonellosis- Infection caused by the bacteria *Salmonella* with symptoms including fever, abdominal cramps, and diarrhea.

Seal poxvirus- Virus in pinnipeds which causes skin nodules which may ulcerate, spread rapidly, and persist for months. In humans, may cause swollen, red skin nodules.

Septicemia- Disease caused by the spread of bacteria and their toxins in the bloodstream, also known as blood poisoning.

Shigellosis- Disease caused by a group of bacteria (*Shigella*) with symptoms including diarrhea, fever, and stomach cramps

Stranding- Defined under the MMPA as "an event in the wild in which (A) a marine mammal is dead and is (i) on a beach or shore of the United States; or (ii) in waters under the jurisdiction of the United States (including any navigable waters); or (B) a marine mammal is alive and is (i) on a beach or shore of the United States and is unable to return to the water; (ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or (iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance."

Take- Defined under the MMPA as "to harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect." Defined under the Endangered Species Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."

Threatened species- Defined under the Endangered Species Act as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

Unusual mortality event (UME)- Defined under the Marine Mammal Protection Act as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response."

West Nile Virus- Virus spread by mosquitoes that causes encephalitis (inflammation/swelling of the brain).

Zoonotic- Any infectious disease that can be transmitted from animals to humans.

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February 2009

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Mr. Phillip Zavadil and Ms. Aquilina Lestenkof Aleut Community of St. Paul P.O. Box 86 St. Paul Island, AK 99660	Dr. Jason Turner Department of Marine Science University of Hawaii at Hilo 200 W. Kawili Street Hilo, HI 96720
Jay T. Gutierrez Guam Department of Agriculture Division of Aquatic and Wildlife Resources 163 Dairy Road Mangilao, GU 96913	Dr. Kristi West Hawaii Pacific University 45-045 Kamahameha Highway Kaneohe, HI 96744-5297
Other Contacts	
Dr. Michael Moore Biology Department, MS #33 Woods Hole Oceanographic Institution Woods Hole, MA 02543-1050	Mr. John C. George North Slope Borough Department of Wildlife Management P.O. Box 69 Barrow, AK 99724

Dr. Heather Koopman Biological Sciences University of North Carolina, Wilmington 601 S. College Road Wilmington, NC 28402	Dr. Christina Lockyer North Atlantic Marine Mammal Commission Polar Environmental Center N-9296 Tromsø Norway
Dr. Charles Mayo Provincetown Center for Coastal Studies 59 Commercial Street Box 1036 Provincetown, MA 02658	Mr. Pieter Folkens Alaska Whale Foundation 940 Adams Street, Suite F Benicia, CA 94510-2950
Dr. James Mead Smithsonian Institution Division of Marine Mammals NHB 390, MRC 108 P.O. Box 30712 Washington, D.C. 20013-7013	Dr. Randall Wells Chicago Zoological Society c/o Mote Marine Laboratory 1600 Ken Thompson Parkway Sarasota, FL 34237
Dr. Todd O'Hara Institute of Arctic Biology University of Alaska, Fairbanks P.O. Box 757000 Fairbanks, AK 99775-7000	Dr. Colleen Reichmuth Kastak Long Marine Laboratory University of California-Santa Cruz 100 Shaffer Road Santa Cruz, CA 95060
Dr. Jerome Barakos Pacific Campus of California Pacific Medical Center, 2nd Floor Department of Radiology Radiology Conference Center 2333 Buchanan Street San Francisco, CA 94115	Dr. Vicky Rowntree Department of Biology University of Utah 257 South 1400 East Salt Lake City, UT 84113
Dr. Robert Braun 47-928 Kamokoi Road Kaneohe, HI 96744	Dr. Gregg Levine National Marine Fisheries Service 1601 Kapiolani Boulevard, Suite 1110 Honolulu, HI 96814
Dr. Beth Doescher and Mr. Jeff Pawloski Seal Life Park by Dolphin Discovery 41-202 Kalanianaole Highway, Suite 7 Waimanalo, HI 96795	Dr. Richard DeJournett and Mr. Karl LaCour Koolau Radiology 1380 Lusitana Street Honolulu, HI 96813
Mr. Octavius Covington, Jr. Chief, Harbor Patrol Port of Long Beach 925 Harbor Plaza Drive Long Beach, CA 90802	Mr. Bart Bottoms 532 Hot Springs Road Santa Barbara, CA 93108
Environmental Management Division Harbor Department Port of Los Angeles P.O. Box 151 San Pedro, CA 90733-0151	Mr. Dean Tokishi Kaho'olawe Island Reserve Commission State of Hawaii 811 Kolu StreetSuite 201 Wailuku, HI 96793
Mr. Todd Costa Department of Marine Safety City of Solana Beach P.O. Box 311 Solana Beach, CA 92075	Ms. Karen Pletnikoff Aleutian Pribilof Islands Association 201 East Third Avenue Anchorage, AK 99501
Vice President, Natural Resources Kawerak, Inc. P.O. Box 948 Nome, AK 99762	Ms. Hannah Bernard and Mr. Bill Gilmartin Hawaii Wildlife Fund P.O. Box 637 Paia, Maui, HI 96779

American Zoo and Aquarium Association 8403 Colesville Road, Suite 710 Silver Spring, MD 20910-3314	American Cetacean Society P.O. Box 1391 San Pedro, CA 90733-1391
Earth Island Institute 300 Broadway, Suite 28 San Francisco, CA 94133	Animal Welfare Institute P.O. Box 3650 Washington DC 20027
Friends of the Elephant Seal P.O. Box 490 Cambria, CA 93428	Cabrillo Marine Aquarium 3720 Stephen White Drive San Pedro, CA 90731
Mr. Alan Sanders Sierra Club 232 North 3rd Street Port Hueneme, CA 93041	Mr. Daniel Hayes Pearson Point Mugu Wildlife Center P.O. Box 1053 Port Hueneme, CA 93044
Dr. Paul Nachtigall and Ms. Marlee Breeze P.O. Box 1106 Kailua, HI 96734	Ms. Rebecca M.K. Hommon Region Counsel Navy Region Hawaii 850 Ticonderoga Street, Room 303 Pearl Harbor, HI 96860-5101
Cha Smith KAHEA P.O. Box 27112 Honolulu, HI 96827	Ms. Kate Zolezzi General Manager Maui Ocean Center 129 Ma'alaea Road Wailuku, HI 96793
Ms. Regina Asmutis-Silvia Whale and Dolphin Conservation Society 3 Jacqueline Lane Plymouth, MA 02360	Ms. Marilee Menard Alliance of Marine Mammal Parks and Aquariums 418 North Pitt Street Alexandria, VA 22314
Public Libraries	
Boston Public Library Attn: Gale Fithian 700 Boylston Street Boston, MA 02116	Government Information Center San Francisco Public Library 100 Larkin Street San Francisco, CA 94102
Seattle Public Library Attn: Craig Kyte 1000 4th Avenue Seattle, WA 98104	St. Petersburg Public Library Attn: Joanne Balistreri 3745 9th Avenue North St. Petersburg, FL 33713
NOAA Central Library 1315 East-West Highway SSMC3, Second Floor Silver Spring, MD 20910	

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APPENDIX B

AGENCY COORDINATION AND CONSULTATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUN 20 2006

David A. Bergsten
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
4700 River Road, Unit 14
Riverdale, MD 20737-1238

Dear Mr. Bergsten:

The National Marine Fisheries Service (NMFS) is working on an Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). Some activities of the MMHSRP are conducted under a permit issued under the MMPA and Section 10(a)(1)(A) of the Endangered Species Act (ESA) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current MMPA/ESA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. Potential future activities of the MMHSRP will also be analyzed in the EIS.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The EIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

NMFS is the lead agency in the EIS process as defined in 40 CFR 1501.5. We invite your participation as a cooperating agency in this effort. Cooperating agency responsibilities are outlined in 40 CFR 1501.6. The degree of your involvement in the process will be determined by the extent of your authority/responsibilities; your interest, expertise, and resource availability; and your commitments. We encourage your full participation in the EIS process within the scope of your particular authority, responsibility, and/or expertise. This would include activities such as screening and evaluation of alternatives; information development; environmental, economic, or social analyses; and reviewing preliminary documents. However, at a minimum, we would request your assistance in developing information for the EIS within your expertise, as well as providing reviews of preliminary documents.

We look forward to your response, which should include a point of contact for your agency. If you have any questions, please contact Ms. Sarah Howlett or Ms. Sarah Wilkin at (301) 713-2322.

Sincerely,

Stewart Harris

Stewart Harris

Acting Chief,

Marine Mammal and Sea Turtle Division

Office of Protected Resources

National Marine Fisheries Service

USDA

Animal Care

United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

4700 River Road
Unit 84
Riverdale, MD
20737

July 14, 2006

Mr. Stewart Harris
Acting Chief, Marine Mammal and Sea Turtle Division
Office of Protected Resources
NOAA, NMFS
1315 East West Highway
Silver Spring, MD 20910

Dear Mr. Harris:

This is in regard to your letter of June 20, 2006, to David Bergsten, USDA, regarding cooperation on the EIS for the Marine Mammal Health and Stranding Response Program. This letter has been refered to me, and I have been asked to serve as the liaison and consultant. I work for the Animal Care program, and am the Staff Veterinarian for Exhibition Animals, including marine mammals. I work closely with your office, both with Drs. Whelan and Rowles, and with the Permits, Conservation, and Education Division.

Please feel free to contact me as needed during the EIS project. I have been involved in the development of the standards you reference. Thank you for you cooperation in this matter.

If there any questions, please feel free to contact this office.

Sincerely,

Barbara Kohn
Senior Staff Veterinarian
Animal Care

301-734-8271
301-734-4978 (FAX)

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUN 20 2006

Michael L. Gosliner, Esq.
NEPA Coordinator
Marine Mammal Commission
4340 East-West Highway, Suite 905
Bethesda, MD 20814

Dear Mr. Gosliner:

The National Marine Fisheries Service (NMFS) is working on an Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). Some activities of the MMHSRP are conducted under a permit issued under the MMPA and Section 10(a)(1)(A) of the Endangered Species Act (ESA) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current MMPA/ESA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. Potential future activities of the MMHSRP will also be analyzed in the EIS.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The EIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

NMFS is the lead agency in the EIS process as defined in 40 CFR 1501.5. We invite your participation as a cooperating agency in this effort. Cooperating agency responsibilities are outlined in 40 CFR 1501.6. The degree of your involvement in the process will be determined by the extent of your authority/responsibilities; your interest, expertise, and resource availability; and your commitments. We encourage your full participation in the EIS process within the scope of your particular authority, responsibility, and/or expertise. This would include activities such as screening and evaluation of alternatives; information development; environmental, economic, or social analyses; and reviewing preliminary documents. However, at a minimum, we would request your assistance in developing information for the EIS within your expertise, as well as providing reviews of preliminary documents.

We look forward to your response, which should include a point of contact for your agency. If you have any questions, please contact Ms. Sarah Howlett or Ms. Sarah Wilkin at (301) 713-2322.

Sincerely,

Stewart Harris

Stewart Harris

Acting Chief,

Marine Mammal and Sea Turtle Division

Office of Protected Resources

National Marine Fisheries Service

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUN 20 2006

Pat Carter
NEPA Coordinator
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive
Arlington, VA 22203

Dear Ms. Carter:

The National Marine Fisheries Service (NMFS) is working on an Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). Some activities of the MMHSRP are conducted under a permit issued under the MMPA and Section 10(a)(1)(A) of the Endangered Species Act (ESA) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current MMPA/ESA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. Potential future activities of the MMHSRP will also be analyzed in the EIS.

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We look forward to your response, which should include a point of contact for your agency. If you have any questions, please contact Ms. Sarah Howlett or Ms. Sarah Wilkin at (301) 713-2322.

Sincerely,

Stewart Harris

Stewart Harris

Acting Chief,

Marine Mammal and Sea Turtle Division

Office of Protected Resources

National Marine Fisheries Service

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

In Reply Refer To:
FWS/DHRC/BRMS/028856

DEC 19 2006

David Cottingham
Chief, Marine Mammal and Sea Turtle Division
NOAA-Fisheries Office of Protected Resources
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Mr. Cottingham:

The Fish and Wildlife Service has received your letter dated December 1, 2006, concerning the preliminary Draft Programmatic Environmental Impact State (DPEIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). We appreciate the offer to serve as a cooperating agency and the opportunity to review this document in advance of its submission to the Environmental Protection Agency and subsequent publication of the Notice of Availability in the *Federal Register*.

Unfortunately, due to resource limitations, the Service is unable to participate as a cooperating agency at this time on this DPEIS and should not be identified as such. In addition, we will not be able to review and provide comments on the DPEIS prior to its submission to the *Federal Register*. Instead, we will use the *Federal Register* public comment period as our opportunity to provide any comments.

The Service supports collaborative efforts with NOAA-Fisheries for our joint responsibilities. We note that under the Marine Mammal Protection Act, with the exception of section 408, the MMHSRP is a program created and implemented by the Secretary of Commerce. The Service does not have the resources to provide an equivalent participation in this program. However, the Service will continue to work with NOAA-Fisheries as we finalize the associated *Interim Standards for the Release of Rehabilitated Marine Mammals*, which are identified as a part of the MMHSRP, and will provide input on any aspect of the DPEIS as it relates to the management of those marine mammals under the jurisdiction of the Secretary of the Interior during the public review process.

We look forward to our continued working relationship with NOAA-Fisheries on these and other issues that impact management of marine mammals. Please contact Martin Kodis, Chief of the Branch of Resource Management Support, at 703-358-2161 with any questions.

Sincerely,

David J Stout

Chief,
Division of Habitat and Resource Conservation

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUN 2 2 2006

James F. Devine
U.S. Geological Survey
12201 Sunrise Valley Drive
Reston, VA 20192

Dear Mr. Devine:

The National Marine Fisheries Service (NMFS) is working on an Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). Some activities of the MMHSRP are conducted under a permit issued under the MMPA and Section 10(a)(1)(A) of the Endangered Species Act (ESA) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current MMPA/ESA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. Potential future activities of the MMHSRP will also be analyzed in the EIS.

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We look forward to your response, which should include a point of contact for your agency. If you have any questions, please contact Ms. Sarah Howlett or Ms. Sarah Wilkin at (301) 713-2322.

Sincerely,

Stewart Harris

Stewart Harris

Acting Chief,

Marine Mammal and Sea Turtle Division

Office of Protected Resources

National Marine Fisheries Service

United States Department of the Interior

U. S. GEOLOGICAL SURVEY

Reston, VA 20192

In Reply Refer To:
Mail Stop 423

June 29, 2006

Stewart Harris, Acting Chief
Marine Mammal and Sea Turtle Division
Office of Protected Resources
National Marine Fisheries Service
Silver Spring, Maryland 20910

Dear Mr. Harris,

This is in response to your letter dated June 22, 2006, requesting that the U.S. Geological Survey (USGS) participate as a Cooperating Agency on an Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). It is the policy of the USGS to decline requests to be an official Cooperating Agency in the NEPA activities of another Federal agency except where the proposed Federal action may directly affect our facilities or the conduct of our work. However, the Survey as part of our mission will continue to provide science support to other agencies when our data and scientific expertise have relevance to their proposed actions undergoing NEPA review. Such assistance could include attending or making presentations at scoping and technical meetings, and conducting special studies and data collection projects.

If you have any question concerning our decision, you can contact me at (703) 648-4423 or Susan D. Haseltine, Associate Director of the USGS Biological Resources Discipline at (703) 648-4050.

Sincerely,

James F. Devine
Senior Advisor for Science Applications

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

«Prefix» «First_Name» «Last_Name»
«Title»
«Organization_Name»
«Department»
«Address_1»
«Address_2»
«Address_3»

Subject: Consistency Determination – Marine Mammal Health and Stranding Response Program Programmatic Environmental Impact Statement

Dear «Prefix» «Last_Name»:

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) is announcing the availability of a Draft Programmatic Environmental Impact Statement (PEIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). Preparation of the PEIS is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508). The Draft PEIS is enclosed and may also be downloaded from the NMFS Office of Protected Resources MMHSRP website at *http://www.nmfs.noaa.gov/pr/health/eis.htm*.

Enclosed for review is NMFS' Consistency Determination under the Coastal Zone Management Act (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C for the Proposed Actions and Preferred Alternatives associated with the MMHSRP. Please submit your state agency's concurrence with, or comments on, this Determination within 60 days from the receipt of this letter (15 CFR 930.41) by one of the following methods:

(1) By mail to:
Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910-3226

(2) Or by fax to: (301) 427-2584
(3) Or by e-mail to: mmhsrpeis.comments@noaa.gov

If NMFS does not receive a reply from a state agency within 60 days from the receipt of the consistency determination and supporting information as required by 15 CFR 930.39(a) and there has not been an extension of the 60-day review period, then NMFS will assume concurrence.

Thank you for your assistance. If you have any questions about the MMHSRP or the Draft PEIS, please contact Ms. Sarah Howlett or Ms. Sarah Wilkin at (301) 713-2322.

Sincerely,

David Cottingham
Chief,
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources

Enclosures: Consistency Determination and Draft PEIS

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Alabama Department of Environmental Management (ADEM), Coastal Area Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under the Code of Alabama, Title 9, Chapter 7, Section 16, and pursuant to the CZMA (16 U.S.C. 1452), ADEM is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the Alabama Coastal Area Management Program (ACAMP). Therefore, the PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of ACAMP's Provisions Relating to Coastal Activities (ADEM Administrative Code, Chapter 335, Division 8, Section 2).

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no significant impacts on Alabama's coastal resources are anticipated. In accordance with ADEM Administrative Code 335-8-2 the preferred alternatives, with mitigation, would not adversely affect: historical, architectural or archeological sites; wildlife and fishery habitat; or public access to tidal and submerged lands, navigable waters and beaches or other public recreational resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the ACAMP. The ACAMP has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
POST OFFICE BOX 301463 36130-1463 ♦ 1400 COLISEUM BLVD. 36110-2059
MONTGOMERY, ALABAMA
WWW.ADEM.STATE.AL.US
(334) 271-7700

ONIS "TREY" GLENN, III, P.E.
DIRECTOR

BOB RILEY
GOVERNOR

Facsimiles: (334)
Administration: 271-7950
General Counsel: 394-4332
Communication: 394-4383
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Mining: 394-4326

May 4, 2007

David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910-3226

RE: Proposed Federal Action: *"Draft Programmatic Environmental Impact Statement (PEIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP)."*

Dear Mr. Cottingham:

Reference is made to the March 9, 2007 request submitted by the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service, for the State of Alabama's coastal consistency determination regarding the referenced proposed draft programmatic environmental impact statement. A coastal consistency determination was requested pursuant to 15 CFR § 930.41.

The South Alabama Regional Planning Commission's (SARPC) advertisement of this proposed federal action by public notice has been completed. Based upon review of the information submitted with the request for coastal zone management consistency determination, it appears the proposed draft programmatic environmental impact statement would not result in significant negative impacts to Alabama's coastal resources pursuant to ADEM Administrative Code Rule 335-8-2-.01 (2(b & c)). Therefore, the Alabama Department of Environmental Management has no objections to the National Marine Fisheries Service's statement of coastal consistency.

If you have any questions, please contact Jennifer Robinson of the ADEM Coastal/Facility Section office in Mobile at 251/432-6533 or jrobinson@adem.state.al.us.

Sincerely,

Steven O. Jenkins, Chief
Field Operations Division

Cc: Steve Heath – ADCNR-MRD Gulf Shores

Birmingham Branch
110 Vulcan Road
Birmingham, Alabama 35209-4702
(205) 942-6168
(205) 941-1603 [Fax]

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, Alabama 35603-1333
(256) 353-1713
(256) 340-9359 [Fax]

Mobile Branch
2204 Perimeter Road
Mobile, Alabama 36615-1131
(251) 450-3400
(251) 479-2593 [Fax]

Mobile – Coastal
4171 Commanders Drive
Mobile, Alabama 36615-1421
(251) 432-6533
(251) 432-6598 [Fax]

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Alaska Department of Natural Resources, Office of Project Management and Permitting, Coastal Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Alaska's Coastal Management Program Statute (Title 46, Chapter 39, Section 10), "the Department of Natural Resources shall render, on behalf of the state, all federal consistency determinations and considerations authorized by 16 U.S.C. 1456 (Section 307, Coastal Zone Management Act of 1972)." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under 1) the Standards of the Alaska Coastal Management Program (Alaska Administrative Code, Title 6, Chapter 80, Article 2, Uses and Activities) and 2) the Anchorage Coastal District Enforceable Policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Alaska's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the enforceable policies regarding, marine habitats, water quality, coastal resources in subsistence areas, and cultural and architectural resources, and should present no foreseeable effects to these areas.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Program.

The Alaska Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the San Francisco Bay Conservation and Development Commission (BCDC) with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under McAteer-Petris Act, the BCDC is authorized to prepare an enforceable plan to protect the San Francisco Bay and its shoreline. Under this authority, and pursuant to the CZMA, BCDC is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the San Francisco Bay Plan. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of these policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

At this time, no significant impacts on San Francisco's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with enforceable policies regarding water quality, wetlands, tidal marshes, and tidal flatlands, and should present no foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the San Francisco Bay Plan. The BCDC has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the California Coastal Commission (Commission) with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under the California Coastal Act of 1976 (Public Resources Code, Division 20, Section 30330), the Commission is "designated as the state coastal zone planning and management agency for any and all purposes, and may exercise any and all powers set forth in the Federal Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.)." Therefore, all activities authorized, funded, or carried out by the Federal Government that affect coastal zone resources must be reviewed by the Commission for consistency with the federally approved California Coastal Management Program and the California Coastal Act. The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under the California Coastal Act, Chapter 3, Coastal Resources Planning and Management Policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no significant impacts on California's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with enforceable policies regarding the

marine environment, particularly Article 4, Section 30230, which states that “marine resources shall be maintained, enhanced, and where feasible, restored” and that “Uses of the marine environment should be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms…”

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program.

The California Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State’s response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Commonwealth of Northern Mariana Islands (CNMI), Office of the Governor, Coastal Resources Management Office with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Public Law 3-47, the Office of Coastal Resources Management is authorized to prepare an enforceable plan promote the conservation and wise development of coastal resources of the CNMI. Under this authority, and pursuant to the CZMA, the Office of Coastal Resources Management is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of Title 15. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of these policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

At this time, no significant impacts on CNMI coastal resources are anticipated. The preferred alternatives, with mitigation, would have no direct effects on areas of particular concern including shoreline, lagoon and reef, wetlands and mangrove, and coastal hazards areas. The MMHSRP is consistent with the goals of CNMI Public Law 3-47, the standards and policies in Title 15, Chapter 10, and federal water quality standards.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the CNMI Coastal Resources Management program. The Office of Coastal Resources Management has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Connecticut Department of Environmental Protection, Office of Long Island Sound Programs, Coastal Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Connecticut's Coastal Management Act, (Connecticut General Statute, Title 22a, Chapter 444, Section 96), the Department of Environmental Protection is granted the authority to "represent the state in formal proceedings regarding "federal consistency" as defined in the federal act," and to "into written agreements with federal agencies concerning matters having an interest in or regulatory authority in the coastal area." Such matters are to "provide for cooperation and coordination in the implementation of state and federal programs with jurisdiction in the coastal area in a manner consistent with (the Coastal Management Act) Sections 22a-90 to 22a-96, inclusive." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under the Coastal Management Act and the Connecticut Coastal Manual.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Connecticut's coastal resources are anticipated.

The preferred alternatives, with mitigation, are consistent with the Coastal Management Act and would have no significant effects on beaches, dunes, shorelands, tidal wetlands, or archeological and paleontological resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Connecticut Coastal Management Program. The Connecticut Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

May 17, 2007

David Cottingham, Chief
Office of Protected Resources
Marine Mammal and Sea Turtle Conservation Division
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Re: Marine Mammal Health and Stranding Response Program; Consistency Concurrence

Dear Mr. Cottingham:

This is in response to your consistency determination, received on March 14, 2007, for the proposed Marine Mammal Health and Stranding Response Program (MMHSRP). That determination is required by Section 307(c)(1) of the Coastal Zone Management Act of 1972, as amended, Subpart C of 15 Code of Federal Regulations (CFR) Part 930, and Section II, Part VII(c) of the State of Connecticut Coastal Management Program and Final Environmental Impact Statement.

The proposed program would include issuance of the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release* as final guidance; issuance of a new Endangered Species Act (ESA)/Marine Mammal Protection Act (MMPA) permit to the MMHSRP; continuation of current response, rehabilitation, release, and research activities; and continuation of the John H. Prescott Marine Mammal Rescue Assistance Grant Program. This Department concurs with your determination that the proposed action is consistent to the maximum extent practicable with Connecticut's approved Coastal Management Program, pursuant to Section 22a-96(c) of the Connecticut General Statutes.

Any fisheries management plans that have a potential to affect the Connecticut coastal area, as well as any related Environmental Impact Statements and Regulatory Impact Reviews, should be sent to Mr. Brian P. Thompson, Director of the DEP Office of Long Island Sound Programs as early as possible in the established review period, after the final contents of the documents have been determined.

Yours truly,

Gina McCarthy
Commissioner

GM/TO/to
cc: Allison Castellan, OCRM
Edward Parker, CT DEP
David Simpson, CT DEP

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Soil and Water Conservation, Coastal Zone Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Delaware's Coastal Zone Act (Delaware Code, Title 7, Chapter 70), DNREC is authorized to develop regulations regarding the development and use of Delaware's coastal zone. Under this authority, and pursuant to the CZMA, DNREC is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the Delaware Coastal Management Program. These policies include the Coastal Zone Act, the Beach Preservation Act, the Wetlands Act, and the Subaqueous Lands Act. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of these policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no significant impacts on Delaware's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with enforceable policies regarding

wetlands, beach and coastal waters management, subaqueous lands, and should present no foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Delaware Coastal Management Program. The Delaware Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

DELAWARE COASTAL
MANAGEMENT PROGRAM

TELEPHONE: (302) 739-9283
FAX: (302) 739-2048

May 10, 2007

David Cottingham
Marine Mammal and Sea Turtle Conservation Division
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910-3226

RE: Delaware Coastal Management Federal Consistency Certification
Marine Mammal Health and Stranding Response Program Draft Programmatic Environmental Impact Statement

Dear Mr. Cottingham:

The Delaware Coastal Management Program (DCMP) has received and reviewed your consistency determination for the above referenced project. Based upon our review and pursuant to National Oceanic & Atmospheric Administration regulations (15 CFR 930), the DCMP concurs with your consistency determination for the Marine Mammal Health and Stranding Response Program Draft Programmatic Environmental Impact Statement. Our concurrence is based upon the restrictions and/or conditions placed on any and all permits issued to you for this project.

If you have any questions regarding this determination please do not hesitate to contact me or Tricia Arndt of my staff at (302) 739-9283.

Sincerely,

Sarah W. Cooksey, Administrator
Delaware Coastal Management Program

SWC/tka

cc: File 07.062
Roy Miller-DFW

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Florida Department of Environmental Protection, Office of Intergovernmental Programs, Coastal Zone Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Florida's Coastal Management Act (Title XXVIII, Chapter 380, Section 23), the Florida Department of Environmental Protection may review all "federal development projects and activities of federal agencies which significantly affect coastal waters and the adjacent shorelands of the state" to ensure that they "are conducted in accordance with the state's coastal management program." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under the 23 State Statutes that compose the Florida Coastal Management Plan.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division

However, at this time no significant impacts on Florida's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with state policies regarding wildlife, water resources, state parks and preserves, environmental control, and historical and archeological resources, and should not present any foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is

consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program. The Florida Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

Florida Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 22, 2007

Mr. David Cottingham, Chief
Marine Mammal & Sea Turtle Conservation Division
NOAA/National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910-3226

RE: National Marine Fisheries Service – Draft Programmatic Environmental Impact Statement (PEIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP) – of Interest to the State of Florida.
SAI # FL200703133137C

Dear Mr. Cottingham:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the draft PEIS.

Based on the information contained in the document submitted and comments provided by the Florida Fish and Wildlife Conservation Commission, the state has determined that the proposed federal action is consistent with the Florida Coastal Management Program.

Thank you for the opportunity to review this proposal. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides Georgia Department of Natural Resources, Coastal Resources Division with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Georgia's Coastal Management Act (Official Code of Georgia, Title 12, Chapter 5, Section 323), the Department of Natural Resources has the authority to "concur or object to a determination of consistency filed by a federal agency in connection with a federal activity based on the policies of the Georgia coastal management program…." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under the Georgia Coastal Management Program Document and all state laws subject to the Federal Consistency provisions of the CZMA.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no significant impacts on Georgia's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with state policies regarding coastal marshlands, tidelands, protected areas, shore protection, and historic areas, and should not present any foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Georgia Coastal Management Program. The Georgia Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

May 21, 2007

GEORGIA
Coastal Resources Division

Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
NOAA/NMFS
1315 East West Highway
Silver Spring, Maryland 20910

RE: Consistency Determination for Marine Mammal Health and Stranding Response Program Programmatic Environmental Impact Statement

Dear Mr. Cottingham:

Staff of the Coastal Management Program has reviewed your March 9, 2007 letter and attached Programmatic Environmental Impact Statement on the above referenced action. The current Endangered Species Act / Marine Mammal Protection Act permit expires June 30, 2007 and the EIS is required prior to issuance of a new permit.

The Program concurs with your consistency determination. This determination ensures that the proposed project has been designed to comply to the maximum extent practicable with the applicable enforceable policies of the Georgia Coastal Management Program.

Please feel free to contact Kelie Moore or me if we can be of further assistance.

Sincerely,

Susan Shipman

Susan Shipman
Director

SS/km

cc: DNR/WRD/Nongame

Georgia Department of Natural Resources • Coastal Resources Division
One Conservation Way • Brunswick, Georgia 31520
TEL: (912) 264-7218 • FAX: (912) 262-3143 • WEB: http://crd.dnr.state.ga.us

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Hawaii Department of Business, Economic Development and Tourism, Office of Planning, Coastal Zone Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Hawaii's Coastal Zone Management Statute (Hawaii Revised Statues, Chapter 205A, Section 3), the Department of Business, Economic Development and Tourism, Office of Planning is authorized to "review federal programs, federal permits, federal licenses, and federal development proposals for consistency with the coastal zone management program." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under Hawaii Revised Statues, Chapter 205A, Section 2, Coastal Zone Management Program, Objectives and Policies.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no significant impacts on Hawaii's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with enforceable state policies regarding coastal ecosystems, beach protection, marine resources, and historic resources, and should present no foreseeable effects in these areas.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Hawaii Coastal Management Program. The Hawaii Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-11761

April 30, 2007

Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, Maryland 20910-3226

Dear Mr. Cottingham:

Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency Review for Marine Mammal Health and Stranding Response Program

The proposed actions and preferred alternatives associated with the Marine Mammal Health and Stranding Response Program (MMHSRP) have been reviewed for consistency with the Hawaii CZM Program. We concur with your determination that the activities coordinated and conducted by MMHSRP are consistent to the maximum extent practicable with the Hawaii CZM Program.

CZM consistency concurrence is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or County agency. Thank you for your cooperation in complying with the Hawaii CZM Program. If you have any questions, please call John Nakagawa of our CZM Program at (808) 587-2878.

Sincerely,

Laura H. Thielen
Director

c: U.S. National Marine Fisheries Service, Pacific Area Office
U.S. Fish and Wildlife Service, Pacific Islands Ecoregion
Dr. Jeffrey Walters, HIHWNMS, Department of Land and Natural Resources

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Louisiana Department of Environmental Resource, Office of Coastal Restoration and Management, Coastal Management Division with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Louisiana's State and Local Coastal Resources Management Act (Louisiana Revised Statutes, Title 49, Section 214.32), "any governmental body undertaking, conducting, or supporting activities directly affecting the coastal zone shall ensure that such activities shall be consistent to the maximum extent practicable with the state program and any affected approved local program having geographical jurisdiction over the action." The PEIS will assess the impacts of the proposed alternatives on coastal resources in accordance with the policies enumerated in Louisiana Administrative Code (L.A.C.), Title 43, Chapter 7, Section 701, Guidelines Applicable to All Uses.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Louisiana's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the guidelines listed in 43 L.A.C 701 regarding beaches, barrier islands, wildlife and aquatic habitats, and historic and cultural resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Louisiana Coastal Management Program. The Louisiana Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

State of Louisiana

KATHLEEN BABINEAUX BLANCO
GOVERNOR

SCOTT A. ANGELLE
SECRETARY

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL RESTORATION AND MANAGEMENT

April 17, 2007

David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway
Silver Springs, MD 20910

RE: **C20070156,** Coastal Zone Consistency
National Oceanic and Atmospheric Administration
Direct Federal Action
Draft Programmatic Environmental Impact Statement for the Marine Mammals Health and Stranding Response Program, **Offshore Louisiana.**

Dear Mr. Cottingham:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this information request, please contact Agaha Brass of the Consistency Section at (225)342-9425 or 1-800-267-4019.

Sincerely,

Jim Rives
Acting Administrator

JR/JH/ayb

cc: Roy Crabtree, NMFS, St. Petersburg, FL
Heather Finley, LDWF

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Maine State Planning Office, Coastal Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Maine Revised Statute (Annotated) (M.R.S.A.), Title 38, Chapter 19, Section 1801, "state and local agencies and federal agencies with responsibility for regulating, planning, developing or managing coastal resources, shall conduct their activities affecting the coastal area consistent with the following policies…." The Statute then enumerates several enforceable policies that are further delineated by the federally-approved Maine Coastal Program. The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under 38 M.R.S.A. 1801 and the "Maine Guide to Federal Consistency Review."

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Maine's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with policies pertaining, but not limited to, water quality, recreation and tourism, and marine resource management, and should present no

foreseeable effects in these areas.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Maine Coastal Program. The Maine Coastal Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Maryland Department of the Environment (MDE), Wetlands and Waterways Program, Coastal Zone Consistency Division with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Maryland Executive Order 01.01.1978.05 establishes the state's CZMP and grants the Maryland Department of Natural Resources the authority to administer the program. Under this authority, and pursuant to the CZMA, the MDE Coastal Zone Consistency Division is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the Maryland CZMP. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of the Maryland CZMP's Goals.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Maryland's coastal resources are anticipated. The preferred alternatives, with mitigation, support the Maryland CZMP's goals by protecting coastal land and water habitats and preserving historic and cultural resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Maryland CZMP. The MDE Coastal Zone Consistency Division has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Massachusetts Executive Office of Environmental Affairs, Office of Coastal Zone Management (CZM) with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. According to the Massachusetts Coastal Zone Management Program Federal Consistency Review Regulations (Code of Massachusetts Regulation, Title 301, Chapter 21, Section 6), CZM is responsible for "determining the consistency, to the maximum extent practicable, of federal activities in or affecting the Massachusetts Coastal Zone with CZM policies." The PEIS will assess the impacts of the proposed alternatives on coastal resources with the enforceable policies that are enumerated in 301 CMR 21.98 and the federally-approved CZM Program Plan.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Massachusetts' coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with CZM policies pertaining to water quality, habitat, and protected areas, and should not present any foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Massachusetts Coastal Management Program. The Massachusetts Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Mississippi Department of Marine Resources with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Mississippi Code, Title 57, Chapter 15, Section 6, the Mississippi Marine Resources Council (Council) is "directed to prepare and implement a coastal program." Under this authority, and pursuant to the CZMA, the Council is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the Mississippi Coastal Program. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of the policies enumerated in Mississippi Code, Sections 39-7-3, 49-15-1, 49-17-3, 49-27-3 and 51-3-1.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division

However, at this time, no significant impacts on Mississippi's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the Mississippi Coastal Program's policies in that it protects aquatic life, coastal wetlands, water quality, and historical and archeological resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Mississippi Coastal Program. The Mississippi Coastal Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

MISSISSIPPI
DEPARTMENT OF MARINE RESOURCES

March 15, 2007

David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Springs, MD 20910-3226

Subject: Proposed Draft PEIS
DMR File 070428

Dear Mr. Cottingham:

The State of Mississippi has completed its review of the consistency determination for the above-referenced proposed Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program under the Coastal Zone Management Act of 1972 (as amended). The Department of Marine Resources, as the lead coastal program agency for the State of Mississippi pursuant to 16 U.S.C. Section 1456(c) and Section 57-15-5 of the Mississippi Code, concurs with the National Marine Fishery Service's consistency certification for this action. The actions described in the text of the proposed rule have been determined to be consistent to the maximum extent practicable with the Mississippi Coastal Program.

If you have any questions about this correspondence, please do not hesitate to contact us.

Sincerely,

Willa Henriksen
Bureau Director, Wetlands Permitting

WJH/mfw

cc: MS Clearinghouse Officer

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the New Hampshire Department of Environmental Services (DES), Coastal Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. The DES currently administers the New Hampshire Coastal Program. As such, DES is responsible for ensuring that direct federal activities are conducted in a manner that is consistent to the maximum extent practicable with the state coastal management program. The PEIS will assess the impacts of the proposed alternatives on coastal resources in accordance with the enforceable policies delineated in the New Hampshire Coastal Program Final EIS.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on New Hampshire's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with policies pertaining coastal resources, recreation and public access, and historic and cultural resources, and should present no foreseeable effects in these areas.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is

consistent to the maximum extent practicable with the enforceable policies of the New Hampshire Coastal Program. The New Hampshire Coastal Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

April 16, 2007

David Cottingham, Chief
Marine Mammal & Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

RE: File No. 2007-09; Marine Mammal Health and Stranding Response Program Draft Programmatic Environmental Impact Statement

Dear Mr. Cottingham:

The New Hampshire Coastal Program (NHCP) has received the National Marine Fisheries Service's federal consistency determination for the Marine Mammal Health and Stranding Response Program Draft Programmatic Environmental Impact Statement (PEIS), pursuant to Section 307(c)(1) of the Coastal Zone Management Act, 16 U.S.C. § 1456(c)(1). After reviewing the draft PEIS, we find it to be consistent, to the maximum extent practicable, with the enforceable policies of the NHPC's federally approved coastal management program.

Should you have any questions, please feel free to contact me at (603) 559-0025

Sincerely,

Christian P. Williams
Federal Consistency Coordinator
New Hampshire Coastal Program

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the New Jersey Department of Environmental Protection (DEP), Office of Policy, Planning and Science, Coastal Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under New Jersey's Coastal Zone Management Rules (NJ Administrative Code, Title 7, Chapter 7E, Section 1.2(e)), DEP has the authority to determine "the consistency or compatibility of proposed actions by Federal, State and local agencies within or affecting the coastal zone, including, but not limited to, determinations of Federal consistency under Section 307 of the Federal Coastal Zone Management Act…." The PEIS will assess the impacts of the proposed alternatives on coastal resources in accordance with the Coastal Zone Management Rules.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on New Jersey's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with New Jersey State law and consistent with the policies enumerated in the Coastal Zone Management Rules (NJAC 7:7E-1.5) in that they protect the health and safety of the public and protect and enhance the coastal ecosystem.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the New Jersey Coastal Management Program. The New Jersey Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the New York Department of State, Division of Coastal Resources with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under New York's Waterfront Revitalization and Coastal Resources Act (New York State Executive Law 42, Section 912), it is New York state policy to ensure consistency of federal actions with "policies of the coastal area and inland waterways, and with accepted waterfront revitalization programs of the area defined or addressed by such programs." The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of the policies described in Part II, Section 6 of the New York Coastal Management Program (CMP) document.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on New York's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with CMP policies regarding fish and wildlife, historic and scenic resources, water resources, and wetlands, and should not present any foreseeable effects on these resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the New York Coastal Management Program. The New York Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

STATE OF NEW YORK
DEPARTMENT OF STATE
41 STATE STREET
ALBANY, NY 12231-0001

ELIOT SPITZER
GOVERNOR

LORRAINE A. CORTÉS-VÁZQUEZ
SECRETARY OF STATE

May 21, 2007

Mr. David Cottingham
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910-3226

Re: F-2006-0261 DA
NOAA / National Marine Fisheries Service
Marine Mammal Health and Stranding Response Program
Concurrence with Consistency Determination

Dear Mr. Cottingham:

The Department of State has completed its review of the National Marine Fisheries Service's consistency determination regarding the consistency of the Marine Mammal Health and Stranding Response Program with the New York State Coastal Management Program.

Based upon the information submitted, the Department of State concurs with the National Marine Fisheries Service's consistency determination regarding this matter.

Sincerely,

Sally Ball
Deputy Director
Division of Coastal Resources

SEM/rm

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the North Carolina Department of Environment and Natural Resources, Division of Coastal Management with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under North Carolina's Administrative Code, Title 15A, Chapter 7A, "the purpose of the Division of Coastal Management is to "provide staff support to the Secretary of Environment, (Health) and Natural Resources…in the administration of the Coastal Area Management Act of 1974 and North Carolina's participation in the Federal Coastal Zone Management Act of 1972." As such, the Division is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the North Carolina Coastal Management Program. The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of the Coastal Area Management Act (CAMA) (NC General Statute, Article 7, Chapter 113A, Sections 100-134.3).

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on North Carolina's coastal resources are anticipated. In accordance with CAMA policies on development and use of Estuarine and Ocean

Systems, the preferred alternatives, with mitigation conserve the biological, economic, and social values of coastal wetlands, estuarine waters, and public trust areas and would not cause major or irreversible damage to valuable archeological or historic resources

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the North Carolina Coastal Management Program. The North Carolina Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management
Michael F. Easley, Governor | Charles S. Jones, Director | William G. Ross Jr., Secretary

April 10, 2007

David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
National Marine Fisheries Service
Room 13635
1315 East-West Highway
Silver Spring, MD 20910-3226

SUBJECT: **CD07-014** - Consistency Concurrence for the Proposed Marine Mammal Health and Stranding Response Program. (DCM#20070023)

Dear Mr. Cottingham:

The Division of Coastal Management received (March 12, 2007) a consistency determination from the National Marine Fisheries Service (NMFS) finding that the proposed implementation of the Marine Mammal Health and Stranding Response Program would be consistent with the State's coastal management program. North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed Federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters.

To solicit public comments, DCM circulated a description of the proposed project to State agencies that would have a regulatory interest. No comments asserting that the proposed activity would be inconsistent with the State's coastal management program were received. A copy of each response received has been attached for reference.

DCM has reviewed the submitted information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 of Title 15A of North Carolina's Administrative Code which are a part of the State's certified coastal management program and concurs that the proposed Federal activity is consistent, to the maximum extent practicable, with the enforceable policies of North Carolina's coastal management program.

Should the proposed action be modified, a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered by the proposed action, a supplemental consistency certification may be required. If you have any questions, please contact Stephen Rynas at 252-808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

Charles S. Jones

Mike Street, NC Division of Marine Fisheries
Steve Everhart, NC Wildlife Resources Commissi

NCDENR

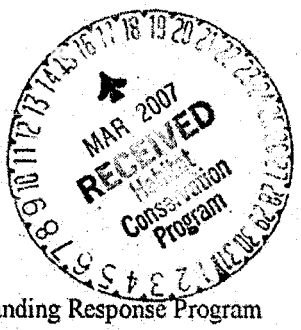
North Carolina Department of Environment and Natural Resources

Division of Coastal Management

Michael F. Easley, Governor | **Charles S. Jones, Director** | William G. Ross Jr., Secretary

MEMORANDUM

March 13, 2007



TO: Steve Everhart
Division of Inland Fisheries, Habitat Conservation Program
NC Wildlife Resources Commission
127 Cardinal Drive Extension
Wilmington, NC 28405-5406

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Marine Mammal Health and Stranding Response Program (DCM#20070023)

LOCATION: Offshore Coastal North Carolina

The above listed document is being circulated for consistency review and comment by **April 6, 2007**. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808.

REPLY

____ No Comment.

__✓__ This office supports the project as proposed.

____ Comments to this project are attached.

____ This office objects to the project as proposed.

Signed: Steve Everhart Date: 3/27/07

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM

to

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Dr. Louis B. Daniel III, Director

MEMORANDUM

RECEIVED
APR 9 2007
Morehead City DCM

TO: Stephen Rynas
Federal Consistency Coordinator

FROM Mike Street Jason Hardy for Mike Street

DATE: April 5, 2007

SUBJECT: Proposed Implementation of a Marine Mammal Health and Stranding Response Program (DCM#20070023)

Attached is the Divisions' reply for the above referenced project. If you have any questions, please do not hesitate to contact me.

MS/jjh

3441 Arendell Street, P.O. Box 769, Morehead City, North Carolina 28557
Phone: 252 726-7021 \ FAX: 252 727-5127 \ Internet: www.ncdmf.net

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management
Michael F. Easley, Governor
Charles S. Jones, Director
William G. Ross Jr., Secretary

MEMORANDUM

March 13, 2007

TO: Mike Street
NCDENR - Division of Marine Fisheries
P.O. Box 769
Morehead City, NC 28557-0769

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Marine Mammal Health and Stranding Response Program (DCM#20070023)

LOCATION: Offshore Coastal North Carolina

The above listed document is being circulated for consistency review and comment by **April 6, 2007**. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808.

REPLY

____ No Comment.

__✓__ This office supports the project as proposed.

____ Comments to this project are attached.

____ This office objects to the project as proposed.

Signed: Lentress H. Murden Date: 04/05/07

CORRECTIONS

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM
to
Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Oregon Department of Land Conservation and Development (DLCD), Coastal Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Oregon Revised Statute 196, Section 435, the DLCD is the "designated Coastal Management Agency for purposes of carrying out and responding to the Coastal Zone Management Act of 1972." As such, under the provisions of Oregon Administrative Code 660, Division 35, Section 20, "all consistency determinations, consistency certifications and proposals for federal assistance shall be sent to and reviewed by (DLCD) for consistency with the approved Oregon Coastal Management Program." The PEIS will assess the impacts of the proposed alternatives on coastal resources in accordance with the Statewide Planning Goals (Goals 16-19) that comprise the Oregon Coastal Management Program.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Oregon's ocean and coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with Goal 16 (Estuarine Resources) and 17 (Coastal Shorelands) in that it is a use that maintains the integrity of estuarine

and coastal waters. It is consistent with Goals 18 (Beaches and Dunes) and 19 (Ocean Resources) in that it protects beaches and dunes and encourages the beneficial uses of ocean resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Oregon Coastal Management Program. The Oregon Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Pennsylvania Department of Environmental Protection (DEP), Water Planning Office with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release.* These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Pennsylvania Code Title 4 Chapter 1 Subchapter EE, the Pennsylvania DEP is designated as the lead agency for implementing and administering the Federal Coastal Zone Management Program for the Commonwealth of Pennsylvania. The PEIS will assess the impacts of the proposed alternatives on coastal resources of Pennsylvania.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time no impacts on Pennsylvania's coastal resources are anticipated from the preferred alternatives (with mitigation). Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of Pennsylvania's approved coastal management program that are provided in the Chapters 2 and 4 and Appendix A of the Commonwealth of Pennsylvania's Coastal Zone Program Guidance Document. The Pennsylvania DEP has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information

in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
May 2, 2007

Water Planning Office 717-772-5622

Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Silver Spring, MD 20910-3226

Re: DEP File No. CZ7:FDP

Dear Mr. Cottingham:

The Pennsylvania Coastal Resources Management (CRM) Program has reviewed information received in this office on March 9, 2007, concerning the proposed project titled **"Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program"**.

We concur with your determination that this federal action is consistent with Pennsylvania's CRM Program.

Sincerely,

Lawrence J. Toth
Environmental Planner
Coastal Resources Management Program

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Rhode Island Coastal Resources Management Council (CRMC) with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Rhode Island's Coastal Resources Management Act (Rhode Island General Law [RIGL], Title 46, Chapter 23, Section 1), the CRMC is directed to "exercise effectively its responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone." Under this authority, and pursuant to the CZMA, the CRMC is responsible for ensuring that Federal activities in the coastal zone are consistent to the maximum extent possible with the enforceable policies of the Rhode Island Coastal Resources Management Program (CRMP). The PEIS will assess the impacts of the proposed alternatives on coastal resources within the context of the policies enumerated in the Coastal Resource Management Act and the CRMP.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Rhode Island's coastal resources are anticipated.

In accordance with RIGL 46-23-6(B)(2), the preferred alternatives, with mitigation, do not, conflict with any resource management plan or program; make any area unsuitable for any uses or activities to which it is allocated by a resource management plan; or significantly damage the environment of the coastal region.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Rhode Island CRMP. The Rhode Island CRMC has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

COASTAL RESOURCES MANAGEMENT COUNCIL
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, R.I. 02879-1900

(401) 783-3370
FAX: (401) 783-3767

March 14, 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

RE: CRMC File No. 2007-03-037.

Dear Sirs:

In accordance with Title 15 of the Code of Federal Regulations, Part 930, Subpart C (Consistency for Federal Activities) and review of plans entitled:

Marine Mammal Health and Stranding Response Program programmatic Environmental Impact Statement,

The Coastal Resources Management Council hereby concurs with the determination that the referenced project is consistent with the federally approved Rhode Island Coastal Resources Management Program and applicable regulations therein.

Please contact this office at (401) 783-3370 should you have any questions.

Sincerely,

Grover J. Fugate, Executive Director
Coastal Resources Management Council

/lam

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management (OCRM) with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under South Carolina's Coastal Zone Management Act (S.C. Code of Laws, Title 48, Chapter 39, Section 80), the State Coastal Management Program "shall provide for consideration of whether a proposed activity of any applicant for a federal license or permit complies with the State's coastal zone program and for the issuance of notice to any concerned federal agency as to whether the State concurs with or objects to the proposed activity." The PEIS will assess the impacts of the proposed alternatives on coastal resources that are provided under South Carolina's Coastal Zone Management Act.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on South Carolina's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the State Coastal Zone Management Act policies regarding barrier islands, dunes, wetlands, natural areas, marine and estuarine sanctuaries, and cultural resources.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the South Carolina Coastal Management Program. The OCRM has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

D H E C
PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner
Promoting and protecting the health of the public and the environment.

April 28, 2007

DAVID COTTINGHAM
UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL MARINE FISHERIES SERVICE
SILVER SPRING MD 20910

Re: Marine Mammal Health & Stranding
CHARLESTON County
Federal Consistency - 58030

Dear Mr. Cottingham:

The staff of the Office of Ocean and Coastal Resource Management (OCRM) certifies that the above referenced project is consistent with the S.C. Coastal Zone Management Program provided that (1) no freshwater wetlands are disturbed or altered and that (2) all necessary erosion and sediment control practices are maintained until the entire site is stabilized. This certification shall serve as the final approval for the referenced permit only, by OCRM.

Sincerely,

Barbara Neale

BARBARA NEALE

Regulatory Programs Division

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Ocean and Coastal Resource Management
Charleston Office · 1362 McMillan Avenue, Suite 400 · Charleston, SC 29405
Phone: 843-953-0200 · Fax: 843-953-0201 · www.scdhec.gov

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Texas General Land Office, Coastal Resources Program with the with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Texas' Natural Resource Code, Section 33.053, the Texas Coastal Management Program (CMP) includes a procedure for "determining the consistency of a federal action or activity with the goals and policies of the coastal management program." The PEIS will assess the impacts of the proposed alternatives on coastal resources in the context of the goals and policies detailed in the Texas Coastal Management Program Final EIS. These goals and policies are enforceable under Texas Administrative Code (TAC), Title 31, Chapter 501.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Texas' coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the policies enumerated in 31 TAC §501.20.

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Texas Coastal Management Program. The Texas Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Virginia Department of Environmental Quality, Office of Environmental Impact Review with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted under the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under the Code of Virginia, Title 10, Chapter 1, Section 1183, the Department of Environmental Quality has the authority to "coordinate state reviews with federal agencies on environmental issues, such as environmental impact statements." Under Executive Order Thirty-Three, this authority extends to ensuring that federal programs and activities are carried out in a manner that is consistent with the federally-approved Virginia Coastal Management Program. The PEIS will assess the impacts of the proposed alternatives on coastal resources.

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Virginia's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with policies regarding wetlands, dunes, coastal lands, and historical sites. Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program. The Virginia Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR

930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.virginia.gov

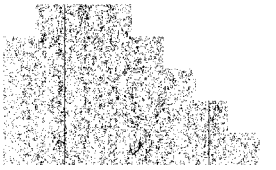
L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

May 1, 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, Maryland 20910



RE: Marine Mammal Health and Stranding Response Program,
Federal Consistency Determination and Draft Programmatic
Environmental Impact Statement
DEQ-07-043F

Dear Mr. Cottingham:

The Commonwealth of Virginia has completed its review of the above-listed Draft Programmatic Environmental Impact Statement (Draft PEIS) and federal consistency determination. The Department of Environmental Quality ("DEQ") is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act ("NEPA") and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of federal consistency determinations submitted pursuant to the Coastal Zone Management Act and providing the state's response to same. The following state agencies and regional planning district commission joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Marine Resources Commission
Hampton Roads Planning District Commission.

In addition, the Virginia Institute of Marine Science and the Accomack-Northampton Planning District Commission were invited to comment.

Description of Action

The National Marine Fisheries Service (NMFS) was charged by a 1992 amendment to the Marine Mammal Protection Act of 1972 to develop a marine mammal health and stranding response program aimed at facilitating the exchange of data on the health of marine mammals in the wild, correlating that health with available data on environmental and other conditions, and coordinating effective responses to unusual mortality events. In pursuit of these goals, NMFS proposes a program of four components:

a) Issuance of a Policies and Best Practices guidance document;
b) Issuance of a new 5-year permit under the Endangered Species Act and the Marine Mammal Protection Act to the program, covering anticipated future activities including disentangling, monitoring, and import and export of tissue samples;
c) Continuation of current operations, including response, rehabilitation, release, and research; and
d) Continuation of the Prescott Grant program, which provides funding to standing network members (including, in Virginia, the Virginia Institute of Marine Science and the Virginia Aquarium and Marine Science Center).

(Draft PEIS, pages ES-1 and ES-2, section ES.1.)

The Draft PEIS considers a number of alternative ways to address each of the six topics addressed by the program. The topics are:

- Stranding agreements and response
- Carcass disposal
- Rehabilitation activities
- Release activities
- Disentanglement
- Bio-monitoring and research activities

(Draft PEIS, pages ES-3 and ES-4; see also Chapter 2.)

Federal consistency determinations for coastal states, including Virginia, appear within Appendix B, "Agency Coordination and Consultation" in Volume 2 of the Draft PEIS.

Environmental Impacts and Mitigation

1. Waste Management. By assuming control of the carcass of a marine mammal, the marine mammal stranding teams may be subject to the

requirement to properly manage the carcass under the Virginia Solid Waste Management Regulations. These require the disposal of animal remains at a permitted solid waste management facility. DEQ recognizes, however, that movement of large carcasses to a permitted waste facility would be difficult, expensive, and possibly more destructive to the coastal environment than burial in place. Moreover, leaving the carcass to naturally decompose would also have multiple negative effects.

2. Wildlife Resources. The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects. The Department (hereinafter "DGIF") is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 et seq.), and provides environmental analysis of projects or permit applications coordinated through the Department of Environmental Quality and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

According to the Department of Game and Inland Fisheries (DGIF), the preferred alternatives appear reasonable.

(a) Rehabilitation Activities. The Draft PEIS places considerable emphasis on rehabilitation activities. It should be noted that marine mammals are notoriously difficult to maintain in captivity; success in their treatment, rehabilitation, and release requires considerable staff and resources. Moreover, treating and releasing animals that are compromised, or otherwise genetically unfit to survive (e.g., a starving pinniped full of worms) without human intervention, may not be in the best interests of the population at large. NMFS's program should include criteria that clearly identify high-priority species (such as threatened or endangered species, or species of high conservation concern) that quality for some measures of human intervention. The criteria should also address the sources of debilitation that are appropriate to treat (i.e., human-induced versus natural).

(b) Marine Mammal Carcass Disposal. The Draft EIS recommends the transport of all chemically euthanized carcasses off site (page 2-5, section 2.1.2.2). The premise behind this recommendation (Draft EIS, page 2-4, section 2.1.2.1) is valid, and in most cases the recommendation can be followed. However, in cases involving large whales or mass strandings, removal to off-site locations may not be feasible. Allowances should be made, therefore, for on-site

disposal when it becomes logistically impossible to remove chemically euthanized animal carcasses from the beach.

3. Regional Comments. The Hampton Roads Planning District Commission, which represents the Virginia localities south of Hampton Roads, indicates that the proposed action is generally consistent with local and regional plans and policies.

Federal Consistency under the Coastal Zone Management Act

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the Virginia Coastal Resources Management Program (VCP). The VCP consists of a network of programs administered by several agencies. The DEQ coordinates the review of federal consistency determinations with agencies administering the Enforceable and Advisory Policies of the VCP.

DEQ published a public notice of this review from March 26, 2007 through April 19, 2007. No comments were received from the public.

Based on the information submitted and the comments of reviewing agencies, we concur that the proposed program elements are consistent with the Virginia Coastal Resources Management Program, provided that NMFS complies with all applicable requirements, and that no effort is made to dispose of carcasses in wetlands (see item 3, below).

1. Fisheries Management. The Department of Game and Inland Fisheries finds that implementation of the program is likely to have beneficial impacts on wildlife resources. The program will not adversely affect threatened, endangered, or critical wildlife resources under the Department's jurisdiction. The Department finds the program to be consistent with the fisheries management enforceable policy of the Virginia Coastal Resources Management Program.

2. Subaqueous Lands Management. The Marine Resources Commission requires a permit for any activities that encroach upon, or over, or take materials from the beds of the bays, ocean, rivers, streams, and creeks which are the property of the Commonwealth. If any such activities are contemplated, application for and issuance of a permit from the Commission will ensure that the

permitted activity is consistent with the subaqueous lands management enforceable policy of the Virginia Coastal Resources Management Program.

3. Wetlands Management. As DEQ's Tidewater Office and its Virginia Water Protection Permit Program Office indicate, any carcass disposal activities involving excavation in wetlands would be regulated under state law. Because of the time frame of the wetland permitting process (120 days from a complete application to permit issuance), it is unrealistic to expect that such activity could be appropriately permitted. For this reason, any land-based carcass disposal should be undertaken outside of wetland areas.

If wetland areas were to be proposed for use in this regard, a Virginia Water Protection Permit (VWPP) would be required for excavation or any other impacts in wetlands. VWPP regulations allow wetland impacts to be permitted only if the proposal is the least environmentally damaging practicable alternative. In this case, it appears that there may be alternatives to wetland disposal that are more practicable and less damaging to wetlands:

- disposal on-site at the beach;
- offshore disposal; or
- disposal at an approved solid waste facility

For these reasons, it would be difficult to obtain a VWP permit for this activity.

4. Coastal Lands Management. According to the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance (Division), which administers the Chesapeake Bay Preservation Act (*Virginia* Code sections 10-1-2100 et seq.), addressing the stranding of marine mammals is assumed to be an emergency situation requiring temporary land disturbance. This particular activity is neither allowed nor disallowed in Chesapeake Bay Preservation Areas (Resource Protection Areas and Resource Management Areas). However, should it be required, any land-disturbing activity should be minimized, and access through the Chesapeake Bay Preservation Areas should be restricted to one point. Some explanation follows (Baird/Ellis, 4/30/07).

(a) Definitions. The Chesapeake Bay Preservation Act and the Chesapeake Bay Preservation Area Designation and Management Regulations implementing the Act (9 VAC 10-20-10 et seq.) set out a state and local government program defining two types of Chesapeake Bay Preservation Areas and setting out requirements for activities in each of them. The more restrictive designation, "Resource Protection Areas," is likely to apply to shorelines where stranding or proposed disposal might take place. Resource Protection Areas (RPAs), as defined in the Regulations (9 VAC 10-20-40) include the following:

- tidal wetlands;
- non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow;
- tidal shores; and
- a 100-foot buffer adjacent to and landward of the aforementioned features, and along both sides of any water body with perennial flow.

(b) General Performance Criteria. Resource Management Areas (the less restrictive, locally defined designation) and Resource Protection Areas are subject to general performance criteria, which include the following (see 9 VAC 10-20-120):

- minimizing land disturbance;
- preserving indigenous vegetation;
- minimizing impervious surfaces;
- controlling stormwater runoff quality; and
- developing Erosion and Sediment Control Plans for land disturbances greater than or equal to 2,500 square feet.

Regulatory and Coordination Needs

1. Subaqueous Lands Management. Any program activities affecting state-owned subaqueous lands may require a permit from the Marine Resources Commission. Questions on applicability and fulfillment of this requirement may be directed to the Commission (George Badger, telephone (757) 247-2200).

2. Marine Mammal Conservation. NMFS is encouraged to consult with the Department of Game and Inland Fisheries (Ruth Boettcher, telephone (757) 787-5911) as it implements proposed management actions.

3. Local Coordination. NMFS is encouraged to contact appropriate local authorities in implementing proposed management actions.

Thank you for the opportunity to review this Draft PEIS and federal consistency determination. If you have questions, please feel free to call

me (telephone (804) 698-4325) or Charles Ellis of this Office (telephone (804) 698-4488).

Sincerely,

Ellie L. Irons
Program Manager
Office of Environmental Impact Review

Enclosures

cc: Andrew K. Zadnik, DGIF
Ruth Boettcher, DGIF
Michelle R. Hollis, DEQ-TRO
Michelle Henicheck, DEQ-VWP
George H. Badger III, MRC
David L. O'Brien, VIMS
Alice R. T. Baird, DCR-DCBLA
Arthur L. Collins, Hampton Roads PDC
Paul F. Berge, Accomack-Northampton PDC

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Ellis,Charles

From: Zadnik, Andrew (DGIF)
Sent: Thursday, March 22, 2007 2:57 PM
To: Ellis,Charles; Ruth Boettcher
Cc: ProjectReview (E-mail); ProjectReview@dgif.virginia.gov
Subject: 07-043F_ESS 21907_Marine Mammal Health and Stranding ResponseProgram

This project involves activities associated with the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program. The proposed actions include:

1. Issuance of the Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release as final guidance.

2. Issuance of a new Endangered Species Act (ESA)/MMPA permit to the MMHSRP. The new permit would include current and future response activities for endangered species, disentanglement activities, biomonitoring projects, and import and export of marine mammal tissue samples.

3. Continuation of current MMHSRP operations, including response, rehabilitation, release, and research activities, with renewal and authorization of Stranding Agreements (SAs) and Scientific Research Authorizations and other NMFS activities.

4. Continuation of the Prescott Grant Program, which provides funding to stranding network members. The two network members in Virginia are the Virginia Aquarium and Marine Science Center and the Virginia Institute of Marine Science, College of William and Mary.

We do not anticipate a significant adverse impact upon threatened, endangered, or critical wildlife resources under our jurisdiction to occur due to this project. Implementation of the preferred alternatives should result in overall beneficial impacts upon wildlife resources. To assist in implementing the proposed actions, we recommend that the NMFS coordinate with the primary VDGIF biologist responsible for marine mammal conservation, Ruth Boettcher (757-787-5911).

We find this project consistent with the Fisheries Section of the Virginia Coastal Resources Management Program.

Thank you,

Andrew Zadnik

Ruth,
If you have any questions or comments about this, please let me and/or Charlie know by April 19. NMFS is interested in any comments we might have regarding the sorts of activities in response to stranded marine mammals or disease outbreaks should be conducted nationwide, how the national stranding network should be organized at the local, state, regional, ecosystem, and national levels, and what the minimum qualifications should be for an individual or group to become a Stranding Agreement holder.

Sorry I went ahead and sent comments to DEQ, but I will be going on 2 weeks of paternity leave starting any day now, and I want to make sure our comments get to DEQ.

Thanks
Andy

Andrew K. Zadnik
Environmental Services Section Biologist
Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

(804) 367-2733

Comments on NMFS Marine mammal Health and Stranding Response Program EIS

Ruth Boettcher, VDGIF

4/16/07

Overall, the preferred alternatives outlined in the document are reasonable and prudent and I agree with all of them in the context of this EIS. However, I do have some concern over the considerable emphasis that is place on rehabilitation activities. Marine mammals are notoriously difficult to maintain in captivity and require considerable staff and resources to successfully treat, rehabilitate and release. Moreover, treating and releasing animals that are compromised or otherwise genetically unfit to survive (e.g., a starving pinniped full of worms) without human intervention, may not be in the best interest of the population at large. The plan should include criteria that clearly identify high priority species (e.g., T/E species or species of high conservation concern) that qualify for some measure of human intervention *and* the sources of debilitation which are appropriate to treat (e.g., human-induced versus natural).

I also have a minor concern regarding the preferred alternative under Marine Mammal Carcass Disposal (2.1.2.2) which recommends the transport of all chemically euthanized carcasses off site. The premise behind this recommendation is valid and in most cases can be followed. However, cases involving large whales or mass strandings, this may not be feasible. As such, allowances should be made for on site disposal when it becomes logistically impossible to remove chemically euthanized animals carcasses from the beach.

Ellis,Charles

From: Henicheck,Michelle
Sent: Friday, April 13, 2007 4:06 PM
To: Ellis,Charles
Cc: Davis,David
Subject: Marine Mammal Health and Stranding Response Program

Charlie,

I have reviewed the documents provided to me today regarding the above referenced program. Central Office concurs with the Tidewater comments regarding disposal of the dead marine life. DEQ would require a VWP permit for excavation in, or other impacts to wetlands to dispose of marine life. VWPP Program regulations allow wetland impacts to be permitted only if the proposal is the least environmentally damaging, practicable alternative. It appears that other, more practicable alternatives may exist that would not impact wetlands, such as disposal on-site at the beach, off-shore disposal, or disposal at an approved solid waste facility, therefore, it may be extremely difficult to obtain a VWP permit. In addition, an individual VWP permit has a 120-day processing time and would not meet the time constraints that appear to be needed for disposal of a decomposing carcass.

Michelle Henicheck, PWS
Dept. of Environmental Quality
Environmental Specialist II
Phone: 804-698-4007
Fax: 804-698-4347
mmhenicheck@deq.virginia.gov
*NEW mailing address:
P.O. Box 1105
Richmond, VA 23218

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

April 4, 2007

PROJECT NUMBER: 07-043F

PROJECT TITLE: Marine Mammal Health and Stranding Response Program

As Requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:
No objections or concerns.

Petroleum Storage Tank Compliance/Inspections:
No objections or concerns.

Virginia Water Protection Permit Program (VWPP):
We have reviewed this document from our programmatic perspective and note that the location and methods of disposal will be based on the facts surrounding unpredictable individual stranding events. Any carcass disposal activities that would involve excavation in wetlands would be regulated under state law. Given the time constraints associated with the permit process (120 days from a complete application), it is unrealistic to expect that such activity could be appropriately permitted. As such, any land based carcass disposal should be undertaken outside of wetland areas.

Air Permit Program :
No comments.

Water Permit Program :
The TRO Water Permit Section has no comment on the document content as there is no activity described here that requires a water permit or is impacted by DEQ water pollution regulations to the best of my knowledge. However, it may be important to note that in general this project extends beyond the Tidewater region and may best be reviewed on a programmatic basis by personnel within the Central Office.

Waste Permit Program :
By assuming control of the carcass, the marine mammal stranding teams may be subject to the requirement to properly manage the carcass in accordance with the Virginia Solid Waste Management Regulations (VSWMR). Currently, the VSWMR requires the disposal of animal remains at a permitted solid waste management facility. However, it is realized that the movement of the large carcasses to a permitted facility would be difficult, expensive, and possibly more destructive to the coastal environment than burial in place and that leaving the carcass to naturally decompose would also have multiple negative effects. Because the proposal extends beyond the boundaries of the Tidewater Region and a possible variance may be required to continue to bury the carcasses on site it is recommended further discussions be conducted with DEQ staff at both the region and central office concerning the management and disposal of the carcasses.

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

April 4, 2007

PROJECT NUMBER: 07-043F

PROJECT TITLE: Marine Mammal Health and Stranding Response Program

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.

Sincerely,

Michelle R. Hollis
Environmental Specialist
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2146
(757) 518-2009 Fax
mrhollis@deq.virginia.gov

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Steven G. Bowman
Commissioner

March 23, 2007

Mr. Charles H. Ellis III
c/o Department. Of Environmental Quality
Office of the Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

Re: 07-043F, "Marine Mammal Health Program"

Dear Mr. Ellis:

You have inquired regarding the permitting requirements for *Developing the Marine Mammal Health & Standing Response Program.* The goal is to promote sound stewardship and improve the effectiveness of the National System.

The Marine Resources Commission requires a permit for any activities that encroach upon or over, or take use of materials from the beds of the bays, ocean, rivers and streams, or creeks, which are the property of the Commonwealth.

If I may be of further assistance, please do not hesitate to contact me at (757) 414-0710.

Sincerely,

George H. Badger, III
Environmental Engineer

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

PAUL D. FRAIM, CHAIRMAN • BRUCE C. GOODSON, VICE CHAIRMAN • JAMES O. McREYNOLDS, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

April 19, 2007

Mr. Charles H. Ellis III
Department of Environmental Quality
Office of Environmental Impact Review
629 West Main Street, Sixth Floor
Richmond, VA 23219

Re: Marine Mammal Health and Stranding Response Program
#07-043F (ENV:GEN)

Dear Mr. Ellis:

Pursuant to your request of March 14, 2007, the staff of the Hampton Roads Planning District Commission has reviewed the Draft Programmatic Environmental Impact Statement and Consistency Determination for the Marine Mammal Health and Stranding Response Program.

Based on this review, the proposal is generally consistent with local and regional plans and policies.

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

Sincerely,

Arthur L. Collins
Executive Director/Secretary

MLJ/kg

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NATIONAL MARINE FISHERIES SERVICE
COASTAL ZONE MANAGEMENT ACT
CONSISTENCY DETERMINATION

This document provides the Washington Department of Ecology, Coastal Management Program with the National Marine Fisheries Service (NMFS) Consistency Determination under the Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 et seq.) and 15 CFR Part 930, subpart C, for activities coordinated and conducted by the Marine Mammal Health and Stranding Response Program (MMHSRP).

Necessary Data and Information:

1. NMFS is announcing the availability of a draft Programmatic Environmental Impact Statement (PEIS) for the MMHSRP. Some activities of the MMHSRP are conducted under a permit issued under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1421) and Section 10(a)(1)(A) of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The current ESA/MMPA permit expires on June 30, 2007. A National Environmental Policy Act (NEPA) analysis of the current and future activities covered under the permit must be completed prior to the issuance of a new permit. The potential impacts of the permitted activities as well as the day-to-day operations of the MMHSRP are analyzed in the draft PEIS. Day-to-day operations include the coordination and oversight of the National Marine Mammal Stranding and Disentanglement Networks, the National Marine Mammal Tissue Bank, the Working Group on Unusual Marine Mammal Mortality Events, and the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

NMFS has also developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them as final guidance after the NEPA analysis is concluded. The PEIS is intended to satisfy the requirements of NEPA and implementing regulations for all pertinent agency actions.

2. Under Washington Administrative Code, Title 173, Chapter 27, Section 060, "Direct federal actions and projects (within the coastal counties) shall be consistent to the maximum extent practicable with the approved Washington state coastal zone management program." The PEIS will assess the impacts of the proposed alternatives on coastal resources in the context of the Washington Coastal Program's enforceable policies, including the Shoreline Management Act (Chapter 90.58 Revised Code of Washington [RCW]) and Ocean Resources Management Act (Chapter 43.143 RCW)

3. Informal consultation has been initiated with NMFS Office of Protected Resources and the U.S. Fish and Wildlife Service to explore potential impacts to species protected under the ESA and the MMPA. A permit application for the MMHSRP activities involving ESA and MMPA species is currently being evaluated by the NMFS Office of Protected Resources Permits, Conservation and Education Division.

However, at this time, no significant impacts on Washington's coastal resources are anticipated. The preferred alternatives, with mitigation, are consistent with the Shoreline Management Act, the Ocean Resources Management Act, and the State Environmental Policy Act (Chapter 43.21C RCW).

Based upon the preceding information, data and analysis, NMFS finds that the MMHSRP is consistent to the maximum extent practicable with the enforceable policies of the Washington Coastal Management Program. The Washington Coastal Management Program has 60 days (plus any appropriate extension under 15 CFR 930.41(b)) from the receipt of this letter and accompanying information in which to concur with or object to the NMFS Consistency Determination. Concurrence will be presumed if the State's response is not received by NMFS on the 60th day from receipt of this Determination.

Connecticut Commission on Culture & Tourism

Historic Preservation
& Museum Division

59 South Prospect Street
Hartford, Connecticut
06106

(v) 860.566.3005
(f) 860.566.5078

March 16, 2007

Mr. David Cottingham
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources, National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway
Silver Spring, MD 20910

Subject: Marine Mammal Health and Stranding Response Program

Dear Mr. Cottingham:

The State Historic Preservation Office has reviewed the *Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Strading Response Program* prepared by the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources. This office expects that the proposed actions will have no adverse effect on Connecticut's coastal and maritime heritage. This comment is conditional upon our understanding that the National Oceanic and Atmospheric Administration shall consult with our professional staff with respect to actual field implementation of appropriate case-by-case actions.

This office appreciates the opportunity to have reviewed and commented upon the proposed undertaking.

This comment is provided in accordance with the National Historic Preservation Act and the Connecticut Environmental Policy Act.

For further information, please contact Dr. David A. Poirier, Staff Archaeologist.

Sincerely,

Karen Senich
Deputy State Historic Preservation Officer

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FLORIDA DEPARTMENT OF STATE
Kurt S. Browning
Secretary of State
DIVISION OF HISTORICAL RESOURCES

May 4, 2007

Mr. David Cottingham
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway
Silver Spring, MD 20910

RE: DHR Project File No: 2007-2045/Received by DHR: March 12, 2007
National Oceanic and Atmospheric Administration (NOAA)
Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program
All Florida

Dear Mr. Cottingham:

This office received and reviewed the above referenced Environmental Impact Statement in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties* and the *National Environmental Policy Act of 1969,* as amended. The State Historic Preservation Officer is to advise Federal agencies as they identify historic properties (listed or eligible for listing in the *National Register of Historic Places*), assess effects upon them, and consider alternatives to avoid or minimize adverse effects.

This submission was well designed. Based on the information provided, this office concurs with NOAA that the above referenced federal plan (or action) will have only a minor adverse impact on historic properties. As a result, NOAA needs to make contingency plans in the case of fortuitous finds or unexpected discoveries during ground disturbing activities on the particular property. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with early Native American, early European, or American settlement are encountered at any time within the project site area, the applicant shall contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333 once rescue or carcass removal activities are finished. Non emergency project activities shall not resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.

If you have any questions, **please contact James Toner, Historic Sites Specialist, by electronic mail at *jetoner@dos.state.fl.us*, or at 850-245-6333.**

Sincerely,

Frederick P. Gaske, Director, and
State Historic Preservation Officer

April 3, 2007

Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
National Oceanic
and Atmospheric Administration
3115 East-West Highway
Silver Spring, Maryland 20910

SHPO: 03-19-07-03 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM, ISLANDWIDE, PUERTO RICO

Dear Mr. Cottingham:

Our Office received correspondence on March19, 2007 regarding the above referenced project. We have reviewed the Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program. We concur with the coordination procedures presented in chapter 5.4 of the Draft EIS.

If you have any questions, please contact Miguel Bonini at (787) 721-3737 or mbonini@prshpo.gobierno.pr.

Sincerely,

Aida Belén Rivera Ruiz, Archaeologist
State Historic Preservation Officer

ABR/KG/MB/img

P.O. Box 9066581
San Juan, PR 00906-6581
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APPENDIX C

POLICIES AND BEST PRACTICES FOR MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

NATIONAL TEMPLATE

MARINE MAMMAL STRANDING AGREEMENT BETWEEN

NATIONAL MARINE FISHERIES SERVICE OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION DEPARTMENT OF COMMERCE

AND

[Stranding Network Organization]

Prepared by Janet E. Whaley, DVM
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

February 2009

Shaded denotes reserved text at the discretion of the NMFS Regional Administrator

Articles III, IV, V, and VI are reserved and issued at the discretion of the NMFS Regional Administrator.

Table of Contents

ARTICLE I
General Provisions

A. Authority

1. This Marine Mammal Stranding Agreement (hereinafter Agreement) is entered into between the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)[*insert* Regional Office], and the Stranding Network Participant [*insert* Stranding Network Organization] (Participant), under the authority of section 112(c) and section 403 of the Marine Mammal Protection Act of 1972 (MMPA), as amended. **This Agreement supersedes all pre-existing Stranding Agreements between these parties. An organizational representative with signatory authority (e.g. Executive Director, President, CEO) must sign this Agreement on behalf of the Stranding Network Organization.**

2. NMFS has been delegated authority by the Department of Commerce to administer the MMPA. To assist in the implementation and administration of the MMPA, the Stranding Network has been established to respond to stranded marine mammals within NMFS' [*insert* Region] of the United States. The [*insert* Region] consists of the following coastal states and territories: [*List* states/territories].

B. Scope

1. Under the MMPA, NMFS is responsible for mammals of the **Order Cetacea** and the **Order Pinnipedia** other than walruses (hereinafter marine mammals).

2. The geographic response area assigned to Participant consists of the following: [(*list* response area including primary and secondary geographic response areas as necessary)]. The Participant may assist in stranding response within the Region outside of their assigned response area, if requested by NMFS or by another Participant. Outside the [*insert* Region], the Participant may assist with stranding response upon request from the appropriate regional NMFS Regional Stranding Coordinator(s).

C. Limitations

1. This Agreement creates an authorization for the Participant to take marine mammals, which would be otherwise prohibited by the MMPA. This taking authorization only applies to the Participant and its authorized personnel (see Article VI) for activities that are consistent with this Agreement.

2. In particular, this Agreement does <u>not</u> authorize:

    a. The taking of any marine mammal species listed as endangered or threatened under the Endangered Species Act of 1973 (ESA), as amended. Authorization to

take ESA listed species is provided under an MMPA/ESA Permit No. 932-1489-09, as amended, issued to the NMFS National Marine Mammal Health and Stranding Response Program Coordinator and requires authorization and direction from the NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal.

b. The sale or offer of sale of any marine mammal or marine mammal parts including cells, gametes, or cell cultures.

D. Definitions

All terms used in the Agreement shall be interpreted to have the meaning specified in the MMPA section 3 and section 409 and NMFS implementing regulations 50 CFR 216.3 unless the context or specific language requires otherwise. For ease of reference, those definitions, as well as additional terms and definitions for this Agreement, are provided in Attachment A.

ARTICLE II
Purpose and General Responsibilities

A. Purpose of Agreement. NMFS and the Participant enter into this Agreement for the following purposes:

1. To provide for rapid response and investigation of stranded marine mammals *[insert* taxa*]* within the [*insert* Region] in accordance with the purposes and policies of the MMPA.

2. To implement Title IV (Marine Mammal Health and Stranding Response Program) of the MMPA:

    a. to facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;

    b. to correlate the health of marine mammals and marine mammal populations in the wild with available data on physical, chemical, and biological environmental parameters; and

    c. to detect and coordinate effective responses to Marine Mammal Unusual Mortality Events (UMEs).

3. To specify the activities during which the Participant may take stranded marine mammals [*insert* taxa] or marine mammal parts for the primary purpose of ensuring the appropriate response, [rehabilitation], disposition, and utilization of stranded marine mammals or marine mammal parts under MMPA sections 109(h), 112(c), and 403 and the Agreement.

4. To define the nature and extent of services that the Participant will provide NMFS under this Agreement and NMFS' responsibilities to the Participant.

5. To specify the requirements for the preparation and maintenance and reporting of records containing scientific data obtained from dead and live stranded marine mammals or parts from dead stranded marine mammals.

6. To provide for the timely exchange of information for use by both parties and other network members in furthering the objectives of the MMPA under this Agreement.

B. Joint Responsibilities

NMFS and the Participant will work cooperatively to:

1. Implement Title IV of the MMPA;

2. Effectively respond to and investigate the causes and impacts of UMEs;

3. Collect the appropriate data for determination of serious injuries and mortalities due to human interactions;

4. Collect reference data on marine mammal health and diseases;

5. Collect data on the frequency and causes of strandings; and

6. Interpret findings and identify health trends and diseases of concern to include emerging, reportable, and zoonotic diseases.

C. NMFS Responsibilities

NMFS Shall:

1. Provide the Participant with notice of any changes to laws, regulations, policies and/or guidelines applicable to or promulgated by NMFS that may apply to the Participant's activities. This includes criteria for issuance, renewal and termination of stranding agreements. Notwithstanding this provision, it is the responsibility of the Participant to comply with all laws, regulations, policies and/or guidelines that apply to the Participant's activities.

2. Conduct periodic (R*eserved* annual) compliance reviews of Stranding Agreements as stated in Article IX.

3. Provide guidance and assistance regarding investigation of marine mammal unusual mortality events including financial and physical resources (example: NOAA laboratory assistance) and financial resources when available and authorized (in accordance with section 405 of the MMPA – UME National Contingency Fund) and in coordination with the Working Group on Marine Mammal Unusual Mortality Events.

4. Alert the Participant when NMFS has been notified that there are diseases of concern that are emerging, reportable, and/or zoonotic within the [*insert* Region].

5. Pursuant to criteria established under the MMPA section 407, provide access to the National Marine Mammal Health and Stranding Response Program Database, as developed, and access to marine mammal tissues in the National Marine Mammal Tissue Bank following NMFS data and tissue access procedures and policies.

6. As needed and as resources are available, provide specialized marine mammal stranding response and investigation training on a local, regional or national basis.

7. Pursuant to MMPA section 402, collect and update periodically and make available to stranding network participants and other qualified scientists, existing information on:

   a. procedures and practices for rescuing and rehabilitating stranded marine mammals;

   b. species by species criteria used by the stranding network participants, for determining at what point a marine mammal undergoing rescue and rehabilitation is returnable to the wild based on its ability to survive in the wild and risk to the wild population of marine mammals;

   c. procedures and practices for collecting, preserving, labeling, and transporting marine mammal tissues for physical, chemical, and biological analyses;

   d. relevant scientific literature on marine mammal health, disease, and rehabilitation;

   e. compilation and analyses of strandings by region to monitor species, numbers, conditions, and causes of illness and death in stranded marine mammals; and

   f. other life history and reference level data, including marine mammal tissue analyses that would allow comparison of the causes of illness and death in stranded marine mammals with physical, chemical, and biological environmental parameters.

8. Identify a Stranding Coordinator who will serve as the Participant's primary point of contact for notification, coordination, reporting, and response [and rehabilitation] activities as specified throughout this Agreement. The NMFS Regional Administrator will serve as the Participant's primary point of contact for administration of the Agreement, as well as dispositions and other management activities as specified throughout the Agreement. The NMFS Regional Administrator's designated point of contact for this Agreement is the NMFS Stranding Coordinator; [Regional stranding coordinator or administrator, Regional Office, Protected Resources Division] (see Attachment B for contact information).

9. In certain circumstances such as large scale events (e.g. mass stranding, unusual mortality events, live right whale stranding), NMFS may establish a formal Incident Command System (ICS) for response, including the identification of an Incident Commander. Events such as oil spills, NMFS will follow direction from United States Coast Guard (USCG). Opportunities for ICS training can be accessed through the Federal Emergency Management Agency (see http://www.training.fema.gov/EMIWeb/IS/is100.asp), USCG, or NMFS. If necessary, guidance will be provided by NMFS on a case-by-case basis.

10. Relay reports of stranded marine mammals (live or dead) within the Participant's geographic range to the Participant and inquire whether the Participant has the capability to respond. If the Participant cannot respond, the Stranding Coordinator may make requests to other regional Stranding Participants to respond.

11. Coordinate regional activities to maximize geographic coverage while facilitating appropriate division of responsibilities among regional Participants according to institutional abilities and authorities.

12. Respond to the Participant's completed requests for authorizations such as requests for parts authorizations, parts transfers, and release determinations.

13. Provide information regarding availability of Prescott Grants and any other relevant NMFS funding opportunities.

14. [*Reserved* {For emergency stranding events (live or dead), provide and maintain a 24-hour stranding hotline number: ### ###-####. NMFS shall also provide and maintain a backup stranding pager number:### ###-####.}]

D. Participant Responsibilities

The Participant shall:

1. Comply with laws, regulations, policies and/or guidelines applicable to or promulgated by NMFS that apply to activities under this Agreement; or any Federal, state or municipal laws that pertain to stranding network operations (e.g., municipal water management laws).

2. Cooperate with other members of the [*insert* Region] Stranding Network and the National Marine Mammal Stranding Program as well as Federal, state, and local officials and employees in matters supporting the purposes of this Agreement.

3. Be subject to the direction of a designated employee (e.g., NMFS Marine Mammal Stranding Coordinator or NMFS Special Agent) representing the NMFS [*insert* Region] Regional Administrator or Office of Law Enforcement with respect to the taking of a stranded marine mammal.

4. Manage any and all expenses that the Participant incurs associated with the activities authorized by this Agreement. NMFS does not have funds to reimburse volunteers for expenses incurred in responding to stranding events. However under the marine mammal UME process, funding may be available for costs associated with specific analyses and additional requests in accordance with section 405 of the MMPA UME National Contingency Fund and in coordination with the Working Group on Marine Mammal Unusual Mortality Events. Additionally, competitive funding opportunities for Stranding Network Participants may be available through the Prescott Stranding

Assistance Grant Program (see http://www.nmfs.noaa.gov/pr/health/prescott/).

5. Promote human and public safety by taking precautions against injury or disease to any network personnel, volunteers, and the general public when working with live or dead marine mammals.

6. Notify [immediately or] within 24 hours the NMFS Stranding Coordinator of learning of any diseases of concern (e.g., emerging, reportable, and/or zoonotic diseases) that are detected and/or confirmed that could be a potential hazard for public health or animal health (NMFS will provide guidance on reportable diseases as it becomes available);

7. Transfer of marine mammal parts (50 CFR 216.22 and 216.37):

   a. Non-diagnostic parts, tissues, cells, gametes, or cell cultures to be used for scientific research, species enhancement, or education shall be transferred only to persons or labs that have received prior written authorization from the NMFS MMPA/ESA scientific research permit or a Regional Authorization. A unique field number assigned by NMFS (e.g., NMFS Registration Number) or the Participant must be marked on or affixed to the marine mammal part or container.

   b. Diagnostic parts, tissue samples, fluid specimens, parts, or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations.

8. Work cooperatively with the NMFS and the USCG in a hazardous waste spill (i.e., oil spills) ICS if implemented.

9. Notify the NMFS Regional Administrator in writing within 30 days of any changes in its Designee organizations, key personnel (see Attachment A), capabilities, and/or geographic area of response.

10. If requested, the Participant shall coordinate with NMFS to develop and implement a media plan relating to stranding events.

11. Photo documenting (still or video) for other than diagnostic or identification purposes (such as dorsal fin identification, documentation of lesions, scars, etc.) must not interfere or influence the conduct of the stranding responders and response in any way or cause additional harassment to marine mammals.

12. If requested by the NMFS Regional Stranding Coordinator, the Participant will provide copies of any photographs, films, and/or videotapes documenting any stranding, particularly for those strandings when human interactions are reported or suspected. Reimbursement for this request is subject to negotiation between NMFS and the Participant. Any photography, film and/or videotape of the stranding response used for educational or

commercial purposes of stranding response should by the Participant should include a credit, acknowledgment, or caption indicating that the stranding response was conducted under a Stranding Agreement between NMFS and the Participant under the authority of the MMPA. NMFS will not reproduce, modify, distribute, or publicly display the photograph, film, and/or videotape without consent of the owner, unless required to release a copy under Federal law or order (such as the Freedom of Information Act).

13. By its nature, the handling of stranded marine mammals (dead or alive) is potentially a dangerous activity. The Participant shall indemnify and hold harmless the United States Government from any and all losses, damages, or liability -or claims therefore -on account of personal injury, death, or property damage of any nature whatsoever, arising out of the activities of the Participant, his/her/its employees, his/her/its qualified representatives, designees, subcontractors, volunteers, or agents. Liability for person(s) acting under this agreement is addressed in sections 406(a) and (b) of the MMPA [16 U.S.C. 1421(e)].

14. Provide accurate and honest information in all reports to NMFS.

15. Except where a longer period is specified (e.g., 15 years for rehabilitation cases, see Attachment D *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standard for Rehabilitation Facilities*), maintain records upon which required reports are based for at least 3 years on-site.

16. Upon request by the NMFS Regional Administrator, allow the Regional Stranding Coordinator, other appropriate NMFS employees, or any other appropriate person duly designated by the Regional Administrator, to inspect the facilities and inspect and/or request records that pertain to stranding network activities.

17. [*Reserved* Verbally report any right whale sightings that occur or are reported as part of their normal activities. See Attachment B for contact information.

ARTICLE III
Dead Animal Response

Reserved
OR

A. The Participant may take species of marine mammals under the MMPA for the purpose of dead animal investigation and response.

Subject to the conditions contained in this Agreement, the MMPA, and the implementing regulations, the Participant may take dead stranded marine mammals or parts therefrom for the collection of data on the health and health trends of wild populations, for the detection of marine mammal UMEs, for the detection of signs of human interaction, for research or education on marine mammal biology and life history, for the determination of cause of death, for the detection of human caused and natural mortality, or for other research as deemed appropriate by the NMFS. These activities specifically include: obtaining measurements and biological samples from dead stranded marine mammals; disposing, or assisting in the disposal, of dead stranded marine mammals at an appropriate landfill or other suitable location; and taking and transporting dead stranded or floating dead marine mammals, or parts therefrom, to facilities or individuals approved pursuant to 50 CFR. 216.22 for scientific research, maintenance in a properly curated, professionally accredited scientific collection, or for educational purposes.

B. Terms and Conditions for Dead Animal Response

1. Response

a. The Participant shall respond as practicable to reports of dead stranded marine mammals within the geographic range or response specified under Article I, Number B.2. [*Reserved* {If the Participant is the closest and/or first responder, the Participant is considered to be the on-site coordinating organization and is in charge of all on-site activities.}] In certain circumstances such as a UME, mass stranding, or endangered marine mammal stranding, NMFS may implement the ICS structure and designate an on-site coordinator to be in charge of the event (see Article II C9). In all situations, the Participant will cooperate with Federal, state and local government officials and employees and other stranding network participants when responding to these strandings. If the Participant receives a verified report of a dead stranded marine mammal and does not have the capability to respond appropriately to the report, the Participant shall notify the NMFS Regional Stranding Coordinator and/or adjacent stranding network participants within 24 hours if feasible.

b. If the Participant leaves a dead animal at the stranding site or in thecase of a UME or mass stranding response, the Participant shall, if feasible, mark each animal with a tag or mark, such as roto-tags or grease stick, to assist with data collection and to prevent multiple reports on the same animal(s).

c. If requested by NMFS Regional Stranding Coordinator and if feasible and practicable, the Participant will assist with stranding response in neighboring areas outside the Participant geographic range (specified in Article I B2).

2. Data Collection and Reporting. The Participant shall collect and provide the following information for each stranded marine mammal they respond to:

a. Complete the NOAA Form 89-864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form) for each stranded marine mammal. Completed forms shall be sent to the NMFS Regional Stranding Coordinator via the NMFS National Marine Mammal Stranding Database or in writing (see Attachment B), no later than 30 days after responding to the stranding event. If requested by the NMFS Regional Stranding Coordinator and if feasible, the Participant shall provide preliminary data (verbal or written) from the Level A - Marine Mammal Stranding Report within 24 hours.

b. As resources are available, collect additional Level B and Level C data.

c. Notify the Regional Stranding Coordinator of the following cases [immediately or] within 24 hours or according to the specific reporting guidance provided by the Stranding Coordinator:

1). possible or confirmed human interactions (including military activity),
2). suspected UMEs,
3). extralimital or out-of-habitat situations,
4). mass stranding events and/or mass mortalities,
5). large whale strandings, and
6). any stranding involving endangered or threatened species or identified species of concern [*list* species]

d. In certain circumstances (e.g., listed or rare species stranding, UME, possible human interaction case, extralimital or out-of-habitat situation), the NMFS Regional Stranding Coordinator may request necropsies be conducted by a Necropsy Team Leader, or that additional and expedited reporting (verbal or written) of Level B and C data such as analytical results and necropsy reports if available. NMFS will not reproduce, modify, distribute, or publish the data without consent of the Participant unless required to release the data under Federal law or order (such as the Freedom of Information Act);

e. Collect and make available any gear, debris, or other objects (e.g., bullets, arrows, net webbing, etc.) recovered from a stranded marine mammal that may be evidence of human interaction. The Participant must comply with chain of custody procedures or any other instructions as specified and supported by NMFS [*insert* Region] and/or NMFS Office of Law Enforcement personnel.

3. Parts Disposition. Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non-diagnostic parts or samples:

a. Retention: Marine mammal parts may be retained by the Participant for education and/or research purposes, provided they are properly indicated in the "Specimen Disposition" field of NOAA Form 89-864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form). Parts and/or containers must be marked with the field identification number assigned by the Participant or by NMFS (i.e., NMFS registration number). Authorization to take parts from ESA listed species in the [*insert* Region] is currently provided under MMPA/ESA Permit No. 932-1489-09, as amended, issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator, and requires authorization and direction from the NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal, prior to any action by the Participant.

b. Transfer: Report to the NMFS Regional Administrator (See Attachment B) within 30 days of the stranding event, the transfer of any parts salvaged from the stranded marine mammal collected under this Agreement as required by 50 CFR 216.22 [or 50 CFR 216.37]. The Participant must provide the institution name where specimen materials have been deposited and ensure that the retained or transferred parts are marked with the field identification number or assigned NMFS Registration number in the "Specimen Disposition" field on the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report – Level "A" Form) and ensure that retained or transferred parts are marked with the field identification number or the NMFS Registration Number. If parts are being transferred, the Participant must ensure the receiving institution is authorized by the NMFS Regional Administrator to receive marine mammal parts.

4. Site cleanup. The Participant shall make every reasonable effort to assist in the clean up of beach areas where their activities (e.g., necropsy or specimen collection) under this Agreement that may contribute to soiling of the site.

ARTICLE IV
Live Animal Response: First Response

Reserved
OR

A. The Participant may take species of marine mammals covered under the MMPA for the purpose of live stranding first response (initial assessment and care at the site of stranding and assist in the appropriate disposition of the animal), beach triage, beach release, temporary holding for assessment and triage, translocation and/or transportation to a NMFS authorized rehabilitation center within the [*insert* Region].

1. The Participant must take live stranded marine mammals in a humane manner (as defined in 50 CFR 216.3, see Attachment A) for the protection or welfare of the marine mammal. [*Reserve for those w/ Article III authorization:* If the animal dies during the course of response and/or investigation, then the terms and responsibilities contained in Article III of this Agreement become operative.] In addition to the activities authorized in Articles I, II, (*reserved* Article III), the Participant is authorized to implement the following activities under this article:

    a. Take measurements and collecting blood or other diagnostic samples from live stranded marine mammals for health assessment.

    b. Return live stranded marine mammals, as directed by the NMFS Regional Stranding Coordinator, to their natural habitat and tagging such animals

    c. Transport live stranded marine mammals for rescue and rehabilitation to a NMFS approved rehabilitation facility or temporary holding facility.

    d. Perform humane euthanasia. Euthanasia shall only be performed by the attending veterinarian or by a person acting under the direction of the attending veterinarian and following approved guidelines such as those referenced in Attachment C (*2007 Report of the American Veterinary Medical Association Panel on Euthanasia, 2nd Edition of the CRC Handbook of Marine Mammal Medicine, 2006 Journal of the American Association for Zoo Veterinarians*). When using controlled drugs, such person(s) shall comply with all applicable state and Federal laws and regulations (i.e., registered with the Drug Enforcement Administration). Authorization for euthanasia of ESA-listed species provided under MMPA/ESA Permit No. 932-1489-09, as amended, and requires prior approval and direction from the NMFS Regional Stranding Coordinator.

2. This Agreement does not authorize any projects involving "intrusive research" (as defined in 50 CFR 216.3). Measurements or sampling for scientific research purposes (i.e., outside the scope of accepted diagnostic and treatment practices for the care of an

animal) must be authorized under a NMFS MMPA/ESA scientific research permit.

B. Terms and Conditions for Live Stranding: First Response

1. **Response**

a. The Participant shall respond to reports of live stranded marine mammals [R*eserved* for taxa and schedule]. [*Reserved* {If the Participant is the closest and/or first responder, the [Participant acronym] is considered to be the on-site coordinator and is in charge of all on-site activities.}] In certain circumstances such as a UME, mass stranding, or endangered marine mammal stranding, NMFS may implement the ICS structure and designate an on-site coordinator to be in charge of the event (see Article II C9). In all situations, the Participant will cooperate with Federal, state and local government officials and employees and other stranding network participants when responding to these strandings. If the Participant receives a verified report of a live stranded marine mammal and does not have the capability to respond appropriately to the report, the Participant shall notify the NMFS Regional Stranding Coordinator without delay. Also, if the NMFS Regional Stranding Coordinator receives a report of a live stranded marine mammal, the Regional Stranding Coordinator may contact the Participant to determine whether the Participant has the capability to respond to the stranding. If the Participant cannot respond in a timely manner, the NMFS Regional Stranding Coordinator may request another Stranding Network participant to respond.

b. The Participant shall take all steps reasonably practicable under the circumstances to prevent further injury to any live stranded marine mammal, injury to any network personnel, volunteers, government personnel and the general public.

c. The Participant shall tag or mark any animals that are immediately released to their natural habitat using a NMFS approved tag, such as one-bolt roto tag, cattle ear tags, or freeze branding. Application of other tagging methods must first be approved by the NMFS Regional Stranding Coordinator. Tagging and post-tagging activities are restricted to monitoring the success of marine mammals released to the wild. Any projects outside the scope of monitoring the success of a release must be authorized under a NMFS MMPA/ESA scientific research permit.

d. If the Participant determines that it is necessary to temporarily hold or triage a stranded marine mammal at a separate site from the NMFS approved rehabilitation facility, the animal(s) cannot be moved until the Participant obtains verbal approval from the NMFS Regional Stranding Coordinator.

Written documentation of the need for an interim location and written concurrence from the NMFS Regional Stranding Coordinator with any associated conditions must be provided at the earliest time practicable within 24 hours.

e. If the Participant considers responding to an "out-of-habitat" or free-swimming marine mammal [*Reserve:* replace marine mammal with listed species and cetaceans; or listed species and pinnipeds, or listed species] in distress (e.g., entanglement), the Participant must first contact the NMFS Regional Stranding Coordinator for approval and discuss plans for live capture and/or needs for assistance. The NMFS Regional Stranding Coordinator may require a NMFS employee to be present at the time of capture.

f. [*Reserved {*The Participant shall follow the guidance provided by the [*insert* Region] in Attachment E, Disposition of Live Stranded Marine Mammals, and shall consult with the NMFS Stranding Coordinator and the attending veterinarian to make a determination regarding immediate release, rehabilitation, or euthanasia of live stranded marine mammals or cetaceans}].

2. **Data Collection and Reporting.** The Participant shall collect and provide the following information for each stranded marine mammal they respond to:

a. Complete the NOAA Form 89-864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form) for each stranded marine mammal. Completed forms shall be sent to the NMFS Regional Stranding Coordinator via the NMFS National Marine Mammal Stranding Database or in writing (see Attachment B), no later than 30 days after responding to the stranding event. If requested by the NMFS Regional Stranding Coordinator and if feasible, the Participant shall provide preliminary data (verbal or written) from the Level A - Marine Mammal Stranding Report within 24 hours.

b. If temporarily holding a stranded animal prior to transferring to a NMFS approved rehabilitation facility acting in accordance with this Article, the Participant shall complete the NOAA Form 89878, OMB # 0648-0178 (the Marine Mammal Rehabilitation Disposition Report). This report shall be sent to the NMFS Regional Stranding Coordinator via the NMFS National Marine Mammal Stranding Database or in writing (see Attachment B), no later than 30 days after responding to the stranding event. If requested by the NMFS Regional Stranding Coordinator and if feasible, the Participant shall provide preliminary data (verbal or written) from the Marine Mammal Rehabilitation Disposition Form within 24 hours.

c. As resources are available, collect additional Level B and Level C data.

d. Notify the NMFS Regional Stranding Coordinator of the following cases [immediately or] within 24 or according to the specific reporting guidance provided by the Stranding Coordinator:

1). possible or confirmed human interactions (including military activity),
2). suspected UMEs,
3). extralimital or out-of-habitat situations (see B.1.e. of this Article),
4). mass stranding events and/or mass mortalities,
5). large whale strandings, and
6). any stranding involving endangered or threatened species or identified species of concern [*list* species]

e. In certain circumstances (e.g., UME, possible human interaction case, extralimital or out-of-habitat situation), the NMFS Regional Stranding Coordinator may request additional and expedited reporting (verbal or written) of Level B and C data such as analytical results and necropsy reports if available. NMFS will not reproduce, modify, distribute, or publish the data without consent of the Participant unless required to release the data under Federal law or order (such as the Freedom of Information Act);

f. Collect and make available any gear, debris, or other objects (e.g., bullets, arrows, net webbing, etc.) recovered from a stranded marine mammal that may be evidence of human interaction. The Participant must comply with chain of custody procedures or any other instructions as specified and supported by NMFS [*insert* Region] and/or NMFS Office of Law Enforcement personnel.

[*Reserved for those without Article III authorization:*

3. Parts Disposition. Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non-diagnostic parts or samples:

a. Retention: Marine mammal parts may be retained by the Participant for education and/or research purposes, provided they are properly indicated in the "Specimen Disposition" field of NOAA Form 89-864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form). Parts and/or containers must be marked with the field identification number assigned by the Participant or by NMFS (i.e., NMFS registration number). Authorization to take parts from ESA listed species in the [*insert* Region] is currently provided under MMPA/ESA Permit No. 932-1489-09, as amended, issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator, and requires authorization and direction from the NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal, prior to any action by the Participant.

b. Transfer: Report to the NMFS Regional Administrator (See Attachment B) within 30 day of the stranding event, the transfer of any parts salvaged from the stranded marine mammal collected under this Agreement as required by 50 CFR 216.22 [or 50 CFR 216.37.] The Participant must provide the institution name where specimen materials have been deposited and ensure that the retained or transferred parts are marked with the field identification number or assigned NMFS Registration number in the "Specimen Disposition" field on the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report – Level "A" Form) and ensure that retained or transferred parts are marked with the field identification number or the NMFS Registration Number. If parts are being transferred, the Participant must ensure the receiving institution is authorized by the NMFS Regional Administrator to receive marine mammal parts.

4. Site Cleanup. The Participant shall make every reasonable effort to assist in the clean up of beach areas where their activities (e.g., euthanasia, necropsy, or specimen collection) under this Agreement.

ARTICLE V
Live Animal Response: Rehabilitation and Final Disposition
Reserved
OR

A. The Participant may take live stranded marine mammals in a humane manner with the goal of rehabilitation and release. If the animal dies during the course of rehabilitation, then the terms and responsibilities contained in Article III of this Agreement become operative. In addition to the activities authorized in Articles I, II, (*reserved* III, IV) of this Agreement and subject to the conditions contained in this Agreement, the MMPA, and the implementing regulations, the Participant is authorized to implement the following activities under this article:

1. In accordance with applicable regulations and NMFS guidelines and best practices, transfer marine mammals to another NMFS approved rehabilitation facility within the [Region] for:

    a. release back to the wild;

    b. temporary placement in a scientific research facility holding a current NMFS scientific research permit and a United States Department of Agriculture Animal and Plant Health Inspection Service (APHIS) Research License; or

    c. permanent disposition at an authorized facility (i.e. holds an APHIS exhibitors license {7 U.S.C. 2131 *et seq.*}) after consultation with, and authorization by, the NMFS Office of Protected Resources Permits, Conservation and Education Division.

2. Conduct scientific research on stranded animals in a rehabilitation facility, only if the responsible individual has a NMFS scientific research permit and the facility holds an APHIS research license in accordance with the Animal Welfare Act (see 50 CFR 216.27 (c)(6)).

3. Return rehabilitated stranded marine mammals to their natural habitat. A decision regarding whether or not a marine mammal has the potential to be released must be made as early as possible during the rehabilitation period. Any marine mammal eligible for release must be released as early as possible and no later than six months after being taken for rehabilitation unless the attending veterinarian determines that: the marine mammal might adversely affect marine mammals in the wild; release is unlikely to be successful due to the physical condition and behavior of the marine mammal; or more time is needed to make a determination. Release plans must be submitted to the NMFS Regional Administrator at least 15 days prior to the release, unless advanced notice is waived by the NMFS Regional Administrator. The NMFS Regional Administrator may require the participant to provide additional information, modify the release plan, or dispose of the marine mammal in another manner (see 50 CFR 216.27(a) and the

NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release.)

4. Tag rehabilitated stranded marine mammals, strictly for purposes of monitoring success of release to the wild using a NMFS approved tag, such as one-bolt roto-tag, cattle ear tags, or freeze branding. Application of other tagging methods must first be approved by the NMFS Regional Stranding Coordinator. Tagging and post-tagging activities are restricted to monitoring the success of marine mammals released to the wild. Any projects outside the scope of monitoring the success of a release must be authorized under a NMFS MMPA/ESA scientific research permit.

5. Perform humane euthanasia. Euthanasia shall only be performed by the attending veterinarian or by a person acting under the direction of the attending veterinarian and following approved guidelines such as those referenced in Attachment C (*2007 Report of the American Veterinary Medical Association Panel on Euthanasia, 2nd Edition of the CRC Handbook of Marine Mammal Medicine, 2006 Journal of the American Association for Zoo Veterinarians*). When using controlled drugs, such person(s) shall comply with all applicable state and Federal laws and regulations (i.e., registered with the Drug Enforcement Administration). Authorization for the euthanasia of ESA-listed species provided under MMPA/ESA Permit No. 932-1489-09, as amended, and requires prior approval and direction from the NMFS Regional Stranding Coordinator.

B. Terms and Conditions for Live Animal Response: Rehabilitation, Release, or Final Disposition Determination

1. Rehabilitation

a. The Participant shall comply with laws, regulations, policies, and/or guidelines applicable to or promulgated by NMFS that apply to activities under this Agreement. The Participant must also have all applicable Federal, state, and local permits for rehabilitation facilities, and must comply with all Federal, state, and municipal laws related to operations of the facility.

b. The Participant shall be responsible for the custody of any living marine mammal taken pursuant to this Article using standards for humane care and for practicing accepted medical evaluation and treatment as described in the *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standard for Rehabilitation Facilities* (Attachment D).

c. The Participant shall not exceed their maximum holding capacity for cetaceans and pinnipeds based on the minimum standard space requirements, the number of animals housed in each holding area, and the availability of qualified personnel as described in the *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standard for Rehabilitation Facilities* (Attachment D) unless a written waiver is first received from the NMFS Regional

Administrator. The NMFS Regional Stranding Coordinator may offer assistance for relocating animals to another rehabilitation facility and in supporting decisions to euthanize when necessary. Other considerations for determining maximum holding capacity include:

(1) On-site veterinary care, volunteer support, and experienced staff;
(2) Adequate food and medical supplies and medical test capabilities;
(3) Isolation for marine mammals;
(4) Adequate water quality;
(5) Limited public access; and
(6) Ability to maintain current, accurate and thorough records

d. The Participant shall follow contingency plans approved by NMFS for the care of marine mammals in rehabilitation during planned events (e.g., construction) or unexpected events such as mass strandings, UMEs, natural disasters (e.g., hurricanes, harmful algal blooms, El Niño), and/or hazardous waste spills.

e. The Participant shall isolate rehabilitating marine mammals from other wild or domestic animals and from any animal in permanent captivity.

f. The Participant shall prohibit the public display and training for performance of stranded rehabilitating marine mammals as required by 50 CFR 216.27(c)(5). This includes any aspect of a program involving interaction with the public.

g. The Participant shall follow any additional requirements for rehabilitation (e.g., isolation) and release prescribed by NMFS in consultation with the Working Group for Marine Mammal Unusual Mortality Events during a marine mammal UME, as recommended in the *National Contingency Plan for Response to Unusual Marine Mammal Mortality Events;* D.W. Wilkinson, NOAA Technical Memorandum NMFS-OPR-9, September 1996.

h. The Participant must temporarily refuse admittance of new cases of stranded marine mammals due to the severity of a disease outbreak when instructed by the NMFS Regional Stranding Coordinator, in consultation with the UME Working Group or other experts, if diseases of concern have been reported (e.g. diseases associated with a UME, or any emerging or zoonotic diseases).

i. The Participant shall not transfer a marine mammal being rehabilitated under this Agreement to another facility without prior approval form the NMFS Regional Stranding Coordinator.

[Reserve:

j. If a marine mammal dies while in rehabilitation, Article III applies.]

2. Release

a. Release Recommendation. The Participant shall make a final written recommendation for each animal in rehabilitation as early as possible, and no more than six months after its date of rescue, for release or non-release determination to the NMFS Regional Administrator according to any applicable NMFS release guidelines and regulations including 50 CFR 216.27 (release, non-releasable, and disposition under special exception permits for rehabilitated marine mammals). This final recommendation shall include a release recommendation signed by the Participant's attending veterinarian, attesting that the marine mammal is medically and behaviorally suitable for release in accordance with the NMFS Standards for Release, and a concurrence signature from the Participant's Authorized Representative or Signatory of the Stranding Agreement (see Attachment D, *NMFS /FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*).

b. Release Plan. If the Participant recommends release, a release plan must also be included with the final recommendation letter. This information must be submitted to and approved by the NMFS Regional Administrator at least 15 days prior to the release, unless advanced notice is waived by the NMFS Regional Administrator, as required by 50 CFR 216.27(a).

3. Data Collection and Reporting

a. Diseases of Concern Reporting. The Participant shall notify, [immediately or] within 24 hours, the NMFS Regional Stranding Coordinator of learning of any diseases of concern (e.g., emerging, reportable, and/or zoonotic diseases) that are detected and/or confirmed that could be a potential hazard for public health or animal health (NMFS will provide guidance on Reportable Diseases);

b. Disposition Reports. Upon release or other disposition of any marine mammal under this Article, the Participant shall complete the NOAA Form 89878, OMB # 0648-0178 (the Marine Mammal Rehabilitation Disposition Report Form). Completed forms shall be sent to the NMFS Regional Stranding Coordinator via the NMFS National Marine Mammal Stranding Database or in writing (see Attachment B), no later than 30 days after final disposition of the marine mammal. If requested by the NMFS Regional Stranding Coordinator and if feasible, the Participant shall provide preliminary data (verbal or written) from the Marine Mammal Rehabilitation Disposition Report within 24 hours.

c. [*Reserved* {Annual Summary Reports. The Participant shall submit an annual report (due January 31 each year) summarizing the Participant's rehabilitation activities for the past calendar year. NMFS will not reproduce, modify, distribute, or publish the data without consent of the Participant unless required to release

the data under Federal law or order (such as the Freedom of Information Act).

The reports shall include the following for each animal in rehabilitation:

i. Species and field number
ii. If the animal was released:
    (a) Date, location of release (latitude and longitude).
    (b) Type and specifics of post-release monitoring (roto-tag, satellite, etc.) and any roto-tag or freeze brand numbers used.
    (c) Photos if possible.
    (d) Duration of post-release monitoring.
    (e) Status of post-release monitoring.
    (f) Indications from monitoring relative to success of the rehabilitation effort.
    (g) Disposition of tracking data if applicable.
iii. If the animal was transferred to permanent care:
    (a) Date of physical transport (if applicable)
    (b) Location of permanent care
iv. If the animal was euthanized, provide the date of euthanasia.
v. If the animal died, provide the date of death.

[Reserved for those without Article III authorization:]

4. Parts Disposition. Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non diagnostic parts or samples:

a. Retention: Marine mammal parts may be retained by the Participant for education and/or research purposes, provided they are properly indicated in the "Specimen Disposition" field of NOAA Form 89-864, OMB #0648-0178 (the Marine Mammal Rehabilitation Disposition Report Form). Parts and/or containers must be marked with the field identification number assigned by the Participant or by NMFS (i.e., NMFS registration number). Authorization to take parts from ESA listed species in the [*insert* Region] is currently provided under MMPA/ESA Permit No. 932-1489-09, as amended, issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator, and requires authorization and direction from the NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal, prior to any action by the Participant.

b. Transfer: Report to the NMFS Regional Administrator (See Attachment B) within 30 days of the stranding event, the transfer of any parts salvaged from the stranded marine mammal collected under this Agreement as required by 50 CFR 216.22 [or 50 CFR 216.37.] The Participant must provide the institution name where specimen materials have been deposited and ensure that the retained or transferred parts are marked with the field identification number or assigned NMFS Registration number in the "Specimen Disposition" field on the NOAA

Form 89864, OMB #0648-0178 (the Marine Mammal Rehabilitation Disposition Report Form) and ensure that retained or transferred parts are marked with the field identification number or the NMFS Registration Number. If parts are being transferred, the Participant must ensure the receiving institution is authorized by the NMFS Regional Administrator to receive marine mammal parts.

ARTICLE VI
Participant's Authorized Personnel [and Designees]

Reserved
OR

A. Personnel and Volunteers

Takings of marine mammals authorized in this Agreement may only be directed by the Participant's personnel and trained volunteers identified by the Participant in writing to the NMFS Regional Administrator. The Participant may use other (i.e., not previously identified to NMFS) volunteers to carry out activities in this Agreement only if they are under the close direction of previously identified trained personnel or volunteers. The Participant may not delegate authority to take marine mammals to another person except as provided in this article.

In the event of changes in key personnel, the prospective Participant shall notify the NMFS Regional Administrator in writing (see Attachment B) [within 30 days] and provide a description of the experience of new key personnel for review and approval by NMFS. New key personnel must be meet the qualification terms identified in the *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Evaluation Criteria for a Marine Mammal Stranding Agreement* (Attachment D).

B. Untrained Citizens

If the Participant requests the assistance of untrained citizens (e.g., during a mass stranding), the Participant is responsible for the actions of those citizens during the response; must take precautions against injury or disease to those volunteer citizens; and must ensure that the citizens' actions do not cause unnecessary harassment of marine mammals.

Reserve all or C.1. and C.2.:

C. Designee Organizations.

1. Authorization for Designee Organization(s). The Participant may designate an organization, or institution, to act on behalf of the Participant as a designee in accordance with this Agreement. For the purposes of this Agreement, the term designee does not refer to individual personnel/volunteers of the Participant's organization, or to individual personnel/volunteers of the Designee organization or institution. Any designation requires prior written approval from the NMFS Regional Administrator (Appendix A). Any organization or institution so designated shall be deemed an agent of the Participant and NMFS, and is subject to ALL applicable provisions of this Agreement as well as applicable laws, regulations, and guidelines. The Participant must provide oversight of their designee organization(s). Any breach of the provisions of this Agreement by a designee of Participant shall be deemed a breach by the Participant.

2. Purpose of Designee Organization(s). The purpose of a designee organization(s) is to assist the Participant with improved sub-region coordination, response, and/or rehabilitation capability within the Participant's geographic area of responsibility. The ability to train and oversee Designees helps create new organizations and build the Stranding Network capacity. NMFS will evaluate designee organizations based on the Participant's justification for geographic need, enhancement of response capabilities, and level of experience provided by the designee organization.

3 Terms and Conditions for Adding Designee(s): To request the addition of a Designee Organization to the Participant's Stranding Agreement, the Participant must submit required written information (see below and Attachment D, *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Evaluation Criteria for a Marine Mammal Stranding Agreement).* This information must be received at least 30 days prior to any prospective designation, to the NMFS Regional Administrator (see Attachment B) for review and approval. NMFS will respond in writing to the Participant's request within 30 days of receipt of the request with an approval, rejection, or request for more information.

a. Complete name of the designee person, organization, or institution.
b. Resumes or CVs of all key personnel for Designees including evidence of relevant training;
c. Justification Statement for designation;
d. Geographic coverage area for response;
e. For rehabilitation facilities, a facility operation plan including personnel, veterinary care, equipment list, and other requirement stated under any applicable NMFS laws, regulations, policies, and guidelines. The Designee must also have all applicable Federal, state, and local permits for rehabilitation facilities;
f. Oversight plan including how Participant will monitor the activities of the designee under the Agreement; and
g. A copy of written Agreement between the Participant and the Designee that must state that the designee has agreed to abide by all the terms and conditions in the Participant's Stranding Agreement.

4. A Designee organization may not be authorized for activities different than or exceeding those contained in the Stranding Agreement of the Participant.

ARTICLE VII

Rights of States and Local Governments

Nothing in this Agreement shall be construed to affect the rights or responsibilities of other Federal, state, or local government officials or employees acting in the course of their official duties with respect to taking of marine mammals in a humane manner (including euthanasia) for protection or welfare of the marine mammal, protection of public health and welfare or non-lethal removal of nuisance animals (MMPA section 109(h)).

ARTICLE VIII
Effective Dates, Renewal and Application Procedures

A. Effective Date

The terms of this Agreement shall become effective upon the signature by both [Participant acronym] and the NMFS [*insert* Region] Regional Administrator.

B. Period of Agreement

1. **Duration:** Unless terminated as provided in this Agreement, this Agreement shall expire at the end of the following applicable period *[insert* expiration date]:

   1 year for new Stranding Network Participants
   1 year for a Stranding Network Participant on probation
   3 years for a live animal responder and rehabilitator (Articles IV and V)
   6 years for a dead animal only responder (Article III only)

2. **Stranding Agreement Renewals**: No later than 90 days prior to the expiration date of this Agreement, NMFS will provide the Participant with a written notice of expiration, and prescribe information needed from the Participant for renewal (see *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Evaluation Criteria for a Marine Mammal Stranding Agreement*, Attachment D). No later than 60 days prior to the expiration date, the Participant shall indicate in writing to NMFS (see Contacts, Attachment B.) that a renewal of this Agreement is requested and shall provide the prescribed information. Following NMFS review of the submitted information to determine if Participant meets applicable requirements, the Agreement may be renewed if agreed to in writing by both parties.

   If no written renewal request is received from the Participant, this Agreement becomes null and void upon the above expiration date.

3. **Provisional Stranding Agreements Renewals**: For new participants, the NMFS Regional Administrator will enter into this Agreement for a provisional period of one year from the effective date. The performance of the Participant will be reviewed to determine if the services provided by the Participant under this agreement have been satisfactory to NMFS. If NMFS determines that the new Participant has satisfied the terms and conditions of this stranding agreement, this Agreement may be extended for a multi-year period. New participants operating without any deficiencies (see Article IX. D), are considered to be in "good standing" under this Agreement.

4. **Denial of Stranding Agreement Renewal**: The decision to renew or deny a Stranding Agreement is solely at the discretion of the NMFS Regional Administrator and is not compelled by the Participant's adherence to the Stranding Agreement criteria. If the

NMFS Regional Administrator denies a renewal request, the denial will be issued in writing by certified mail from the NMFS Regional Administrator to the Participant within 30 days of the Participant's submission of a completed application, and will be based upon the Regional Administrator's judgment of:

a. Past performance of the Participant;
b. Existing capabilities of the Participant; and
c. Geographic and programmatic needs of NMFS' stranding program.

A Stranding Agreement for which renewal is denied by the NMFS Regional Administrator becomes null and void upon the expiration date listed above.

ARTICLE IX
Review, Modification and Termination

A.. Review

The NMFS [*insert* Region] ARA for Protected Resources shall review this Agreement [*reserve* annually or from time to time] for performance adequacy and effectiveness.

B. Modification

The Participant or the [*insert* Region] Regional Administrator may request a modification to the Stranding Agreement, including, but not limited to, procedural or administrative changes, such as a change in contact information, and a request for expansion or reduction of activities authorized by this Agreement. A request for authority for additional activities may require submission of information identified in Attachment D, *NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Evaluation Criteria for a Marine Mammal Stranding Agreement*. Modifications and reductions in authority, as well as notice of issuance or denial of a request for increased authorizations, will be given in writing within 30 days of receipt of a completed request. The Participant and the NMFS Regional Administrator may determine that a new Stranding Agreement is warranted.

C. Suspension or Termination request by Participant

The Participant may request suspension of all or part of this Stranding Agreement for a stated period of time, or may terminate this Agreement, upon 30 days written notice to the NMFS Regional Administrator. Suspension of the authorization of activities at the request of the Participant may be given without prejudice to the reinstatement of authorization or renewal of a Stranding Agreement.

D. Non-Compliance with Stranding Agreement or Violations of Law by Participant

Except in cases of willfulness, or those in which public health, interest, or safety requires immediate suspension, or termination of this Agreement, NMFS shall provide the Participant with notice and an opportunity to correct any deficiencies within a time period specified by NMFS, in writing, if the Participant fails to satisfy the terms and condition of this Agreement or violates any laws, regulations, or guidelines applicable to this Agreement, or Federal, state or municipal laws related to stranding network operations. The NMFS Region may take the following actions based on the circumstances:

1. **Probation.** The Participant may be put on probation for up to three years if deficiencies are not corrected. The NMFS Regional Stranding Coordinator and the Participant will develop a timetable with reasonable and measurable milestones that must be achieved to correct deficiencies during the probation period. Probation requires annual reviews of the Participant's activities for up to three years.

A participant on probation may not be in "good standing" with the Stranding Network.

2. **Suspension.** The NMFS Regional Administrator may suspend the Participant's authority, or any portion of their authority, as appropriate (e.g., suspend rehabilitation authority, but not live or dead animal response), with 30 days written notice, for up to 1 year or until NMFS is satisfied that all deficiencies and violations have been adequately addressed. A notice of suspension listing deficiencies and a timetable with reasonable and measurable milestones required to correct those deficiencies will be issued in writing, delivered in person or by certified mail, from the NMFS Regional Administrator if, in the judgment of the Regional Administrator, the Participant has:

   a. Submitted false information or statements in applications or reports;
   b. Not satisfied the terms and conditions of the Stranding Agreement;
   c. Failed to correct deficiencies in a timely manner; or
   d. Violated applicable Federal, state, or municipal laws, regulations, guidelines, or other requirements.

   A participant on suspension is <u>not</u> in "good standing" with the Stranding Network.

3. **Immediate suspension.** The NMFS Regional Administrator may require immediate suspension of authorization under a Stranding Agreement, or any part of the Agreement, without prior notice if, in the judgment of the Regional Administrator, suspension is needed to protect marine resources, in cases of willfulness, or as otherwise required to protect public health, welfare, interest, or safety, (which includes interest in the welfare of marine mammals). During the suspension period, the NMFS Regional Stranding Coordinator may ask other Stranding Network participants to respond in the Participant's area of geographic coverage. If the Participant's Stranding Agreement is suspended while animals are in rehabilitation, NMFS reserves the right to either confiscate the animals or to arrange for another participant to take over rehabilitation or take custody of the animals. A written notice of immediate suspension will be issued in person or by certified mail.

   A participant on immediate suspension is <u>no</u>t in "good standing" with the Stranding Network.

4. **Termination**. The NMFS Regional Administrator may terminate this Agreement, or any part thereof, upon at least 30 days written notice to the Participant, delivered in person or by certified mail. The Agreement may be terminated for any reason, including the Participant's:

   a. Submission of false information or statements in applications or reports;
   b. Failure to satisfy the terms and conditions of the Stranding Agreement;
   c. Failure to correct deficiencies in a timely manner; or

d. Violation of applicable Federal, state, or municipal laws, regulations, guidelines, or other requirements.

The NMFS Regional Stranding Coordinator may ask another Stranding Network participant to respond in the Participant's area of geographic coverage. If the Participant's Stranding Agreement is terminated while animals are in rehabilitation, NMFS reserves the right to either confiscate the animals or to arrange for another participant to take over rehabilitation of or to take custody of the animals.

Termination of the Agreement for any reason shall automatically terminate any designations by the Participant to any designee organizations under this Agreement.

[*Reserve for SAs with Designees*]:

5. **Violations by Designees.** Violations by the Participant's Designee organization are considered to be violations by the Participant. NMFS will address violations by Designees directly with the Participant according to this Article. In addition, NMFS may use the remedy of terminating the designation.

Pursuant to the terms and conditions described above in this Stranding Agreement between [Region] and [Participant], the Participant is authorized *(insert applicable authorizations):*

- **Under Article III to response to strandings of dead marine mammals *{reserve for taxa}*;**
- **Under Article IV to provide first response to live stranded marine mammals;**
- **Under Article V to rehabilitate and release live stranded marine mammals**

THIS STRANDING AGREEMENT IS ENTERED INTO AND MADE EFFECTIVE THIS

Date_____ **Date** _____

APPROVED:

NMFS [Region] Region **[Stranding Network Organization]**

Signature of Regional Administrator **Signature of Authorized Representative**

_____ _____

THIS STRANDING AGREEMENT REMAINS IN EFFECT UNTIL:

Expiration Date: _____

Appendix A.

Designees:

Statement of Agreement for designation of authority and responsibilities to any organization or institution to act as agents under this Agreement.

AGREEMENT

I have read the conditions as stated above for participating in the Stranding Network as an agent of the_____ (Stranding Network Organization) under its Agreement with the National Marine Fisheries Service Region and agree to abide by all applicable provisions of the Agreement between the National Marine Fisheries Service Region and _____ (Stranding Network Organization).

NMFS Region	Authorized Representative of Stranding Organization	Authorized Representative of Designee Organization

Signatures

Title

Affiliation

Date **Expiration Date**

ATTACHMENT LIST

Attachment A. List of Terms and Definitions under 50 CFR 216.3, Glossary of Terms, etc.

Attachment B. Regional contact information, 24 hour numbers, etc.

Attachment C: Euthanasia guidance

Attachment D: NOAA National Marine Fisheries Service *Best Practices* for Marine Mammal Stranding Response, Rehabilitation, and Release Documents:

- **Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals of Existing Participants)**
- **Standards for Release**
- **Standards for Rehabilitation Facilities**
- **Level A Forms (Marine Mammal Stranding Report and Marine Mammal Rehabilitation Disposition Report)**

Attachment E: NMFS Southeast Region Disposition of Live Stranded Marine Mammal guidance.

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POLICIES AND BEST PRACTICES

MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

Evaluation Criteria for a Marine Mammal Stranding Agreements
(New Applicants and Renewals)

Prepared by
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NOAA National Marine Fisheries Service
Marine Mammal Health and Stranding Response Program

February 2009

Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals)

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Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals)

Shaded text denotes reserved text at the discretion of the NMFS Regional Administrator.

(1) To renew an existing Stranding Agreement, the applicant must demonstrate past compliance with the terms and responsibilities of their Stranding Agreement, including reporting requirements and deadlines.

(2) For the purpose of network development and expansion of stranding response capabilities in geographically remote or low coverage areas [e.g., Alaska, Washington, Oregon, Hawaii, and American Territories (i.e., Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marina Islands)], referenced evaluation criteria may be waived based on the discretion of the NMFS Regional Administrator.

(3) If long-term care is not feasible, a plan for disposition of live marine mammals at alternate care facilities must be submitted.

1. Purpose and Application

These minimum evaluation criteria have been developed to assist the National Marine Fisheries Service [Region] Region (NMFS) in its evaluation of Stranding Agreement renewal requests and new Stranding Agreements proposals. Prior to issuing new Stranding Agreements, the NMFS [Region] Regional Administrator must determine there is a programmatic and/or geographic need for a Stranding Network Participant in the proposed area of response. Geographic or programmatic needs are based on, but not limited to, the following factors: the historic number of stranded marine mammals in an area, the amount of personnel and resources of stranding network participants with existing agreements in the proposed response area, the geographic extent of the proposed response area, and the proximity of the existing and prospective stranding network participants to the proposed response area.

The decision to enter into an Agreement under which an organization may take species under the Marine Mammal Protection Act for the purpose of stranding response is solely at the discretion of the NMFS [Region] Regional Administrator. NMFS [Region] Region is not compelled to enter into or to decline to enter into a Stranding Agreement based on an interested party's adherence with these criteria. NMFS weighs the geographical need, programmatic need, level of expertise, stranding related activities, cooperation, and criteria listed below when making its determination in determining whether to issue a new Stranding Agreement.

2. General Evaluation Criteria for Articles III, IV, and V Authorization [(1)]

2.1 General Information

The existing or prospective Participant should provide the following information to NMFS as part of their request to obtain or renew an existing Stranding Agreement with NMFS or upon any significant changes to the information:

1. Participant Contact Information. This should include:
   a. Mailing address, phone number, e-mail, and facsimile for all official correspondence.
   b. Physical address and location of the facility or facilities (if applicable).
   c. Name, title, and contact information for an authorized representative with signatory authority for the organization - Authorized Representative (e.g., Executive Director, Director, President, CEO, etc.).
   d. [24-hour] contact numbers if applicable, including office, home, and/or cell phone numbers of primary responders, key personnel/volunteers, and veterinarians.
2. Description of Organizational Goals, Capability, and Experience. This should include:
   a. Brief summary of the existing or proposed organization's mission, goals, and objectives and how these complement objectives for the [Region] Regional Stranding Network.
   b. Brief summary on history and type of organization (e.g., university, governmental, non-profit, aquarium, etc.).
   c. Description of any past or current collaboration with NMFS, other Stranding Network participants, researchers, or the public.
   d. Summary of relevant organizational experience with response to live/dead stranding events and /or rehabilitating marine mammals within the past three years.
   e. An overview of general capabilities to conduct stranding response.
3. Proposed Scope and Area of Geographic Response. This should include:
   a. Brief summary of the existing or proposed scope of the stranding program (e.g., all species of cetaceans, pinnipeds), and whether the request is for response to dead animals only, live and dead animals, and/or rehabilitation.
   b. Justification and description of the existing or proposed geographic area of coverage and why the area of response is appropriate for the organization (e.g., the amount of personnel/volunteers and resources available, relative to shoreline covered, historic

number of stranding events, etc.). Latitude and longitude of proposed geographic area and maps are especially helpful.

4. Description of Organizational Structure. This should include:
   a. An overview of staffing, personnel, volunteers, veterinarians, the primary representative, and primary responders, including organizational charts, titles, and position descriptions as appropriate.
   b. Brief summary of relevant training, experience, and qualifications for key stranding response personnel, including primary responders, veterinarians and volunteers as appropriate.
   c. Description of how personnel/volunteers will collect, report, and maintain Level A stranding data and conduct basic (Level B) tissue sample collection. This should also address requirements for accurate and timely reporting.
   d. Description of how volunteers are trained and monitored to ensure quality data collection.
   e. Description of how the organization will keep NMFS informed about any changes in key personnel, geographic area of coverage, or capabilities.
5. Equipment and Resources. This should include:
   a. Description of resources, supplies and equipment currently available to conduct stranding response (live and/or dead). This could include, but may not be limited to, information on types and availability of necropsy equipment, freezers, trucks, tagging equipment (e.g., roto-tags), stretchers, vessels, triage equipment, and transport equipment, and temporary and/or permanent pools.
6. Rapid Response and Investigation Procedures. This should include:
   a. Procedures for stranding response for dead/live stranded marine mammals.
   b. Human health and safety precautions used.
   c. How calls are handled, availability (e.g., 24 hour pager), and which personnel will respond.
   d. How necropsies will be coordinated and conducted.
   e. Capabilities and general rescue plan, and plans for animal care (e.g., on-site veterinary care) for live animal response including triage, transport, and euthanasia.
   f. Protocols for decision-making when responding to a live animal.
   g. Description of how the organization will coordinate with other Stranding Network members and NMFS.

7. Any other relevant documentation (permits, authorizations, agreements, etc.) for review prior to entering into any Stranding Agreement and at any subsequent time as requested by the [Region] Regional Administrator, or when additional documentation is obtained that may become relevant to performance under the Agreement.
8. Documentation of experience, ability, and knowledge (e.g., CV, resume, certificates, letters of recommendation, etc.) of key personnel (e.g., primary representative, primary responder). Experience can be obtained through paid employment, internships, volunteering, course work, and/or NMFS approved training.
9. For prospective Participants, demonstrate experience working under the direct supervision of an existing Stranding Network Participant in good standing or NMFS for at least three years or equivalent case load.[(2)] The prospective Participant may apprentice as a "designee" organization under a Stranding Agreement holder to obtain this experience.
10. Letter(s) of support from peers such as other stranding network organizations (Stranding Agreement/Designee organizations), universities/researchers, government agencies, non-governmental organizations, professional organizations, etc. Such letters of support could also be provided from the current Stranding Agreement holder under which the Participant received experience and include assurances that the prospective Participant can support programmatic and geographic needs in the area (new Stranding Agreement proposals only).

2.2 General Qualifications for Articles III, IV, and V

NMFS will evaluate existing and prospective participants based on their demonstrated track record and their capabilities in the following areas as described in their request:

1. Ability to provide description of [24-hour] on-call coverage for the proposed geographic area of response (e.g., established "hot-line" number, message phone, staffed pager, etc.).
2. Demonstrated ability to comply with standard instructions and collect Level A data from stranded marine mammals according to established protocols.
3. Ability to conduct full post-mortem exams, including obtaining histopathology samples and other biological samples (if feasible and requested by NMFS).
4. Willingness and ability to communicate in a professional manner, and demonstrated ongoing cooperation with NMFS, other network members, the general public, local and state agencies.
5. Willingness and ability to cooperate with authorized marine mammal researchers.
6. Ability to address health and safety when responding to dead or live stranded marine mammals, or marine mammals in rehabilitation (e.g., a description of the organization's

operational safety plan or protocols).

7. Demonstrated experience specific to the marine mammal species that are most likely encountered in the proposed area of geographic response.

3. Evaluation Criteria for Response to Dead Stranded Marine Mammals - First Response (Article III Authorization) [(1)]

In addition to the general criteria, Participants proposing to respond to dead stranded marine mammals should provide information that shows the Participant's plan for implementing Article III of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful.

3.1 Information for Article III Authorization

Key Personnel. The prospective Participant should have and maintain one Authorized Representative and at least two **Primary Responders**, at least one of whom will be on-site or supervising when dead animals are being examined or handled and is responsible for the day to day operations (i.e., paid and unpaid staff).[(2)] The **Authorized Representative** has signatory authority for the stranding organization and may be the signatory of the stranding agreement (e.g., Executive Director, President, CEO, etc.).

1. Additional personnel may be necessary, commensurate with the proposed geographic area of response and frequency of stranding events.
2. Equipment List. The prospective Participant should demonstrate they have and maintain equipment appropriate to dead animal stranding response – i.e., for dead animal response the equipment list should at least include items necessary for Level A data collection.

3.2 Qualifications for Article III Authorization

1. Key personnel should have experience or comparable training to collect Level A data and if possible to collect Level B data (i.e., complete necropsy). Requests should address key personnel qualifications as follows:
   a. Experience conducting or observing complete necropsies [on a minimum of six marine mammals with at least three of those necropsies on Code 2 animals.][(2)]
   b. Ability to identify species of marine mammals in the field (Code 2).
   c. Ability to accurately identify code condition of marine mammals in the field (Code 1-5).
   d. Ability to obtain accurate Level A stranding data and if possible, to conduct basic tissue sample (Level B) collection.
   e. Knowledge and experience complying with Level A data reporting requirements.

f. Knowledge and experience complying with sampling protocols, sample processing, and shipping procedures.
g. Knowledge of marine mammal anatomy and physiology.
h. Knowledge of human health and safety precautions including potential zoonotic marine mammal disease.
i. Knowledge of state and local disposal policies and rules.

4. Evaluation Criteria for First Response, Triage, and Transport of Live Stranded Marine Mammals (Article IV Authorization) (1)

In addition to criteria in sections I and II, prospective Participants proposing to conduct response to live stranded marine mammals should provide information that shows the Participant's plan for implementing Article IV of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful.

4.1 Information for Article IV Authorization

Key Personnel. The prospective Participant should have and maintain one Authorized Representative and at least two **Primary Responders** all with experience in marine mammal stranding response, triage, transport, and/or euthanasia, at least one of whom will be on-site or supervising when animals are being examined or handled and is responsible for the day to day operations (i.e., paid and unpaid staff)**.** The **Authorized Representative** has signatory authority for the stranding organization and may be the signatory of the stranding agreement (e.g., Executive Director, President, CEO, etc.).

1. Additional personnel may be necessary, commensurate with the proposed geographic area of response.

2. Veterinary Support. The prospective Participant should identify an attending veterinarian and identify at least one backup veterinarian or have a contingency plan for when the attending veterinarian is not available. Requests should provide documentation of the veterinarian's experience (e.g., CV, certificates, licenses, etc.).

4.2 Qualifications for Article IV Authorization

Requests should address key personnel and veterinarian qualifications as follows:

1. Key personnel should have experience or comparable training in all aspects of live animal response:
   a. Experience responding to a minimum of [five] live marine mammal stranding events (note: a mass stranding is considered to be one event).(2)
   b. Experience providing triage and/or transport for a minimum of [three] live stranded marine mammals during separate stranding events.(2)
   c. Knowledge and experience monitoring marine mammal vital signs.

   d. Ability to assess the condition of stranded marine mammals and make recommendations concerning immediate release, rehabilitation, or euthanasia.
   e. Ability to accurately identify species of marine mammals in field conditions.
   f. Experience responding to at least one mass stranding event (preferred but not required).[(2)]
   g. Ability to [draw blood and] make basic measurements (e.g., length).
   h. Ability to tag a marine mammal (e.g., for situations that involve immediate release following assessment).
   i. Ability to communicate professionally with other members of the Stranding Network and take direction from NMFS and other on-site coordinators.

2. Attending veterinarians should meet the following criteria:
   a. Be on-call 24-hours.
   b. Knowledge and demonstrated experience in monitoring marine mammal vital signs.
   c. Ability to assess the condition of stranded marine mammals and make recommendations concerning immediate release, rehabilitation, or euthanasia.
   d. Ability to draw blood from a marine mammal.
   e. Have the appropriate registrations and licenses (e.g., registered with the Drug Enforcement Administration for handling controlled substances) to obtain the necessary medications and euthanasia drugs.
   f. Ability to perform humane euthanasia on marine mammals.
   g. Demonstrated familiarity with marine mammal triage and transport.
   h. Access to a list of veterinarians with marine mammal expertise to consult with if needed.
   i. Compliance with any applicable state requirements for veterinary practice on stranded marine mammals.
3. The prospective Participant should demonstrate knowledge of national, state, and local/municipal laws relating to live animal response.
4. The prospective Participant should have provisions for, and willingness to conduct, humane euthanasia as necessary and appropriate.
5. Equipment List. The prospective Participant should have and maintain equipment appropriate to live stranding response, i.e., those items necessary for triage, transport, and/or euthanasia. A complete list of equipment available shall be provided by the prospective Participant.

5. Evaluation Criteria for Rehabilitation and Release of Live Stranded Marine Mammals (Article V Authorization)[1,3]

In addition to the criteria in sections II, III, and IV (if applicable), Participants requesting authorization to conduct rehabilitation of marine mammals should provide information that shows the Participant's plan for implementing Article V of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful. The NMFS document, *"Policies and Best Practices: Standards for Rehabilitation Facilities,"* provides additional detailed guidance for preparing Stranding Agreement requests. This document can be found at http://www.nmfs.noaa.gov/pr/health/eis.htm. Facility operations should be consistent with applicable NMFS policies, guidelines, directives, regulations, and other applicable State and Federal policies, guidelines, directives, regulations, and laws.

5.1 Information for Article V Authorization

The prospective Participant should provide information on the following:

1. Facility Capabilities and Procedures. This should include, but not be limited to:
    a. Information on facilities.
        i. Pool type (or housing/pool for pinnipeds) design, description, and dimensions.
        ii. Type of available shelter and/or shading.
        iii. Maximum holding capacity. Description of facility's maximum holding capacity based on minimum standard space requirements and number of animals housed in each holding area and the availability of qualified personnel as provided in the NMFS document, *"Policies and Best Practices: Standards for Rehabilitation Facilities"*.
        iv. Water Quality. Description of water, source, quality, and how it is maintained, including how water is tested and frequency of tests.
        v. How the facility/rehabilitation area is secured from public access.
        vi. Provisions for isolating marine mammals.
        vii. How other wild and/or domestic animals will be kept isolated from marine mammals.
        viii. How animals will be quarantined if necessary.

b. Information on procedures for:

i. Food handling and sanitation.

ii. Human health and safety throughout the rehabilitation facility.

iii. How medical, husbandry, and other relevant records will be maintained for each animal. Samples of record forms are helpful.

iv. Efforts to reduce disease transmission.

v. Humane animal care, routine medical procedures, and euthanasia.

c. Key Personnel. The prospective Participant should have and maintain one **Authorized Representative** and two primary animal care specialists, all with experience in marine mammal care and rehabilitation. One of these personnel should fulfill the role of the **Animal Care Supervisor** whom is responsible for overseeing prescribed treatments, maintaining hospital equipment, and controlling drug supplies. The person should be adequately trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the animal care supervisor should communicate frequently and directly with the attending veterinarian to ensure that there is a timely transfer of accurate information about medical issues. Ideally, this individual should be a licensed veterinary technician or an animal health technician who reports to, or is responsible to, the attending veterinarian. Additional personnel may be necessary, commensurate with the maximum holding capacity. Information regarding key personnel should also include:

i. Overview of staffing plan and capabilities for the rehabilitation facility (e.g., veterinarian technicians, food preparation, record keeping, volunteer/shift coordination, equipment, pool maintenance, etc.).

ii. Description of on-site experienced personnel who are caring for the animals, including resumes or CVs of all key personnel and documentation of relevant training.

iii. Description of how new personnel and volunteers are trained and monitored.

iv. Veterinary Support. The prospective Participant should identify an attending veterinarian and identify at least one backup veterinarian for when the attending veterinarian is not available. Requests should provide documentation of the veterinarian's background, experience, and licensing.

2. Contingency Plans. A copy of contingency plans for protecting or relocating marine mammals in rehabilitation in case of events such as hurricanes or other natural disasters, unusual mortality events, hazardous waste spills, fire, or planned events such as construction.
3. Copies of all applicable Federal, state, and local permits for rehabilitation facilities.
4. General plans for release and post-release monitoring of marine mammals in rehabilitation, including:
    i. How animals will be assessed for release determinations and who makes the assessment.
    ii. How the prospective Participant will follow the NMFS Interim Standards for Release of Rehabilitated Marine Mammals (available on the following website: http://www.nmfs.noaa.gov/pr/health/eis.htm).
    iii. How prospective Participant will conduct tagging, release, and post-release monitoring.
5. Resources. Sufficient physical and financial resources to maintain appropriate animal care for the duration of rehabilitation, including costs associated with release (e.g., long term rehabilitation, transport to release site, post release monitoring) or transport to another facility.

5.2 Qualifications for Article V Authorization

Requests should be evaluated based on the following:

1. Key personnel should have experience or comparable training in all aspects of marine mammal rehabilitation. Requests should address key personnel qualifications for each evaluation criteria below:
    a. Experience or education leading to an understanding of the life history, behavior, biology, physiology, and animal husbandry of applicable marine mammals.
    b. Familiarity with NMFS Interim Rehabilitation Standards, NMFS Interim Standards for Release of Rehabilitated Marine Mammals, and applicable regulations.
    c. Experience in a supervisory role rehabilitating a minimum of three separate rehabilitation cases (Note: Multiple animals in rehabilitation from a mass stranding are considered to be one case).
    d. Ability to humanely restrain a marine mammal to conduct basic medical procedures such as: drawing blood from at least two sites, taking fecal, gastric, blowhole/nasal samples, morphometrics, weighing, injections, and tubing.

e. Experience maintaining and operating a facility/pool for marine mammal care, including familiarity with maintaining proper water quality.
f. Ability to supervise and coordinate on-site personnel and volunteers.
g. Ability to conduct necropsies.
h. Experience with record keeping, such as food intake records, daily behavioral records, medical records, and water quality records (e.g., water temperature, salinity, etc.).
i. Knowledge of how to design and conduct a behavior ethogram (preferred but not required).

2. Attending veterinarians should meet the following criteria:
   a. Have an active veterinary license in the United States (means a person who has graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates), or has received equivalent formal education as determined by NMFS Administrator (adapted from the Animal Welfare Act Regulations 9 CFR Ch. 1).
   b. Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).
   c. Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.
   d. Be available on a 24-hour basis to answer veterinary-related questions, and be available in case of an emergency.
   e. Ability to perform routine diagnostic and medical procedures on the type of marine mammal most often admitted to the rehabilitation facility (e.g., draw blood, give injections, etc).
   f. Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.
   g. [*Reserved*. {Have documented one-year clinical experience working with marine mammals, or have a written consulting agreement with an experienced marine mammal veterinarian, which assures availability of consultation when needed.}]
   h. Ability to conduct full necropsy on marine mammals.
   i. Have access to the most recent edition of the CRC “Handbook of Marine Mammal Medicine.”

j. Be familiar with and comply with the standards of veterinary care in the NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Standards for Rehabilitation Facilities.

k. Have the appropriate registrations and licenses (e.g., registered with the Drug Enforcement Administration for handling controlled substances) to obtain the necessary medications for the animals housed at that rehabilitation facility.

l. Be knowledgeable of species-specific pharmacology.

m. Have provisions for performance of humane euthanasia.

n. Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.

o. Be knowledgeable of marine mammal zoonotic diseases and appropriate safety precautions.

3. A trained volunteer base sufficient to initiate and maintain adequate and appropriate marine mammal care and husbandry and implementation of veterinary direction.
4. Knowledge of national, state, and local laws relating to live animal rehabilitation.
5. Familiarity with, and a copy of, the most current version of the NMFS Interim Rehabilitation Facility Standards and Interim Standards for Release of Marine Mammals.

6. Evaluation Criteria for Designee Organizations

The purpose of a Designee organization is to assist the Participant with sub-region coordination, response, and/or rehabilitation capability within the Participant's geographic area of responsibility and under the Participant's oversight. If a Participant is proposing oversight of a Designee organization(s), the Participant [must] should provide evidence that the Designee organization has the skills, resources, and organizational capability to respond to dead/live stranded marine mammals [or rehabilitate marine mammals]. In some cases, it may not be possible for each proposed Designee organization to meet all of the evaluation criteria listed below. If this is the case, NMFS needs written assurance and details specifying how the prospective Participant will take responsibility for fulfilling specific qualifications lacking for the Designee organization.

6.1 Information for Designee Organizations for Articles III, IV, and V

1. For each proposed Designee organization, the Participant should provide the same information required in sections II through V.
2. Justification for Designee. The Participant should submit a justification for the geographic need, and enhancement of response capabilities provided by the Designee organization to the Participant.
3. Copy of a written and signed Agreement between the Participant and the Designee that includes a statement that the Designee organization has read and agreed to the terms of the Participants current Stranding Agreement.

6.2 Qualifications for Designee Organizations for Articles III, IV, and V

1. Each proposed Designee organization will be evaluated according to the same required qualifications listed in sections II through V.

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FINAL

POLICIES AND BEST PRACTICES

MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

STANDARDS FOR REHABILITATION FACILITIES

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February 2009

Standards for Rehabilitation Facilities

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Introduction

As part of the National Marine Fisheries Service (NMFS) Stranding Agreements, the Agency will require that all rehabilitation facilities meet the Minimum Standards presented in this document. The goal of this document is to set **MINIMUM** facility, husbandry, and veterinary standards for rehabilitating marine mammals in order to meet the prescribed NMFS Best Practices Marine Mammal Stranding Response, Rehabilitation, and Release - Standards for Release. Likewise some of the standards put forth in this document are based on the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) Animal Welfare Act (AWA) regulations which define minimum standards for permanent captive marine mammals. However, there are some differences between the two documents in that these standards were developed for temporary care and all age groups. **RECOMMENDED** Standards are included in some sections, and consist of facility design and operational suggestions for optimizing the rehabilitation success rate. Meeting or exceeding the recommended standards may be considered a goal to strive towards when upgrading existing, or designing new facilities or protocols.

It is the intent of NMFS to provide a reasonable process for facilities to be upgraded to meet the minimum standards set forth in this document. Substandard facilities may be improved using funds that may be available through the John H. Prescott Rescue Assistance Grant Program (Prescott Grant). Likewise Prescott Grant funds may also be used to improve facilities that meet minimum standards with the goal to achieve or exceed the recommended standards.

Health and safety practices are highly stressed in this document. NMFS expects that all personnel and volunteers to be trained to the HIGHEST LEVEL of responsibility they are assigned. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

Purpose

The purpose of rehabilitation is to provide humane care for stranded marine mammals and to optimize the success of releasing the animals back to the wild. Defining a successful release encompasses many factors. As mandated by Title IV Section 402 (a) of the Marine Mammal Protection Act, NMFS has developed guidance and criteria for release based on optimizing the chances for survival and minimizing the risk to wild populations *(NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*). These facility standards have been developed to achieve the goals set forth by the Standards for Release.

This document is organized by taxa similar to the Standards for Release. While many aspects of rehabilitating cetaceans and pinnipeds that are the same, there are likewise many significant differences. Water quality, pool space and design, and handling debilitated animals are examples of the bigger differences between facility design and equipment required for rehabilitation of these animals. Rehabilitation of cetaceans requires more expensive facilities, as there must be larger, deeper pools available, salt water systems, and more elaborate filtration in closed system situations. While some facilities have adequate equipment and personnel to rehabilitate pinnipeds, they may not meet the standards required for the rehabilitation of cetaceans. Having two sets of guidelines allows NMFS the flexibility of issuing agreements specific to the types of animals that may be rehabilitated at each facility.

1. Standards for Cetacean Rehabilitation Facilities

1.1 Facilities, Housing, and Space

Pools for stranded cetaceans must be appropriate for the basic needs of the animal including keeping the skin moist, to providing buoyancy, and aiding thermoregulation. Debilitated cetaceans often cannot swim and may require assistance when first introduced to a rehabilitation pool. Cetaceans arriving in a debilitated condition may have needs requiring smaller pools than those that are able to swim and dive upon arrival. Choice of pool size may be important and is case specific. Although chances of survival may be improved if animals capable of swimming are given larger space, deeper pools may make it more difficult and stressful to catch an animal for feeding, hydration, and treatment. Likewise with multiple strandings, grouping animals by size, ability to swim, species, and health status may improve overall survival rates. Placing the larger, more robust animals in separate pools or swimming areas away from the smaller, less dominant and/or more debilitated animals may enhance the success of the rehabilitation efforts for the weaker animals. Species of cetaceans known to be social in nature should be housed with other compatible species. Social compatibility should be considered an important part of appropriate housing. Animals should be closely monitored when introduced to a pool and carefully evaluated for social compatibility.

It is up to the attending veterinarian, as defined in Section 1.7, and experienced rehabilitation staff, to decide how to house the animal most appropriately based on their observations and physical examination.

Each animal admitted to a rehabilitation center should be placed in a quarantine holding area and have a full health evaluation performed by the attending veterinarian. Sufficient quarantine time should be allowed for results from tests and cultures to be evaluated before the animal is placed with animals that are apparently disease free. Cetaceans with evidence of infectious disease must be quarantined (See Section 1.4 Quarantine).

During multiple or unusual stranding situations such as hazardous waste spills, catastrophic weather events, toxic algal blooms, or other events leading to unusually high morbidity, rehabilitation center personnel may need to adjust the number of animals that would be normally housed in each pool, bay or ocean pen. The attending veterinarian is responsible for assuring that the number of animals housed in one pool or pen will be appropriate based on the situation. The number of animals housed should be determined not only by the amount of pool space and size of the animals, but also by the number of qualified personnel available on a per animal basis. The recommended number of

personnel to animals less than 250 kg is 3:1 for critical care cetaceans; 2: 1 - 4 once stabilized, and 1:4 when animals are eating regularly and no longer require regular handing. Larger critical care cetaceans will require more personnel per animal.

Unweaned neonate cetaceans shall not be admitted for rehabilitation without prior approval of NMFS. Unweaned cetaceans, once rehabilitated, are frequently not suitable for release or require stringent release criteria to ensure humane treatment and a successful outcome. A rehabilitation facility needs to thoughtfully consider these types of cases when developing overall facility goals and objectives. If the facility aims to rehabilitate neonatal and/or unweaned calves, then they need to discuss and seek concurrence with NMFS options for final disposition since most of these cases will be nonreleasable. These issues need to be researched, outlined and NMFS approved prior to admitting any cases. The plan should include options and criteria for release if appropriate (e.g., release with mother), considerations for permanent care, and euthanasia.

NMFS Regulation, U.S.C. 50 CFR 216.27(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR "is an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive." (See Section 1.13 Viewing).

1.1.1 Space Requirements for Pool, Bay, or Ocean Pens

MINIMUM STANDARD

- All pools or pens must be deep enough for animal(s) to float and submerge and shall be available for all rehabilitating cetaceans. The diameter and depth of the pool for critical care animals is at the discretion of the attending veterinarian.
- Pool depth for non-critical animals (animals able to swim unassisted) must equal one-half the body length or 0.9 meters (3 feet), whichever is greater.
- Pools shall have a minimum horizontal dimension (MHD) of 7.3 meters (24 feet) or two times the actual length of the largest species housed in the pool, whichever is greater.
- Animals housed longer than 6 months must be provided with pools at least 1.5 meters (5 feet) deep and must meet the USDA, APHIS AWA MHD standards unless otherwise directed by the attending veterinarian. This should be documented and justified with a signed veterinary statement in the medical records.

RECOMMENDED

- Pools shall have a depth equal to the body length or 1.8 meters (6 feet), whichever is greater.
- Pools shall have a minimum horizontal dimension of 9.0 meters (30 feet) or two times the average adult length of the largest species in the pool, whichever is greater.

1.1.2 Pool or Pen Design

Pools or pens designed to maximize the ease of handling, and to limit the amount of time the cetacean spends out of water for husbandry or veterinary procedures may help to decrease the stress of handling. Pools designed with a deep and a shallow end work well because the cetaceans may stay in the deep end while the pool level is dropped. The animal requiring treatment may be moved to the shallow end and immediately placed back in the deep end when the treatment has been completed. Pools equipped with a false bottom that can be lifted are ideal because the animal can be caught quickly without dropping the level of the pool water and the animal may be immediately returned to the pool once treatments have been completed. False bottoms in bay or ocean pens will facilitate capture, since there is no convenient way to drop the water level in those situations. Pools equipped with lift-bottoms and/or multi-level pools are recommended, however lift bottoms must be carefully designed when being retrofitted to existing pools.

Scoop-net or trampoline methods may also be used for capture, where a net is placed on the pool or pen bottom under the swimming animal and it is lifted by multiple personnel using tag lines. While this method is an inexpensive alternative to a false floor it may not be suitable for multiple or large animals.

New rehabilitation pools should be designed and constructed to minimize introduction of anthropogenic noise from life-support equipment or other sources. This can be accomplished through sloping of walls, insulation with soil or other materials around the sides of the pool and/or through isolation of noise-generating equipment. Existing pools that do not meet these specifications may be allowed, or a retrofit may be requested if the pools are substandard to the point of becoming an animal welfare issue.

MINIMUM STANDARD

- Any shape pool that meets minimum space standard
- Construction materials
    - Open water pens shall optimally be constructed of plastic or other rigid netting.

- If cotton or nylon netting material is used it must be small enough gage to prevent entanglement.

RECOMMENDED

- Pools with long axes that provide relief from constant turning while swimming
- Pools designed to promote good water circulation and to minimize anthropogenic noise.
- Single depth pool with false bottom that can be lifted

  OR
- Pool with a sloping bottom where the water level may be dropped in the shallow end to facilitate treatment

  OR
- Single or multi-depth pool with an adjoining "med pool' with a false bottom that can be lifted

  OR
- Ability to drop a pool in less than 2 hours and refill it to a "swimming level" in less than 30 minutes

1.1.3 Shelter, Shading, and Lighting

Rehabilitation facilities located where there is inclement weather need to provide shelter to rehabilitating animals that may be exposed to extreme heat or cold. Cetaceans held in rehabilitation facilities may not have normal activity levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from extreme cold.

Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions. Light provided in indoor facilities shall be of sufficient intensity to clearly illuminate the pool.

MINIMUM STANDARD

- Shade structures or shelters must be provided to animals when local climatic conditions could compromise the health of the animal noting that some cetaceans undergoing rehabilitation may be unable to swim, dive, or thermoregulate, thus requiring either shelter from the elements or shade.
- Shade structures, where necessary, shall be large enough to provide shade to at least 50% of the MHD surface area determined for the species held in the pool. MHD is defined as 7.3 meters (24 feet) or two times the actual length of the largest species housed in the pool, whichever is greater.

- Lighting should be appropriate for the species.

RECOMMENDED

- Full spectrum lights or a natural source of lighting for animals housed indoors.
- Removable or adjustable shade structures in pens that are easily cleaned and that provide more natural sunlight to animals that are swimming and diving normally.

1.1.4 Critical Care Animals and Calves

Debilitated and ill cetaceans are often sedentary and tend to float at the surface for long periods of time. Some are unable to swim and dive. Some may require support in order to stay afloat enough to breathe regularly. Young calves may be weak and require assistance. Support may be provided by floatation devices attached to the animal or rehabilitation personnel supporting the animal utilizing a variety of methods. A shallow area that allows the animal to rest on the bottom while keeping its blowhole above the surface may also suffice. This shallow resting shelf must be of sufficient depth for larger animals (over 50 kg) to provide adequate buoyancy to prevent organ-crushing. Small cetaceans may also be supported in a stretcher that is hung within an open aluminum frame while maintaining the water depth at the midline of the animal. These animals must be protected from sun-related skin damage by providing them with shade or covering their exposed skin with an appropriate, non-desiccating sun block that allows proper thermoregulation. Exposed skin may be protected from desiccation with the use of emollients applied to the skin or a water spray.

MINIMUM STANDARD

- Ensure support is available via floatation devices, a shallow resting shelf, sloping beach, suspended stretcher system, or other support for critically ill or neonatal cetaceans that are weak and/or cannot swim normally.
- Monitor animals requiring support.
- Provide sufficient shade.
- Provide a water spray or method for keeping skin moist for cetaceans that cannot swim or dive.
- Control air temperature above the pool to facilitate recovery, protect rehabilitating animals from heat or cold extremes, and prevent discomfort. This may be achieved by heating or cooling the water appropriately for the species and condition of the animal and/or providing shelter from the elements.

1.1.5 Number of Animals Housed in Each Pool/Pen

During multiple or unusual mortality event (UME) strandings the number of cetaceans received by the facility is limited not only by the number and size of the holding pools or pens, but the number of qualified trained rehabilitation staff members available to care for the animals. Due to the intensive 24 hour assistance required for critical care cetaceans, a minimum of two qualified trained staff members are necessary for each and every dependent cetacean on the premises. The maximum number of animals maintained in each pool and onsite at the facility shall be determined by the attending veterinarian and dictated by the number of qualified staff available to care for the animals.

MINIMUM STANDARD

- Provide enough pool space for each animal to swim, dive, and maintain an individual distance of one body length from other animals housed in the same pool.
- Provide 2 qualified trained rehabilitation staff members for every critical care or dependent cetacean weighing less than 250 kg. Larger critical care cetaceans will require more personnel to handle each animal.
- Staff must be available on a 24-hour basis for critical animal care.
- Provide one trained staff member for every 3-4 cetaceans undergoing less critical periods of rehabilitation; during reconditioning or during counter-conditioning if training or desensitization was used for feeding stations, medical procedure desensitization or transport approximations.
- Provide one trained staff member for every five cetaceans that are eating regularly and do not require handling.

RECOMMENDED

- Provide enough pools or pool space to house multiple animals in accordance with the calculated space outlined in the APHIS AWA standards for captive cetaceans.
- Provide three qualified trained rehabilitation staff members for every critical care or dependent cetacean.
- Provide two trained staff members for every 1 – 4 cetaceans undergoing less critical periods of rehabilitation; during reconditioning; or prior to reintroduction.

1.1.6 Housekeeping

MINIMUM STANDARD

- Keep support buildings and grounds as well as areas surrounding rehabilitation pools clean and in good repair.
- Maintain perimeter fences in good repair, and ensure they are an adequate height and construction to keep people, animals, and pests out.
- Ensure primary enclosures housing marine mammals do not have any loose objects, sharp projections, and/or edges which may cause injury or trauma to the marine mammals contained therein.
- Objects introduced as environmental enrichment must be too large to swallow and made of non porous cleanable material that is able to be disinfected. Likewise items such as rub ropes shall be secured to prevent entanglement.
- All drains and overflows must have screened covers.
- Ensure there are no holes or gaps larger than ½ the size of the head diameter of the calf of the smallest species to be housed.

RECOMMENDED

- Coat all pool and haul-out surfaces with a non-porous, non-toxic, non-degradable cleanable material that is able to be disinfected.

1.1.7 Pest Control

MINIMUM STANDARD

- Establish and maintain a safe and effective program for the control of insects, avian and mammalian pests. This should include physical barriers to prevent feral and/or wild animals from contact with the rehabilitating animals.
- Insecticides or other such chemical agents shall not be applied in a primary enclosure housing marine mammals or a food preparation area except as authorized in writing by the attending veterinarian.
- If applied, all appropriate measures must be taken to prevent direct contact with the insecticide/pesticide, whether airborne or waterborne, by the animal.

1.1.8 Security for Facility

Stranded marine mammals often attract public attention and must be protected from excessive commotion and public contact. Ensuring a quiet stress-free environment for rehabilitating animals may improve their chance to recover and survive. Public viewing of marine mammals is discussed in Section 1.13 of this document.

MINIMUM STANDARD

- Locate rehabilitation facilities at sites that have the ability to be secured from the public.
- Prevent direct public contact with the rehabilitating animals but utilizing appropriate fencing, staff and security personnel.

RECOMMENDED

- Maintain 24- hour monitoring when animals are present or maintain a secure perimeter fence with the ability to lock the area off to the public when staff is not present.

1.2 Water Quality

Water quality is an essential part of keeping cetaceans healthy. Sick or debilitated cetaceans should be housed in pools filled with clean, appropriately treated saltwater to facilitate their recovery.

There are four basic types of water systems:

- Pools with filtration systems (closed systems)
- Pools without filtration systems (dump and fill systems)
- Pools with periodic influx of natural seawater (semi-open systems)
- Open water systems (flow-through pools, bay or sea pens)

There are a number of variables which will affect water quality. The number and size of cetaceans utilizing each pool will vary throughout the year at most rehabilitation facilities. During unusual stranding events the number of cetaceans utilizing one pool may increase dramatically, creating a heavier load of waste which must be handled by the filtration system in closed systems and by the amount of water flow-through in semi-open and open systems.

Filtration or life support systems are essential to maintaining clean water for animals held in closed or semi-closed systems. Life support systems have three basic parts; mechanical filters that remove solids, biological filters or baffles to remove or detoxify chemicals in the water, and disinfecting

methods to control or remove pathogens. In addition to maintaining clean water in the animal pools, these systems may be needed to treat waste water, depending on waste water disposal requirements. If a temporary increase in waste production overwhelms part or all of the life support system, a good water quality control program will require alternative options.

The source of water used in closed systems generally is fresh water obtained from municipal sources whereas water in open and semi-open systems comes from a bay or sea source. Municipal fresh water must have salt added to increase the salinity to appropriate levels to maintain cetaceans. Water in closed systems must be regularly filtered through sand and gravel filters to remove particulate matter, and disinfectants such as chlorine or bromine are added at appropriate levels to eliminate pathogens. More elaborate systems utilize ozone to oxidize pathogens in the water. The source should be independent of other rehabilitation and captive animal areas.

Factors that affect water quality are:

- Size of pool or pen
- Efficiency of filtration system or water flow-through rate (tides)
- Water turnover rate
- Number, size and species of animals housed in pool or pen
- Nature and amount of food consumed by animals in pool or pen
- Nature of bottom substrate
- Frequency of cleaning the pool
- Types, amounts, and the frequency with which chemicals are added to the system
- Temperature of the water
- Pathogens in the water
- Biotoxins in open water pens or in pools where the source water comes from the ocean or bay
- Contaminants (oil, pesticides, etc.) in open water pens
- Hazardous waste spills
- Inclement weather
- Sunlight contributing to algae production on pool surfaces, which in turn can support bacteria.

1.2.1 Source and Disposal of Water

The water source for cetaceans housed in closed or semi-closed systems may be municipal water, well water, or water brought into the facility from an adjacent body of water or estuary. The source should be independent of other rehabilitation and captive animal areas.

MINIMUM STANDARD

- Salt water must be readily available to fill pools housing rehabilitating cetaceans unless otherwise directed by the attending veterinarian.
- Fresh water must be available to clean and wash down surrounding areas.
- For pools without adequate filtration systems, drain water from pools daily or as often as necessary to keep the pool water quality within acceptable limits.
- Discharge wastewater in accordance with state or local regulations. Facility managers must seek appropriate authorization to dispose of waste water. Documents of authorization or necessary permits must be kept on site as part of the administrative record and may be requested by NMFS as part of the NMFS Stranding Agreement.
- Chemicals, when necessary, shall be added in appropriate amounts to disinfect the water or adjust the pH, but not added in a manner that could cause harm or discomfort to the animals.
- Have contingency protocols describing how water quality will be maintained during periods of peak animal use.

RECOMMENDED

- Enough salt water must be available to completely fill pools within two hours of draining.
- Maintain a filtration system designed to optimize water quality in each holding pool and decrease water waste.

1.3 Water Quality Testing

It is important to test the water in which the animals live on a regular basis. Coliform bacterial counts are used to monitor the efficiency of the filtration system to eliminate potentially harmful bacteria. Coliform counts should be done at least once per week and more frequently if there are very large or multiple animals utilizing the pool. While coliform numbers may be described as Most Probable Number (MPN) per 100 ml, a more accurate method of measuring coliforms is to determine the total coliform count, or the fecal coliform count.

Temperature of the water is especially important if the animal lacks the ability to thermoregulate. Water may require heating or chilling to aid debilitated animals in their ability to maintain optimal body temperature. Water temperature regulation is not feasible in open water pens, but keeping track of the water temperature in sea pens may aid the staff in making husbandry decisions.

If coliform counts or the water temperature become too high in any system, measures must be taken to correct the problem in a timely manner. A partial-to-total water change may be necessary to correct the problem in a closed or semi-closed system. If the coliform counts are considered too high in sea or bay pens, efforts should be made to circulate clean sea water through the pens using pumps, paddles or other methods of moving water.

Chemicals added to the water may damage eyes and skin, therefore levels must be monitored daily. Emergency chemicals should be on hand such as sodium thiosulfate in case of the accidental hyperchlorination of a system. Salinity may also have an impact on the health of the skin and eyes, as well as the comfort level of the animal, and should be monitored regularly.

1.3.1 Water Quality Tests

MINIMUM STANDARD

- Measure coliform growth weekly.
- Total coliform counts must not exceed 500 per 100 ml or a MPN of 1000 coliform bacteria per 100 ml water. Fecal coliform counts are not to exceed 400 per 100 ml.
- If the above tests yield results that exceed the allowable bacterial count, then two subsequent samples must be taken to repeat the test(s) where the level(s) is/are exceeded. The second sample is to be taken immediately after the initial test result, while the third sample would be taken within 48 hours of the initial test.
- If the averaged value of the three test results still exceeds the allowable bacterial counts, the condition must be corrected immediately or the animals must be moved to a contingency facility.
- Maintain pH between 6.5 and 8.5.
- Maintain salinity between 24 - 35 ppt.
- Maintain the temperature of the water so that it falls within parameters appropriate for the species.
- Measure oxidant levels in systems which require use of a chemical disinfectant and/or ozone in the system (for closed systems).

RECOMMENDED

- Maintain pH between 7.2 and 8.2.
- Total Coliforms with blanks and controls, fecal Coliform, fecal Strep, and yeast count performed at least weekly.

1.3.2 Frequency of Testing in Closed, Semi-Open, or Open Systems

MINIMUM STANDARD

- Measure water temperature, pH, salinity, chemical additives (if applicable) daily in all pools.
- Measure coliform counts weekly; and more frequently at the discretion of the attending veterinarian.

RECOMMENDED

- If ozone systems are used, measure ozone levels regularly in the animal pools. Ozone levels shall not exceed 0.02 mg/liter.
- Test source and discharge water at least once per day or more frequently for "flow through" systems.
- Maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian or the animal care supervisor.

1.3.3 Chemical Additives

Total chlorine = Free chlorine + Combined chlorine.

MINIMUM STANDARD

- Maintain total chlorine below 1.5 ppm, where the combined chlorine shall not exceed 50% of the total chlorine
- All additives must be recorded
- pH may be adjusted chemically – for example – pH may be raised with sodium carbonate, or soda ash; or lowered with HCl or CO2; but not added in a manner that could cause harm or discomfort to the animals.
- Maintain Material Safety Data Sheet (MSDS) information and signage as well as appropriate handling equipment for the addition of chemicals.

1.3.4 Water Circulation

The amount of water turnover through the filtration system in a closed or semi-open system is important to maintain water quality by removing organic waste and particulate matter. Likewise the amount of water movement through an open water pen is also important in the maintenance of water quality. Generally, adequate tidal action will result in the equivalent of two complete water changes per day.

MINIMUM STANDARD

- Maintain sufficient turnover of water through the filtration system in closed or semi-open systems to keep the water quality at or above acceptable limits, with a minimum of two complete water changes per day.
- Ensure methods for moving water (water paddles, pumps, spray devices) are available to aerate and move water in open water pens with insufficient flow of tides or water through the enclosures. These methods should be sufficient to provide the equivalent of two water changes per day.

RECOMMENDED

- A minimum full water turnover rate of every four hours for each pool in closed or semi-open systems.

1.3.5 Salinity

Acceptable salinity levels are dependant on the species and condition of the cetacean and the duration of the stay. Most species of cetaceans require a salinity level greater than 24 ppt in order to maintain healthy skin and eyes. Occasionally the attending veterinarian may chose to house the cetacean in fresh or nearly fresh water for a period not exceeding 3 days. Reasons for maintaining cetaceans in fresh or brackish water should be noted in the veterinary record and signed by the veterinarian. Some species of cetacean are better adapted to live in brackish water and may do well in lower salinity levels than other species.

MINIMUM STANDARD

- Maintain salinity levels over 24 ppt unless a written veterinary plan calls for lower salinity levels, or if the animals are housed in sea pens nearby their resident range.

RECOMMENDED

- Ideal salinity levels should approach natural ocean salinity levels (30 – 33 ppt) but acceptable industry standards suggest maintaining cetaceans in water with salinity levels over 24 ppt.

1.3.6 pH

MINIMUM STANDARD

- Maintain pH in a range between 6.5 to 8.5.

RECOMMENDED

- Maintain pH between 7.2 –8.2.

1.3.7 Water Temperature

Many species of cetaceans are adapted to maintain normal body temperatures when living in a broad range of water temperatures. Healthy *Tursiops* have been housed successfully in water ranging from 50^{o} to 80^{o} F. Atlantic white-sided dolphins fail to thrive in water over 80^{o} F and North Atlantic harbor porpoise do best in 45 to 65^{o} F. Some warmer water species, such as a Vaquita, will require consistent warm water environments. It is therefore important to know if the species being rehabilitated comes from a polar, temperate or tropical climate. It is of equal importance to know the temperature range of water in their primary habitat. Young, underweight, and debilitated animals may also require warmer water than found in their primary habitat.

Cetaceans such as bottlenose dolphins adjust their blubber thickness seasonally in response to water temperature. This must be considered when readying rehabilitated animals for release. Therefore animals should be acclimated to an appropriate seasonal water temperature prior to release.

MINIMUM STANDARD

- Hold water temperatures within the normal seasonal habitat temperature range for the species under rehabilitation unless otherwise authorized by the attending veterinarian in writing.
- Provide methods to heat and maintain warm water environments for species that require it, or for debilitated individuals that are incapable of maintaining appropriate body temperature.
- Monitor the temperature of water being heated or cooled.
- Design water systems to minimize the chance of rehabilitating cetaceans from becoming hyperthermic or hypothermic.

RECOMMENDED

- Monitor blubber thickness ultrasonically.

1.4 Quarantine

Cetaceans brought to a rehabilitation facility have no medical history and may carry diseases communicable to other marine mammals, other animals, or humans. Likewise, these animals are often debilitated and may suffer from a variety of illnesses which may compromise their immune systems making them susceptible to diseases from other animals and/or the rehabilitation environment. Quarantine areas must be available and proper biosecurity protocols must be in place for all incoming animals at rehabilitation facilities.

Direct contact between the general public and cetaceans undergoing rehabilitation should be avoided because of the zoonotic risk from pathogens carried by marine mammals. There have been documented cases of Brucella, Erysipelothrix, and Blastomyces being passed from cetaceans to humans.

Listed on the following website are numerous other potentially zoonotic marine mammal pathogens (see *http://www.vetmed.ucdavis.edu/whc/mmz/*). See also: *2004 UC Davis Wildlife Health Center Report for the Marine Mammal Commission – Assessment of the Risk of Zoonotic Disease Transmission to Marine Mammal Workers and the Public: Survey of Occupational Risks.*

MINIMUM STANDARD

Maintain sufficient quarantine facilities and space for appropriate quarantine of incoming animals or for holding animals with contagious diseases.

1.4.1 Prevention of Animal to Animal Transmission of Diseases

- Quarantine all new animals in a separate dedicated quarantine area and provide pools that can be isolated with the use of dividers, tarps, or physical space from the rest of the animal housing areas.
- Have separate filtration and water flow systems for pools in quarantine/isolation areas.
- Use dedicated protective clothing for personnel.
- Use foot baths, glove baths, and methods to disinfect clothing, wet suits, or exposure suits between handling animals within quarantine area and outside of quarantine area.
- Maintain equipment and tools strictly dedicated to the quarantine areas.

- Provide dividers between pens and pools that prevent washdown or splash from moving from one pool to another.
- Provide sufficient space; ideally greater than 20 feet or 6 meters; or solid barriers between animal enclosures to prevent direct contact – including splashed pool water and airborne disease transmission.
- Ensure sufficient air turnover in indoor facilities to prevent transmission of disease. Air turnover should be enough to prevent build-up of heat or chemical fumes and provide a method of bringing fresh air into the facility. There should be sufficient venting or openings to allow movement of air throughout the facility.
- Implement specific quarantine and sanitation procedures to prevent transmission of disease through fomites (personnel, clothing, equipment).
- Thoroughly clean and disinfect buckets, hoses, scales, transport equipment, and cleaning equipment that is moved between animal areas to prevent transmission of pathogens via fomites.
- Place open water pens so effluent is not near water intake.
- Require evaluation and written veterinary approval before placing animals together after quarantine period has been met.

RECOMMENDED

- Provide separate air handling system in indoor facilities.
- Clean and disinfect quarantine pools between uses.

1.4.2 Prevention of Domestic Animal to Marine Mammal Transmission of Disease

- Ensure appropriate fencing and placement of holding pens prevents direct contact between rehabilitating cetaceans and domestic animals.
- Prohibit personal pets from entering the facility and facility grounds. Pets must stay outside the perimeter fence at all times.
- Place foot baths at the entry and exit of animal areas.
- Require quarantine and sanitation protocols are followed to prevent transmission of disease through fomites such as wet suits and equipment.

1.4.3 Prevention of Wild Animal to Marine Mammal Transmission of Disease

- Ensure perimeter fencing will prevent wildlife from entering the rehabilitation premises.
- Provide appropriate rodent and bird control on the premises. Ensure net pens and lagoon areas have sufficient secondary fencing to keep wildlife from coming in direct contact with the animals housed in the net pens.

1.4.4 Prevention of Marine Mammal to Domestic Animal Transmission of Disease

- Provide appropriate perimeter fencing.
- Require animal personnel to change contaminated clothing and/or disinfect before leaving the rehabilitation premises.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.

1.4.5 Prevention of Stranded Marine Mammal to Captive Marine Mammal Transmission of Disease

- Train volunteers and staff to follow appropriate quarantine protocols.
- Establish quarantine protocols that take into consideration the changing status of the stranded animal.
- Establish traffic flow so that volunteers or staff working with stranded animals do not inadvertently travel into a collection animal area.
- Establish decontamination protocols before volunteers or staff members exposed to stranded animals may enter a collection animal area.
- Establish separate restrooms, showers, changing rooms, food preparation areas, etc. for staff and volunteers working with rehabilitating vs. collection animals. Food for rehabilitating animals may be prepared in the collection animal kitchen and taken to the rehabilitation animal area, however any bucket, feed implement or other item must be thoroughly disinfected before it may return to the collection animal area.

1.4.6 Methods to Reduce Spread of Disease from Animals Housed in Open Sea/Bay Pen Systems

- Consideration of substrate, water depth and public access when selecting a site for a sea or bay pen.
- Placement of pens in a secluded area where wild animals and marine mammals are unlikely to come into direct contact with the animals housed in the sea/bay pens; nets should be sufficiently rigid to prevent entanglement by mammals or fish.
- Placing a second set of perimeter nets 10 meters from the sea/bay pens to prevent direct contact with wild marine mammals.
- Do not place sea/bay pens within 1000 meters of any major outflow of storm drains or sewage treatment plants and consider the flow direction or current from these major outflows.
- Place the sea/bay pens over 500 meters and downstream from water intake pipes that bring water into facilities that house marine mammals.
- Place pens in an area where there is ample flow-through of tides/currents.
- Ensure the pens are of sufficient size to minimize biomatter build-up. Each cetacean should be housed in a pen that has a minimum depth of half of their body length, and a minimum horizontal dimension of 24 feet or two full body lengths, whichever is greater.
- Avoid overcrowded pens. Animals may fight with each other when housed too closely together. Likewise they must be able to swim and dive normally to maintain optimal muscle condition.
- Have equipment to pump or aerate the water in pens that do not have sufficient tidal action to ensure a minimum of two complete water changes per day.
- Place pens in areas where there is sufficient depth to enhance water circulation and reduce pathogen build-up. Daily coliform testing will determine if pathogen build-up exists.
- Place quarantine pens such that tidal action or underwater currents will not flow through sea pens housing healthy animals.

1.4.7 Evaluation Requirements Before Placing Marine Mammals Together

- Complete blood count (CBC)/Chemistries, appropriate cultures, physical examination before moving animals out of quarantine area.
- Review current NMFS recommendations on diseases of concern (i.e. Morbillivirus) and reportable disease (i.e. Brucella and West Nile virus).

- Consider screening for morbillivirus, herpes virus, Brucella, Leptospira, and Toxoplasma utilizing the most current diagnostic tests available.
- If animals are part of a UME, then screening for diseases must be more thorough and in direct coordination with NMFS and through UME coordinators.
- Have contingency plan for animals that are carriers of or actively infected with reportable disease such as brucellosis, herpes virus, leptospirosis, toxoplasmosis, and morbillivirus.

1.4.8 Zoonotic Considerations

- Restrict public access and direct contact with cetaceans due to zoonosis potential and public health hazard of non-trained individuals interacting with sick and injured marine mammals.
- Train staff and personnel about how to prevent contracting zoonotic diseases (*Occupational and Safety Information for Marine Mammal Workers* http://www.vetmed.ucdavis.edu/whc/mmz/).
- Train staff and personnel working directly with stranded cetaceans how to recognize symptoms of zoonotic disease.
- Provide safety equipment such as protective clothing, eye protection and face masks.
- Provide eye flushing stations as used with hazardous materials (HAZMAT) or normal saline bottles to irrigate the eyes.
- Staff with open wounds shall not enter the pool of animals carrying potentially infectious diseases.
- Persons with disabilities, respiratory conditions, infectious diseases or infectious skin conditions shall not enter pools with rehabilitating cetaceans.
- Train staff the basics of sanitation and properly handling contaminated equipment.

1.4.9 Pre-Release Guidelines

- Pre-release health screens and serologic requirements are directed by the NMFS Regional Stranding Coordinator, in coordination with Marine Mammal Health and Stranding Response Program.

1.5 Sanitation

MINIMUM STANDARD

1.5.1 Primary Enclosure Sanitation

- Remove animal and food waste in areas other than the rehabilitation pool from the rehabilitation enclosure at least daily, and more often when necessary to prevent contamination of the marine mammals contained therein and to minimize disease hazards.
- Remove particulate animal and food waste from rehabilitation/exercise pools at least once daily, but as often as necessary to maintain water quality and to prevent increased health hazards to the marine mammals that use the pools.
- Remove trash and debris from pools as soon as it is noticed, to preclude ingestion or other harm to the animals.
- Clean the walls and bottom surfaces of the rehabilitation/exercise pools as often as necessary to maintain proper water quality.
- Prevent animals from coming in direct contact with disinfectants or aerosolized disinfectants from spray or cleaning hoses.

RECOMMENDED

- Empty and allow pools to dry once each year but dry and hyperchlorine pool bottoms and walls after each use by sick cetaceans.

1.5.2 Sanitation of Food Preparation Areas and Food Receptacles

- Use separate food preparation areas and supplies for rehabilitation vs. collection animals.
- Clean food containers such as buckets, tubs, and tanks, as well as utensils, such as knives and cutting boards, or any other equipment which has been used for holding, thawing or preparing food for marine mammals after each feeding with detergent and hot water and sanitize with an appropriate disinfectant approved for use in food areas at least once a day.
- Clean kitchens and other food handling areas where animal food is prepared after every use, and sanitize at least once weekly using standard accepted sanitation practices.
- Store substances such as cleaning and sanitizing agents, pesticides and other potentially toxic agents in properly labeled containers away from food preparation areas.
- Post MSDS “right to know” documents for staff utilizing cleaning and animal treatment chemicals and drugs.

1.6 Food, Handling, and Preparation

During rehabilitation food for marine mammals shall be wholesome, palatable, free from contamination, and of sufficient quantity and nutritive value to allow the recovery of the animals to a state of good health. Live fish may be fed during rehabilitation but preferences should be given to native prey species. Live fish may contain parasites which could infect compromised animals. Feeding regimens should simulate natural patterns in terms of frequency and quantity to the extent possible while following a prescribed course of medical treatment. Most cetaceans feed repeatedly during a given day.

1.6.1 Diets and Food Preparation

MINIMUM STANDARD

- Prepare the diets with consideration for age, species, condition, and size of marine mammals being fed.
- Feed cetaceans a minimum of three times a day, except as directed by a qualified veterinarian or when following professionally accepted practices.
- Diets reviewed by a nutritionist, attending veterinarian, or the animal care supervisor.
- Train staff to recognize good and bad fish quality.
- Feeding live fish may be required for release determination. See *NMFS /FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release* for more information regarding feeding live fish.
- Food receptacles should be cleaned and sanitized after each use. Food preparation and handling should be conducted so as to minimize bacterial or chemical contamination and to ensure the wholesomeness and nutritive value of the food.

RECOMMENDED

- Feeding patterns should simulate natural patterns in terms of frequency and quantity which may require food to be offered 5 – 10 times daily.

1.6.2 Food Storage and Thawing

MINIMUM STANDARD

- Frozen fish or other frozen food shall be stored in freezers which are maintained at a maximum temperature of 0º F (-18ºC).

- The length of time food is stored and the method of storage, as well as the thawing of frozen food should be conducted in a manner which will minimize contamination and which will assure that the food retains optimal nutritive value and wholesome quality until the time of feeding.
- Freezers should only contain fish for animal consumption. Human food or specimens should not be placed in the fish freezer.
- Experienced staff should inspect fish upon arrival to ensure there are no signs of previous thawing and re-freezing, and check temperature monitoring devices in the transport container. The fish shipment should be refused or the fish discarded if temperature fluctuations occurred during transport.
- Freezers shall be of sufficient size to allow for proper stock rotation.
- All foods shall be fed to the marine mammals within 24 hours following the removal of such foods from the freezers for thawing.
- If the food has been thawed under refrigeration it must be fed to marine mammals within 12 hours of complete thawing.
- When fish is thawed in standing or running water, the coldest available running water must be used to prevent excess bacterial growth.
- To ensure optimal quality of the fish, and to prevent bacterial overgrowth, do not allow fish to reach room temperature or sit in direct sunlight.
- The thawed fish shall be kept iced or refrigerated until a reasonable time before feeding. This time will vary with ambient temperature.
- Prepared formula should be fed immediately or refrigerated and fed to the marine mammals within 24 hours of preparation. Formula, once heated to an appropriate temperature for a feed, shall be discarded if it is not consumed within one hour.

RECOMMENDED

- Calculate kilocalories of each type of fish or food items fed to each animal daily.
- Conduct food analysis for protein, fat and water content of each lot of fish used.
- Culture the slime layer from the fish lot prior to thawing for *Erysipelothrix.*

1.6.3 Supplements

MINIMUM STANDARD

- Each animal shall receive appropriate vitamin supplementation which is sufficient and approved in writing by the attending veterinarian.

1.6.4 Feeding

MINIMUM STANDARD

- Food, when given to each marine mammal individually or in groups, must be given by personnel who have the necessary training and knowledge to assure that each marine mammal receives and eats an adequate quantity of food to maximize its recovery or maintain good health. Such personnel is required to recognize deviations in each animal being rehabilitated such that intake can be adjusted and/or supplemented accordingly.

1.6.5 Public Feeding

MINIMUM STANDARD

- Public feeding of animals that are being rehabilitated is **strictly** prohibited.
- Feeding must be conducted only by qualified, trained personnel.

1.6.6 Feed Records

MINIMUM STANDARD

- Maintain feed records on each individual animal noting the actual (not an estimate) individual daily consumption for each animal by specific food type.
- If non-critical animals are housed in groups and are broadcast-fed, then daily individual food consumption estimates are acceptable
- Weigh food before and after each feeding and the record the amount consumed.
- Obtain body weight or girth measurements at least weekly from debilitated easily-handled animals. Girth measurements are taken at the level of the axilla and the anterior insertion of the dorsal fin. Girth measurements are generally less stressful to obtain than weighing the animal.
- Girth measurements or body weight should be obtained as often as practical in the later stages of rehabilitation without causing undue stress to the animal.

1.7 Veterinary Medical Care

All rehabilitation facilities shall have an attending veterinarian. The attending veterinarian is critically involved in making decisions regarding medical care as well as housing and husbandry of resident and newly admitted patients.

1.7.1 Veterinary Experience

MINIMUM STANDARD

The attending veterinarian shall:

- Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).
- Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.
- Be available to examine animals on a regular schedule and emergency basis; daily if necessary.
- Be available to answer veterinary questions on a 24 hour basis.
- Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.
- Have an active veterinary license in the United States (means a person who has graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates), or has received equivalent formal education as determined by NMFS Administrator (adapted from the Animal Welfare Act Regulations 9 CFR Ch. 1).
- Have the skills to be able to draw blood from, and give injections to the species most commonly encountered at the rehabilitation center.
- Be available to examine animals immediately upon admittance to a facility.
- Be available to assess animals during a mass stranding directly or indirectly through trained and qualified primary responders.
- Have contingency plan for veterinary backup.
- Have the appropriate registrations and licenses (e.g., registered with the Drug Enforcement Administration for handling controlled substances) to obtain the necessary medications for the animals housed at that rehabilitation facility.
- Be able to conduct a full post-mortem examination on all species of cetaceans treated at the facility.
- Be knowledgeable and able to perform cetacean euthanasia.
- Be knowledgeable about species-specific pharmacology.

- Must certify in writing that animals are fit for transport.
- Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.
- Be knowledgeable of marine mammal zoonotic diseases.

RECOMMENDED

All of the above plus:

- Membership in the International Association for Aquatic Animal Medicine.
- Have access to a current version of the CRC "Handbook of Marine Mammal Medicine"
- Complete a course that offers basic medical training with marine mammals such as Seavet, Aquavet, or MARVET.
- Have a minimum of one year of clinical veterinary experience post graduation.
- Have at least one year clinical experience working with the marine mammal type(s) most frequently admitted to the rehabilitation facility
- Be full time employees or contracted veterinarian experienced in cetacean medicine at facilities managing an average of 5 live cetacean cases per year.

1.7.2 Veterinary Program

MINIMUM STANDARD

- Veterinary care for the animals must conform with any State Veterinary Practice Act or other laws governing veterinary medicine which applies to the state in which the facility is located.
- Standard operating procedures should be reviewed and initialed by the attending veterinarian or the animal care supervisor annually and/or whenever the document is changed or updated. This document may be reviewed by NMFS as part of the NMFS Stranding Agreement or as part of inspections.
- Staff caring for animals should be sufficiently trained to assist with veterinary procedures under the direction of the veterinarian and the rehabilitation facility should maintain at least one **Animal Care Supervisor** who is responsible for overseeing prescribed treatments, maintaining hospital equipment, and controlling drug supplies. The person should be adequately trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the animal care supervisor should communicate frequently

and directly with the attending veterinarian to ensure that there is a timely transfer of accurate information about medical issues.

- Veterinary decisions shall be based on "best practices" (i.e., based on informed opinions and expertise of veterinarians practicing marine mammal medicine).
- A schedule of veterinary care which includes a review of husbandry records, visual and physical examinations of the animals, and a visual inspection of the facilities should be implemented.
- A health and safety plan for the staff shall be written and accessible at all times. It shall be reviewed by the attending veterinarian or the animal care supervisor annually or as prescribed by the NMFS Stranding Agreement. Also, it may be beneficial to consult with an occupational health medical professional when developing these plans. All animal care staff will be familiar with the plan. The plan shall include protocols for managing bite wounds.

The following reports may be requested annually by NMFS as required under the NMFS Stranding Agreement or as a part of inspections:

- Standard Operating Procedure (SOP) reviews
- Health and Safety Plan reviews
- Animal acquisitions and dispositions
- National Oceanic and Atmospheric Administration (NOAA) Form 89864, Office of Management and Budget (OMB) #0648-0178 (Level A data)
- NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report)
- Case summaries for any rehabilitation performed at a facility, including narrative descriptions of the cases as well as spreadsheets of treatments, blood values, etc.

1.8 Laboratory Tests and Frequency of Testing

Specific requirements for tests will be issued by the NMFS stranding coordinator (or UME Onsite Coordinator) in each region as outlined in the Marine Mammal Health and Stranding Response Program for release determinations, surveillance programs and UME investigations. Routine diagnostic sampling and testing protocols will be determined by the attending veterinarian. NMFS must be provided adequate time and information including a veterinary certificate of health before an animal is released as directed in 50 CFR 216.27 (see *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*).

1.8.1 Laboratory Testing

MINIMUM STANDARD

- CBC/Serum Chemistry- For most cases, all animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry; upon admission and prior to release (see *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*). If duration of rehabilitation is shorter than a week, one blood workup may suffice and is at the attending veterinarian's discretion.
- Fecal analysis for parasites - Fecal tests for parasites shall be run upon admission of each animal at the discretion of the attending veterinarian.
- Serology as necessary for release determination based on direction of the NMFS stranding coordinator and the Marine Mammal Health and Stranding Program and for additional clinical diagnosis as deemed appropriate by the attending veterinarian.
- The administration of drugs with potential adverse side-effects may require additional testing. For example, the use of ototoxic antibiotics may require subsequent testing of hearing abilities of the animal prior to consideration for release.
- The attending veterinarian or a trained staff member shall perform a necropsy on every animal that dies within 24 hours of death if feasible. If necropsy is to be performed at a later date (ideally no longer than 72 hours postmortem), the carcass should be stored appropriately to delay tissue decomposition.
- Carcass disposal shall be handled in a manner consistent with local and state regulations.
- Perform histopathology on select tissues from each animal that dies at the discretion of the attending veterinarian. A complete set of all major tissues should be evaluated if the animal dies of an apparent infectious disease process.
- Culture and other diagnostic sampling shall be conducted as directed by the attending veterinarian to determine the cause of stranding or death.
- Contact NMFS for additional laboratory test requirements in all cases of unusual mortality outbreaks or disease outbreaks. More complete testing may be required for diseases of concern.
- For cases involving release decisions, unusual mortality investigations, or surveillance programs, serologic assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations. Guidance will be provided by the NMFS Stranding Coordinators or UME Onsite Coordinator.

- Notify the NMFS Stranding Coordinator of learning of any diseases of concern (e.g., emerging, reportable, and/or zoonotic diseases) that are detected and/or confirmed that could be a potential hazard for public health or animal health (NMFS will provide guidance on reportable diseases as it becomes available).
- NMFS must be provided adequate time and information (including veterinary certificate of health) before the animal is released in all cases as directed in 50 CFR 216.27 (see NMFS Standards for Release). This information is required under 50 CFR 216.27(a) and must be submitted 15 days prior to release unless advanced notice is waived by the NMFS Regional Administrator. Guidance on the waivers is provided in the *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release.*

RECOMMENDED

- Complete necropsy performed by the attending veterinarian or a pathologist within 24 hours of death.
- Full histopathology done on tissues from each animal that dies of apparent infectious disease.
- Bank 1cc of serum per blood draw in –80^{o} F freezer.
- Bank heparinized plasma (green top) tube in –80 ^{o} F one per animal.
- Reproductive status shall be evaluated upon admission and prior to release through analysis of serum progesterone and estrogen levels in females, and testosterone in males. Elevated hormone values in females upon admission will require re-sampling within the first two weeks to assess pregnancy. Monitoring by means of monthly blood sample collection and analysis through the course of rehabilitation is strongly advised. If possible, sampling will be done in conjunction with ultrasonic examination of reproductive tracts.

1.9 Record Keeping and Data Collection

Record keeping is an essential part of the rehabilitation process. Not only do accurate and complete medical records for each stranded cetacean allow the staff to provide consistent and optimal care for each animal, but retrospective records help scientists and veterinarians to make better evaluations on how to treat individuals.

1.9.1 Record Keeping

MINIMUM STANDARD

- Record and report the "Marine Mammal Stranding Report - Level "A".

- Complete the require NMFS Marine Mammal Rehabilitation Disposition Report NOAA 89-878, OMB #0648-0178.as in accordance with the NMFS Stranding Agreement
- Maintain and update individual medical records daily on each animal at the rehabilitation center.
- Individually identify each animal with unique field number.
- Keep an accurate description of the animal, including identification/tag number, date and location of stranding, sex, weight, and length at stranding.
- Subjective, objective, assessment and plan (SOAP) based records are preferred.
- Include food intake and medication administered to each animal in the daily records.
- Weight
    a. Recorded weekly for underweight cetacean calves or as authorized in writing by the attending veterinarian.
    b. Taken as often as possible for underweight animals without causing undue stress to the animal.
    c. Recorded on admission and prior to release for larger cetaceans.
- Measure body weight, girths (axilla and anterior insertion of the dorsal fin) and standard straight-line and length upon admission, and within one week of release/placement.
- Measure blubber thickness (ultrasonically) at standard sites upon admission, and monitor monthly throughout the course of rehabilitation, with a goal of matching blubber to seasonal water temperatures.
- Weigh the animal as practical, keeping in mind that obtaining the weight of the animal may be stressful.
- Record all treatments, blood work, test and results and daily observations in the medical records.
- Maintain individual medical records for each animal. Medical records remain on site where the animal is housed and are available for NMFS on site review upon request as stated in the NMFS Stranding Agreement.
- Maintain medical records in an accessible format on site for a minimum of 15 years.
- Maintain up to date water quality records for a minimum of two years.
- Maintain life support system maintenance records.
- Maintain records of water quality additives.

RECOMMENDED

- Full set of standard morphometrics prior to release.
- Photographic documentation, identifying marks, lesions.

- Caloric value of daily food intake calculated and recorded for each animal each day
- Daily weight of calves or emaciated animals at the discretion of the attending veterinarian.
- Maintain food acquisition and analysis records.
- Maintain "paper copy" archive of required NMFS records.

1.9.2 Data Collection

MINIMUM STANDARD

- Written documentation of the medical history, food and observation records must be kept.
- NMFS Required Forms to be completed in writing or submitted electronically in the NMFS National Marine Mammal Stranding Database as prescribed in the NMFS Stranding Agreement:
  a. Marine Mammal Stranding Report – Level A (NOAA 89-864, OMB #0648-0178)
  b. Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)

RECOMMENDED

- Computerized documentation with hard copies.
- Ability to network with other institutions.
- Maintain real-time accessible compiled comparative data.

1.10 Euthanasia Protocols

MINIMUM STANDARD

- Each institution must have a written euthanasia protocol signed by the attending veterinarian.
- Persons administering the euthanasia must be knowledgeable and trained to perform the procedure.
- Maintain a list of individuals authorized to perform euthanasia signed by the veterinarian.
- Euthanasia shall be performed in a way to minimize distress in the animal.
- Refer to resources such as the American Veterinary Medical Association Panel Report on Euthanasia, the CRC Press Handbook of Marine Mammal Medicine and American Association for Zoo Veterinarians Guidelines for Euthanasia of Nondomestic Animals.
- Appropriate drugs for euthanasia in appropriate amounts for the largest species admitted to the facility shall be maintained in stock on site in an appropriate lockbox or under the control of a licensed veterinarian with a current Drug Enforcement Administration (DEA) license.
- Drugs for euthanasia shall be kept with an accurate inventory system in place.

- DEA laws and regulations and any applicable State Veterinary Practice Acts must be followed when using controlled drugs.
- NMFS may request this information (protocols and DEA number) as part of the NMFS Stranding Agreement.

1.11 Health and Safety Plans for Personnel

There shall be a health and safety plan on site at each rehabilitation facility that identifies all health and safety issues that may be factors when working closely with wild marine mammals. The plan should identify all potential zoonotic diseases as well as including safety plans for the direct handling of all species and sizes of cetaceans seen at that facility. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

MINIMUM STANDARD

- Identify all potential zoonotic diseases in a written document available to all personnel.
- Include safety plans for the direct handling of all species and sizes of cetaceans seen at that facility.
- Include safety plan for dealing with handling any untreated discharge water.

1.12 Contingency Plans

Contingency plans shall be in place at each facility and may be required by NMFS as part of the NMFS Stranding Agreement. NMFS may require approved variances or waivers prior to planned projects such as construction, and NMFS may not allow rehabilitation efforts to occur under some circumstances. These plans should addresses in detail the operation of the facility and care of the animals under the following conditions:

- Inclement weather plan, including a hurricane/big storm plans where appropriate.
- Construction in the vicinity of the animal rehabilitation pools recognizing the potential and documented adverse impacts of construction on cetaceans, and including specific reference to how noise, dust, debris, and construction worker access will be controlled, how and how frequently animal health will be monitored, and specific criteria for when construction shall be halted or the animals will be moved to another site out of the construction area if the animals appear to be adversely impacted.
- Power outages, including plans of how to maintain frozen fish stores and life support systems.

- Water shortages.
- "Acts of God" plan which may include floods, earthquakes, hurricanes or other unpredictable problems known to occur on occasion in the region where the facility is located.

1.13 Viewing

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is "an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive". Only remote public viewing or distance viewing should be allowed and only when there is no possible impact of the public viewing on the animals being rehabilitated. There is a regulatory requirement for a variance or waiver by NMFS for facilities planning to offer public viewing of any marine mammal undergoing rehabilitation.

1.14 Training and Deconditioning Behaviors

Basic behavioral conditioning of wild cetaceans for husbandry and medical procedure may be warranted during rehabilitation as long as every effort is made to limit reinforced contact with humans. Such conditioning may reduce stress for the animal during exams and acquisition of biological samples. Conditioning may assist with appetite assessment and ensuring that each animal in a group receives the appropriate amount and type of diet and medications.

In some cases, extensive contact with humans, including training, may benefit resolution of the medical case by providing mental stimulation and behavioral enrichment, and may facilitate medical procedures. The relative costs and benefits of training should be evaluated by the attending veterinarian and animal care supervisor and the likelihood of contact with humans following release should be considered. Seeking advice from a qualified cetacean behaviorist (with at least 3 years of experience) may be beneficial.

Behavioral conditioning of cetaceans must be done for the shortest time necessary to achieve rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. If an animal has become accustomed to hand-feeding or boat-following, the animal may approach humans after release. Therefore, these behaviors should be deconditioned or counter-conditioned before the animals can be considered for release. Most behaviors will extinguish through lack of reinforcement, but some may require more concentrated efforts.

Training for research that is above and beyond the scope of normal rehabilitation practices can be approved on a case-by case basis under a NMFS scientific research permit. An exception can be made if the attending veterinarian, facility, and NMFS officials all agree that the research will not be detrimental to the animals' health and welfare and will not impede their ability to be successfully released back to the wild.

2. Standards for Pinniped Rehabilitation Facilities

2.1 Facilities, Housing, and Space

Pools for stranded pinnipeds must be appropriate for the basic needs of the animal including buoyancy and thermoregulation. Debilitated pinnipeds often cannot swim and will avoid water if offered, preferring a haul-out space to a pool. Pinnipeds arriving in a debilitated condition have different needs and may not require pools initially. If no pool is provided to the animal, means of keeping it wet and protected from direct sunlight is essential. The upper critical temperature of California sea lions is lower than most land-dwelling mammals at 24°C (75°F) and with limited thermoregulatory ability, they have special habitat needs in captivity. While dry sea lion coats absorb about 74% and wet California sea lion coats absorb almost 92% of all types of shortwave radiation respectively, a California sea lion with a wet coat exposed to direct sunlight could easily overheat on a hot day if there were no other method to cool the animal. (Langman *et al.*, 1996).

Social compatibility should be considered as a part of appropriate housing. Pinnipeds known to be social should be housed with compatible species whenever possible. Placing larger, more robust animals in separate pens, away from the smaller, weaker, or less dominant animals may enhance the success of the rehabilitation efforts for the weaker animals.

It is up to the attending veterinarian and experienced rehabilitation staff, to decide how to house the animal most appropriately based on their experience, observations, and physical examination.

Each animal admitted to a rehabilitation center should be placed in a quarantine holding area and have a full health evaluation performed by the attending veterinarian, Sufficient quarantine time should be allowed for results from tests and cultures to be evaluated before the animal is placed with animals that are apparently disease free. Pinnipeds with evidence of infectious disease must be held in separate areas from other rehabilitating animals to prevent transmission of disease. There should be sufficient isolation areas to accommodate incoming animals with evidence of disease utilizing methods to control aerosol and water-borne exposure to other on-site animals. (See Section 2.4 Quarantine).

During multiple or unusual stranding situations such as hazardous waste spills, catastrophic weather events, toxic algal blooms, or other events leading to unusually high morbidity or mortality, rehabilitation centers may need to adjust the number of animals that would be normally housed in each pen, pool, or bay or ocean pen. The attending veterinarian will be responsible for assuring that

numbers of animals housed in one pool or pen will be appropriate based on the situation. The number of qualified animal care personnel available to care for the animals could be a limiting factor on how many animals may be housed at each facility.

Care should be taken when hand rearing neonatal otariids, as some species frequently imprint on their caregivers rendering them unsuitable for release. A plan for placing animals in a permanent captive environment should be in place in advance for pinniped pups that are ultimately deemed unreleasable.

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is "an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive" (See Section 2.13 Viewing).

2.1.1 Pool Requirements

MINIMUM STANDARD

- Pools shall be available for all pinnipeds under rehabilitation. Critical care animals may be temporarily held without water access at the discretion of the attending veterinarian.
- Critically ill animals or young pups are to be housed appropriately, with the pool size and depth as well as the dry resting area determined by the discretion of the attending veterinarian.
- Pools shall be deep enough for each animal to completely submerge, and shall be at least 0.76 meters or 2.5 feet deep. An exception to this would be temporary pools for young pups or debilitated animals.
- Pools shall be large enough in diameter to allow each animal housed therein to swim.

RECOMMENDED

- Pools shall have a MHD of 1 meter or 1.5 x the length of the largest animal utilizing the pool, whichever is larger.
- The minimum surface area of the pool for non-critical animals shall be at least equal to the dry resting area required by USDA, APHIS AWA standards, but using the actual length of the largest animal in the enclosure instead of the average adult length.
- The pool shall be at least 0.91 meters deep or one-half the actual length of the longest species contained therein, whichever is greater.

- If adult pinnipeds are commonly rehabilitated, facilities should be designed to accommodate the average number of adult-sized animals that strand each year, and have at least one pool and haul-out area that meet USDA APHIS AWA standards.

2.1.2 Dry Resting Area

MINIMUM STANDARD

- One non-critical animal; area of dry resting area = 1.2 x (length of the animal)^2.
- Two non-critical animals; area of dry resting area = 1.5 x (length of the longest animal)^2.
- Three or more animals in the same enclosure require the minimum space for two animals and, in addition, enough space for the animals to lay separately with at least one body length from one another, to turn around completely, and to move at least two body lengths in one direction.
- The facility must have a plan to manage adult males.
- Animals may be temporarily housed in smaller areas at the discretion of the veterinarian. The attending veterinarian should determine the minimum space which will be most appropriate for the age or medical condition of the animal.
- Critical care animals and young pups may be temporarily supplied smaller pools and less dry resting area.

RECOMMENDED

- One to two animals: 2 x (length of longest animal)^2
- Three or more animals in the same enclosure: (length of each animal)^2 x number of animals in enclosure = number of square feet of required dry resting area (DRA).

2.1.3 Pool or Pen Design

New rehabilitation pools should be designed and constructed to minimize introduction of anthropogenic noise from life-support equipment or other sources. This can be accomplished through sloping of walls, insulation with soil or other materials around the sides of the pool and/or through isolation of noise-generating equipment. A special exception may be granted by NMFS if existing pools do not meet these specifications and a retrofit is not feasible as long as animal welfare is maintained.

MINIMUM STANDARD

- Pools or pens shall be designed for ease of cleaning and handling the animals.

- Open water pens shall optimally be constructed of plastic or other rigid netting.
- If cotton or nylon netting material is used it must be small enough gage to prevent entanglement.

RECOMMENDED

- Pools designed to promote good water circulation and to minimize anthropogenic noise.
- Ability to drop a pool in less than 2 hours and refill it to a "swimming level" in less than 30 minutes or a false bottom or other method utilized for ease of capturing and treating pinnipeds.

2.1.4 Length of Stay and How it Affects Space

Facilities which handle adult animals that are kept for periods longer than six months but less than one year should meet USDA APHIS AWA standards. However the actual length of each animal may be used for each DRA calculation rather than the adult length. After one year, holding space must meet APHIS standards.

2.1.5 Shelter, Shading, and Lighting

Animals housed at rehabilitation facilities must be provided with shelter to provide refuge from extreme heat or cold. Pinnipeds held in rehabilitation facilities may not have normal activity levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from cold temperatures or inclement weather. Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions. At the discretion of the attending veterinarian an exception to refuge from extreme cold during the pre-release conditioning phase may be made. Pinnipeds should be protected at all times from extreme heat.

MINIMUM STANDARD

- Provide shade structures or shelters to animals to aid thermoregulation when local climatic conditions could compromise the health of the animal.
- Provide shade and/or water spray to all pinnipeds that cannot swim and are housed in areas where ambient air temperatures reach > 80° F (26.6° C).
- Lighting in indoor facilities shall be appropriate for the species and shall clearly illuminate the DRA and pool during daylight hours.

RECOMMENDED

- All of the above and a source of natural or full spectrum light for animals housed indoors.
- Removable or adjustable shade structures that may be sanitized regularly in pens to provide more natural sunlight to animals that are swimming and diving normally.

2.1.6 Air Temperature

MINIMUM STANDARD

- Attention to ambient air temperature and humidity should be considered to facilitate recovery, protect rehabilitating animals from extremes of heat or cold, and to prevent discomfort.
- Method to raise or lower air temperature, as appropriate to maintain proper body temperature should be available. Access to full shade, constant water sprays and fans may be used for animals that have no access to pools during times when the ambient temperature exceeds 85°F (29.4°C). Likewise radiant heating devices or waterproof heating pads may be utilized when ambient temperatures fall below the comfort level of the animal, which will be determined by the species, age, medical condition, and body condition of the animal.
- Animals should be able to move away from point source heaters. If animals are too debilitated to move, temperature of heaters can not exceed the safe range of 60-80^{o}F at skin surface or animals must be monitored every 2 hours.
- Large fans or "swamp coolers" available to move air across animals with no access to pools when ambient temperatures reach over 85°F (29.4°C).

RECOMMENDED

- Provide temperature-controlled shelter or holding space for critical care animals or pups.
- Monitor temperature of additional heaters such as heating pads infrared heaters and heat lamps.

2.1.7 HOUSING FOR CRITICAL CARE ANIMALS

Debilitated and ill pinnipeds are often sedentary and haul out or float at the surface of a pool for long periods of time. Young pups may be weak and require assistance moving in and out of pools. A shallow area that allows the animal to rest on the bottom with gradually sloping sides or a ramp equipped with a gripping surface to allow ease in entering and exiting the pool are considered optimal.

MINIMUM STANDARD

- Individual dry haul out space or individual enclosures shall be large enough to accommodate the most common species of pinnipeds rehabilitated routinely at the facility.
- Housing for critically ill animals that will provide shelter from the extremes of heat or cold, and will provide heat as appropriate for animals held in cold climates.
- Access to shallow water and/or water spray for all pinnipeds as advised by the attending veterinarian.
- Barriers sufficient to isolate incoming animals until the attending veterinarian determines them to be free from contagious disease (See Section 2.4 Quarantine).

RECOMMENDED

All of the above minimum standards, plus:

- Individual enclosures for each critical care animal where the dry resting area = (length of the animal)^2.
- Housing which provides optimal temperature control for critically ill animals (heating and/or air conditioning).

2.1.7 Housing of Pups

Pups of all species have special housing and management needs and require careful monitoring when introducing them to pools. Premature pups may require more time than full-term pups before introducing them to water.

MINIMUM STANDARD

Phocids less than 1 week old:

- Individual housing with fully supervised access to shallow water (< 0.5 meters deep) pools. Full supervision may stop when animals demonstrate ability to swim and haul out.

Otariids less than 3 weeks old:

- Individual housing or housing with similarly sized pups with fully supervised access to shallow water pools (<0.5 meters deep) Full supervision may stop when animals demonstrate ability to swim and haul out.

- Access to raised platforms in dry resting areas for pups of all ages at the discretion of the veterinarian. Critical or debilitated pups should not be required to lay on concrete or other hard/cold surfaces. Platforms must be low enough for easy access yet high enough to allow the floor to dry under platform. Platforms should be made of material with a sealed cleanable surface and designed to allow for waste to pass through.

RECOMMENDED

- All of the above and with pools designed with a gently sloping side/beach area with "gripping surface" to allow pups to easily haul out without assistance.

2.1.8 Housing of Older Pups

Full term phocids greater than 1 week old and otariids greater than three weeks old

MINIMUM STANDARD

- House pups with similar conspecific age group.
- House pups as individuals or groups with frequent or constant access to deeper water (> 0.5 meters deep).
- Provide a platform or shallow shelf in each pool that allows pups to easily haul out on their own.
- Provide platforms in dry resting areas allowing critical or debilitated pups an alternative to laying on concrete or other hard/cold surfaces (as above).

RECOMMENDED

- Provide a pool designed with a gently sloping side leading to a level beach area that allows pups to easily haul out.

2.1.9 Number of Animals Housed in Each Pen/Pool

During UME strandings, the number of pinnipeds received by the facility is limited not only by the number and size of the holding pools or pens, but the number of qualified trained rehabilitation staff members available to care for the animals. The maximum number of animals maintained in each pool and onsite at the facility shall be determined by the attending veterinarian and dictated by the number of qualified staff available to care for the animals.

MINIMUM STANDARD

- Provide a minimum of three qualified trained rehabilitation staff members on site for the first 25 pinnipeds housed at the facility, and two more trained rehabilitation staff members for every additional 25 pinnipeds. More staff will be required when animals are housed simultaneously in quarantine holding and recovering animal holding areas. Dependant pups are more labor intensive and require more staffing. Staff must be available on a 24-hour basis for critical animal care.

2.1.10 Housekeeping

MINIMUM STANDARD

- Keep support buildings and grounds as well as areas surrounding rehabilitation pools clean and in good repair.
- Maintain perimeter fences in good repair, and ensure they are an adequate height and construction to keep people and animals and pests out.
- Ensure primary enclosures housing marine mammals do not have any loose objects, sharp projections, and/or edges which may cause injury or trauma to the marine mammals contained therein.
- No holes or gaps larger than ½ the size of the head diameter of the pup of the smallest species to be housed.
- All drains and overflows must have screened covers.
- Objects introduced as environmental enrichment must be too large to swallow and made of non porous cleanable material.

RECOMMENDED

- Coat all pool and haul-out surfaces with a non-porous, non-toxic, non-degradable cleanable material that is able to be disinfected.

2.1.11 Pest Control

MINIMUM STANDARD

- Establish and maintain a safe and effective program for the control of insects, avian and mammalian pests. This should include physical barriers to help to prevent feral and/or wild animals from contact with the rehabilitating animals.

- Insecticides or other such chemical agents shall not be applied in a primary enclosure housing marine mammals or a food preparation area except as authorized in writing by the attending veterinarian.
- If applied, all appropriate measures must be taken to prevent direct contact with the insecticide/pesticide, whether airborne or waterborne, by the animal.

2.1.12 Security for Facility

Stranded marine mammals often attract public attention and must be protected from excessive commotion and public contact. Ensuring a quiet stress-free environment for rehabilitating animals may improve their chance to recover and survive. Public viewing of marine mammals is discussed in Section 2.13 of this document.

MINIMUM STANDARD

- Locate rehabilitation facilities at sites that are able to be secured from the public.
- Prevent direct public contact with the rehabilitating animals by utilizing appropriate fencing, staff and security personnel.

RECOMMENDED

- Maintain 24- hour monitoring when animals are present or maintain a secure perimeter fence with the ability to lock the area off to the public when staff is not present.

2.2 Water Quality

There are four basic types of water systems:

- Pools with filtration systems (closed systems)
- Pools without filtration systems (dump and fill systems)
- Pools with periodic influx of natural seawater (semi-open systems)
- Open water systems (Bay or sea pens).

There are a number of variables which will affect water quality. The number and size of pinnipeds utilizing each pool will vary throughout the year at most rehabilitation institutions. During the busy season or during unusual stranding events, the number of pinnipeds utilizing one pool may increase dramatically creating a heavier load of waste which must be handled by the filtration system in closed systems and by the amount of water flow-through in semi-open and open systems. A life support

system is used as one tool in a program of water quality maintenance to provide safe and clean water to the animals.

Filtration or life support systems are essential to maintaining clean water for animals held in closed or semi-closed systems. Life support systems have three basic parts; mechanical filters that remove solids, biological filters or baffles to remove or detoxify chemicals in the water, and disinfecting methods to control or remove pathogens. In addition to maintaining clean water in the animal pools, these systems may be needed to treat waste water, depending on waste water disposal requirements. If a temporary increase in waste production overwhelms part or all of the life support system, a good water quality control program will require alternative options.

Water used in closed systems generally is fresh water obtained from municipal sources, whereas water in open and semi-open systems comes from a bay or sea source. Water in closed systems must be regularly filtered through sand and gravel filters to remove particulate matter, and disinfectants such as chlorine or bromine may be added to eliminate pathogens. More elaborate systems utilize ozone to oxidize pathogens in the water. The source should be independent of other rehabilitation and captive animal areas.

Factors that affect water quality are:

- Size of pool or pen
- Efficiency of filtration system or water flow-through rate (tides)
- Water turnover rate
- Number, size and species of animals housed in pool or pen
- Type and amount of food consumed by animals in pool or pen
- Nature of bottom substrate
- Frequency of cleaning the pool
- Types, amounts, method and the frequency with which chemicals are added to the system
- Temperature of the water
- Pathogens in the water
- Biotoxins in open water pens or in pools where the source water comes from the ocean or bay
- Contaminants (oil, pesticides, etc.) in open water pens
- Hazardous waste spills
- Inclement weather
- Sunlight contributing to algae production on pool surfaces, which in turn can support bacteria.

2.2.1 Water Source and Disposal

The water source for pinnipeds housed in closed or semi-closed systems may be municipal water, well water, or water brought into the facility from an adjacent body of water or estuary. The source should be independent of other rehabilitation and captive animal areas.

MINIMUM STANDARD

- Fresh or salt water must be readily available to fill pools, and fresh water to clean and wash down holding pens daily.
- Drain water as often as necessary to keep the pool water quality within acceptable limits.
- Discharge waste water in accordance with state or local regulations. Facility managers must seek appropriate authorization to dispose of waste water. Documents of authorization or necessary permits must be kept on site as part of the administrative record and may be requested by NMFS as part of the NMFS Stranding Agreement.
- Chemicals, when necessary, shall be added in appropriate amounts to disinfect the water or adjust the pH, but not added in a manner that could cause harm or discomfort to the animals.
- Have contingency protocols describing how water quality will be maintained during periods of peak animal use.
- Water will be clear enough to see animals and bottom of pool and free from obvious solid waste and noxious odors.

RECOMMENDED

- Fresh or ideally salt water must be available to fill pools within two hours of draining.
- Maintain a filtration system designed to optimize water quality in each holding pool and decrease water waste.
- Ability to dechlorinate fresh water for species which require this (i.e., fur seals).
- Protocols in place for maintenance of water quality throughout the year.
- Testing of source and discharge water.

2.3 Water Quality Testing

It is important to test the water in which the animals live on a regular basis. Coliform bacterial counts are used to monitor the efficiency of the filtration system to eliminate potentially harmful bacteria. Coliform counts should be done at least once per week and more frequently if there are very large or multiple animals utilizing the pool. While coliform numbers may be described as Most Probable

Number (MPN) per 100 ml, a more accurate method of measuring coliforms is to determine the total coliform count, or the fecal coliform count.

Temperature of the water is especially important if the animal lacks the ability to thermoregulate. Water may require heating or chilling to aid debilitated animals in their ability to maintain optimal body temperature, although debilitated pinnipeds are likely to haul out, in such case the water temperature becomes less important. Water temperature regulation is not feasible in open water pens, but keeping track of the water temperature in sea pens may aid the staff in making husbandry decisions. If coliform numbers or the water temperature becomes too high in any system, measures must be taken to correct the problem in a timely manner. A partial-to-total water change may be necessary to correct the problem in a closed or semi-closed system. If the coliform counts are considered too high in sea or bay pens, efforts should be made to circulate clean sea water through the pens using pumps, paddles or other methods of moving water.

Chemicals added to the water may damage eyes and skin and must be monitored daily. Salinity, when utilized for rehabilitating pinnipeds, may also have an impact on the health of the skin and eyes, as well as the comfort level of the animal, and should be monitored regularly. Emergency chemicals should be on hand such as sodium thiosulfate in case of the accidental hyperchlorination of a system.

2.3.1 Water Quality Tests

MINIMUM STANDARD

- Measure coliform growth weekly, unless pools are dumped and filled daily.
- Total coliform counts must not exceed 500 per 100 ml or a MPN of 1000 coliform bacteria per 100 ml water. Fecal coliform counts are not to exceed 400 per 100 ml.
- If the above tests yield results that exceed the allowable bacterial count, then two subsequent samples must be taken to repeat the test(s) where the level(s) is/are exceeded. The second sample is to be taken immediately after the initial test result, while the third sample would be taken within 48 hours of the initial test.
- If the averaged value of the three test results still exceeds the allowable bacterial counts, the condition must be corrected immediately or the animals moved to a contingency facility.
- Maintain pH between 6.5 and 8.5.
- Maintain the temperature of the water so that it falls within parameters appropriate for the species, generally between 50-80^{o}F.

- Measure oxidant levels in systems which require use of a chemical disinfectant and/or ozone in the system (for closed systems).

RECOMMENDED

- Maintain pH between 7.2 to 8.2.
- Total Coliforms with blanks and controls, fecal Coliform, fecal Strep, and yeast count performed weekly or as needed.

2.3.2 Frequency of Testing in Closed, Semi-open, or Open Systems

MINIMUM STANDARD

- Measure water temperature, pH, salinity (if applicable), chemical additives (if applicable) daily in all pools.
- Measure coliform counts weekly; and more frequently at the discretion of the attending veterinarian.

RECOMMENDED

- If ozone systems are used, measure ozone levels regularly in the animal pools. Ozone levels shall not exceed 0.02 mg/liter.
- Test source and discharge water at least once per day (more frequently for "flow through" systems).
- Maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian or animal care supervisor.

2.3.3 Chemical Additives

Total chlorine = Free chlorine + combined chlorine.

MINIMUM STANDARD

- Maintain total chlorine below 1.5 ppm, where the combined chlorine shall not exceed 50% of the total chlorine.
- All additives must be recorded.
- pH may be adjusted chemically – for example – pH may be raised with sodium carbonate, or soda ash; or lowered with HCl or CO2; but not added in a manner that could cause harm or discomfort to the animals.

- Maintain MSDS information and signage as well as appropriate handling equipment for the addition of chemicals.

2.3.4 Water Circulation

The amount of water turnover through the filtration system in a closed or semi-open system is important to maintain water quality by removing organic waste and particulate matter. Likewise the amount of water movement through an open water pen is also important in the maintenance of water quality. Generally, adequate tidal action will result in the equivalent of two complete water changes per day.

MINIMUM STANDARD

- Maintain sufficient turnover of water through the filtration system in closed or semi-open systems to keep the water quality at or above acceptable limits, with a minimum of two complete water changes per day.
- Ensure methods for moving water (water paddles, pumps, spray devices) are available to aerate and move water in open water pens with insufficient flow of tides or water through the enclosures. These methods should be sufficient to provide the equivalent of two water changes per day.

RECOMMENDED

- A minimum full water turnover rate of every four hours for each pool in closed or semi-open systems.

2.3.5 Salinity

Pinnipeds under rehabilitation may be housed in fresh water. However salinity may play a part in eye health, may enhance wound healing, or may be desirable in some other instances. In some cases animals will drink fresh water which may aid in rehydration. Placing animals in water of appropriate salinity shall be left to the discretion of the animal care supervisor and staff in consultation with the attending veterinarian.

2.3.6 pH

MINIMUM STANDARD

- pH shall be held in a range between 6.5 to 8.5.

RECOMMENDED

- Maintain pH between 7.2 to 8.2.

2.3.7 Water Temperature

MINIMUM STANDARD

- Hold water temperatures within the normal habitat temperature range for the species under rehabilitation or as authorized in writing by the attending veterinarian.
- Provide methods to heat and maintain warm water environments for species that require it, or for debilitated or critically ill individuals that are incapable of maintaining appropriate body temperature.
- Monitor temperature of water being heated or cooled.

2.4 Quarantine

Pinnipeds brought to a rehabilitation facility have no medical history and may carry diseases communicable to other marine mammals, other animals, or humans. Likewise, these animals are often debilitated and may suffer from a variety of illnesses which may compromise their immune systems making them susceptible to diseases from other animals. Quarantine areas must be available and proper biosecurity protocols must be in place for all incoming animals at rehabilitation facilities.

Direct contact between the general public and pinnipeds undergoing rehabilitation should be avoided because of the zoonotic risk of some organisms carried by marine mammals. There have been documented cases of Brucella, Leptospira, Mycoplasma (Seal Finger), San Miguel Sea Lion Virus, Influenza A, and Sealpox, being passed from pinnipeds to humans.

Listed on the following website are numerous other potentially zoonotic marine mammal pathogens (see *http://www.vetmed.ucdavis.edu/whc/mmz/*). See also: *2004 UC Davis Wildlife Health Center Report for the Marine Mammal Commission – Assessment of the Risk of Zoonotic Disease Transmission to Marine Mammal Workers and the Public: Survey of Occupational Risks.*

2.4.1 Prevention of Animal to Animal Transmission of Diseases

MINIMUM STANDARD

- Quarantine all new animals in a separate dedicated quarantine area and provide pens/pools that can be isolated with the use of dividers, tarps, or physical space from the rest of the animal housing areas. Animals that are admitted in groups may be quarantined together.
- Provide dividers between pens and pools that prevent washdown or splash from moving from one pool or pen to another.
- Use dedicated protective clothing for personnel- including gloves, eye shields, safety glasses, and/or eye wash stations.
- Use foot baths, glove baths, and methods to disinfect clothing between handling animals within quarantine area and outside of quarantine area.
- Maintain equipment and tools strictly dedicated to the quarantine area or thoroughly disinfect.
- Provide sufficient space or solid-surfaced barriers between animal enclosures to prevent direct contact between animals.
- Provide sufficient air turnover in indoor facilities to prevent transmission of disease. Air turnover should be enough to prevent build-up of heat and provide a method of bringing fresh air into the facility. There should be sufficient venting or openings to allow movement of air throughout the facility.
- Implement specific quarantine and sanitation procedures to prevent transmission of disease through fomites (e.g., clothing, equipment):
    - Thoroughly clean and disinfect buckets, hoses, scales, transport equipment, and cleaning equipment that is moved between animal areas to prevent transmission of pathogens via fomites.
- Place open water pens so effluent is not near water intake.
- Require evaluation and written veterinary approval before placing animals together after quarantine period has been met.

RECOMMENDED

- Provide separate air handling system in indoor facilities.
- Separate entries to quarantine areas with no crossover with the rest of the facility.
- Clean and disinfect quarantine areas between uses.

2.4.2 Prevention of Domestic Animal to Marine Mammal Transmission of Disease

- Ensure appropriate fencing and placement of holding pens to prevent direct contact between rehabilitating pinnipeds and domestic animals.
- Prohibit personal pets within outermost perimeter of facility.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.
- Use dedicated carriers for pinnipeds – carriers should not be used for other mammals or birds unless they are thoroughly scrubbed and disinfected between uses.

2.4.3 Prevention of Wild Animal to Marine Mammal Transmission of Disease

- Ensure perimeter fencing will deter wildlife from entering the rehabilitation premises.
- Provide rodent control on the premises.
- Ensure net pens and lagoon areas have sufficient secondary fencing to keep wild mammals from coming in direct contact with the animals housed in the net pens.

2.4.4 Prevention of Marine Mammal to Domestic Animal Transmission of Disease

- Provide appropriate perimeter fencing.
- Require animal personnel to change contaminated clothing and/or disinfect before leaving the rehabilitation premises.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.
- Follow appropriate release guidelines.

2.4.5 Prevention of Stranded Marine Mammal to Captive Marine Mammal Transmission of Disease

- Train volunteers and staff to follow appropriate quarantine protocols.
- Establish quarantine protocols that take into consideration the changing status of the stranded animal.
- Establish traffic flow so that volunteers or staff working with stranded animals do not inadvertently travel into a collection animal area.

- Establish decontamination protocols before volunteers or staff members exposed to stranded animals may enter a collection animal area.
- Establish separate restrooms, showers, changing rooms, food preparation areas, etc. for staff and volunteers working with rehabilitating vs. collection animals. Food for rehabilitating animals may be prepared in the collection animal kitchen and taken to the rehabilitation animal area, however any bucket, feed implement or other item must be thoroughly disinfected before it may return to the collection animal area.

2.4.6 Methods to Reduce Spread of Disease from Animals Housed in Open Sea/Bay Pen Systems

- Place pens in a secluded area where wild animals and marine mammals are unlikely to come into direct contact with the animals housed in the sea/bay pens.
- Place a second set of perimeter nets 30 feet from the sea/bay pens to prevent direct contact with wild marine mammals. Nets should be sufficiently rigid to prevent entanglement by mammals or fish.
- Do not place sea/bay pens within 1000 meters any major outflow sewage treatment plants and consider the flow direction or current from these major outflows.
- Place the sea/bay pens 500 meters and downstream from water intake pipes that bring water into facilities that house marine mammals.
- Place pens in an area where there is ample flow-through of tides/currents.
- Ensure the pens are of sufficient size to minimize biomatter build-up. Each pinniped should be housed in a pen that has a minimum depth of half of their body length, and a minimum horizontal dimension of two full body lengths.
- Avoid overcrowded pens. Animals may fight with each other when housed too closely together.
- Have equipment to pump or aerate the water in pens that do not have sufficient tidal action to ensure a minimum of two complete water changes per day.
- Place pens in areas where there is sufficient depth to enhance water circulation and reduce pathogen build-up. Weekly coliform testing will determine if pathogen build-up exists. Water circulation may be enhanced using water paddles.
- Place quarantine pens such that tidal action or underwater currents will not flow from quarantine pens through sea pens housing healthy animals.

2.4.7 Evaluation Requirements before Placing Marine Mammals Together

- CBC/Chemistries, appropriate cultures, physical examination before moving animals out of quarantine area and at the discretion of the attending veterinarian.
- Review current NMFS recommendations on diseases of concern and reportable disease such as morbillivirus.
- Consider screening for morbillivirus, herpes virus, brucellosis, leptospirosis, and toxoplasmosis utilizing the most current diagnostic tests available and at the discretion of the attending veterinarian.
- If animals are part of a UME, then screening for diseases must be more thorough and in direct coordination with NMFS and the UME On-site Coordinators.
- Have contingency plan for animals that are actively infected with or carriers of a reportable disease such as brucellosis, leptospirosis, toxoplasmosis, herpes virus, and morbillivirus.

2.4.8 Zoonotic Considerations

- Restrict public access and direct contact with pinnipeds due to zoonosis potential and public health hazard of untrained individuals interacting with sick and injured marine mammals.
- Train staff and personnel about how to prevent contracting zoonotic diseases (*Occupational and Safety Information for Marine Mammal Workers* http://www.vetmed.ucdavis.edu/whc/mmz/).
- Train staff and personnel working directly with stranded pinnipeds how to recognize symptoms of zoonotic disease.
- Train staff the basics of sanitation and properly handling contaminated equipment.
- Provide appropriate safety equipment, as reasonable, such as protective clothing, eye protection and face masks to all staff who may be exposed to zoonotic diseases.
- Provide eye flushing stations as used with HAZMAT or normal saline bottles to irrigate the eyes.
- Staff with open wounds shall not handle animals carrying potentially infectious diseases without appropriate precautions to protect their wound(s).

2.4.9 Pre-Release Guidelines

- Pre-release health screens and serologic requirements are determined by the NMFS Regional Stranding Coordinator and the Marine Mammal Health and Stranding Response Program (see *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*).

2.5 Sanitation

2.5.1 Primary Enclosure Sanitation

MINIMUM STANDARD

- Remove animal and food waste in areas other than the rehabilitation pool from the rehabilitation enclosure at least daily, and more often when necessary to prevent contamination of the marine mammals contained therein and to minimize disease hazards.
- Remove particulate animal and food waste, trash, or debris that enter rehabilitation/exercise pens or pools at least once daily, but as often as necessary to maintain water quality and to prevent increased health hazards to the marine mammals that use the pools.
- Remove trash and debris from pools as soon as it is noticed, to preclude ingestion or other harm to the animals.
- Clean the walls and bottom surfaces of the rehabilitation/exercise pens and pools as often as necessary to maintain a clean environment and proper water quality.
- Ensure appropriate disinfectants mixed to recommended dilutions are utilized to clean pens, equipment, utensils, and feed receptacles and to place in foot baths. These disinfectants should have both bacteriocidal and virocidal qualities.
- Rotate disinfectants on a regular basis to prevent bacterial resistance.
- Prevent animals from coming in direct contact with disinfectants or aerosol from spray or cleaning hoses (i.e., water splashed from floor).

RECOMMENDED

- Empty and allow pools to dry once each year but dry and hyperchlorinate pool bottoms and walls and haul-out areas after each use by sick pinnipeds.

2.5.2 Sanitation of Food Preparation Areas and Food Receptacles

- Use separate food preparation areas and supplies for rehabilitation vs. collection animals.
- Clean food containers such as buckets, tubs, and tanks, as well as utensils, such as knives and cutting boards, or any other equipment which has been used for holding, thawing or preparing food for marine mammals after each feeding, and sanitize at least once a day. Equipment should be cleaned with detergent and hot water, sanitized and dried before reuse.
- Clean kitchens and other food handling areas where animal food is prepared after every use, and sanitize at least once weekly using standard accepted sanitation practices.

- Store substances such as cleaning and sanitizing agents, pesticides and other potentially toxic agents in properly labeled containers away from food preparation areas.
- Post MSDS "right to know" documents for staff utilizing cleaning and animal treatment chemicals and drugs.

2.6 Food, Handling, and Preparation

During rehabilitation food for marine mammals shall be wholesome, palatable, free from contamination, and of sufficient quantity and nutritive value to allow the recovery of the animals to a state of good health. Live fish may be fed during rehabilitation but preferences should be given to native prey species. Live fish may contain parasites which could infect compromised animals. Feeding regimens should be tailored to enhance weight gain for underweight animals or growing pups, and should simulate natural patterns in terms of frequency and quantity to the extent possible while following a prescribed course of medical treatment. Most pinnipeds feed several times during a given day

2.6.1 Diets and Food Preparation

MINIMUM STANDARD

- Prepare the diets with consideration for age, species, condition, and size of marine mammals being fed.
- Feed pinnipeds a minimum of twice a day, except as directed by a qualified veterinarian or when following professionally accepted practices.
- Diets reviewed by a nutritionist, attending veterinarian, or the animal care supervisor.
- Train staff to recognize good and bad fish quality.
- Feeding live fish may be required for release determination. See *NMFS /FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release* for more information regarding feeding live fish.
- Food receptacles should be cleaned and sanitized after each use. Food preparation and handling should be conducted so as to minimize bacterial or chemical contamination and to ensure the wholesomeness and nutritive value of the food.

2.6.2 Food Storage and Thawing

- Frozen fish or other frozen food shall be stored in freezers which are maintained at a maximum temperature of 0^{o} F (-18^{o} C).

- The length of time food is stored and the method of storage, as well as the thawing of frozen food should be conducted in a manner which will minimize contamination and which will assure that the food retains optimal nutritive value and wholesome quality until the time of feeding.
- Freezers should only contain fish for animal consumption. Human food or specimens should not be placed in the fish freezer.
- Experienced staff should inspect fish upon arrival to ensure there are no signs of previous thawing and re-freezing, and check temperature monitoring devices in the transport container. The fish shipment should be refused, or fish should be discarded if temperature fluctuations occurred during transport.
- Freezers shall be of sufficient size to allow for proper stock rotation.
- All foods shall be fed to the marine mammals within 24 hours following the removal of such foods from the freezers for thawing.
- If the food has been thawed under refrigeration it must be fed to marine mammals within 12 hours of complete thawing.
- When fish is thawed in standing or running water, the coldest available running water must be used to prevent excess bacterial growth.
- To ensure optimal quality of the fish, and to prevent bacterial overgrowth, do not allow fish to reach room temperature or sit in direct sunlight.
- The thawed fish shall be kept iced or refrigerated until a reasonable time before feeding. This time will vary with ambient temperature.
- Prepared formula should be fed immediately or refrigerated and fed to the marine mammals within 24 hours of preparation. Formula, once heated to an appropriate temperature for a feed, shall be discarded if it is not consumed within one hour.

RECOMMENDED

- Calculate kilocalories of each type of fish or food items fed to each animal daily.
- Conduct food analysis for protein, fat and water content of each lot of fish used. Analysis from fish supplier may be used, and a copy should be maintained on site.
- Calculate composition of each diet routinely used.

2.6.3 Supplements

MINIMUM STANDARD

- Each animal shall receive appropriate vitamin supplementation which is sufficient and approved in writing by the attending veterinarian.
- Salt supplements shall be given to pinnipeds housed in fresh water as necessary and as approved by the attending veterinarian.

2.6.4 Feeding

Food, when given to each marine mammal individually or in groups, must be given by an employee or trained personnel who has the necessary training and knowledge to assure that each marine mammal receives an adequate quantity of food to maximize its recovery or maintain good health. Such personnel are required to recognize deviations in each animal being rehabilitated such that food intake can be adjusted accordingly.

2.6.5 Public Feeding

MINIMUM STANDARD

- Public feeding is not allowed for animals that are being rehabilitated.
- Feeding must be conducted only by qualified, trained rehabilitation staff members.

2.6.6 Feed Records

MINIMUM STANDARD

- Maintain feed records for each individual animal noting the individual (not an estimate) daily consumption by specific food type.
- If animals are fed in groups then group feed records shall be maintained and together with daily husbandry notes and weekly weight records ensure evidence of sufficient feed intake.
- Weigh food before and after each feeding individuals and groups and the record the amount consumed.
- Weigh the animal as practical, keeping in mind that obtaining the weight of the animal may stressful.
- If weighing the animal is not an option, obtain the girth measurement at the level of the axilla if possible.

2.7 Veterinary Medical Care

All rehabilitation facilities shall have an attending veterinarian. The attending veterinarian is critically involved in making decisions regarding medical care as well as housing and husbandry of resident and newly admitted patients.

2.7.1 Veterinary Experience

MINIMUM STANDARD

The attending veterinarian shall:

- Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).
- Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.
- Be available to examine animals on a regular schedule and emergency basis.
- Be available to answer veterinary questions on a 24 hour basis.
- Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.
- Have an active veterinary license in the United States (means a person who has graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates), or has received equivalent formal education as determined by NMFS Administrator (adapted from the Animal Welfare Act Regulations 9 CFR Ch. 1).
- Have the skills to be able to draw blood and give injections to the species most commonly encountered at the rehabilitation center.
- Facility management should have contingency plan for veterinary backup.
- Have the appropriate registrations and licenses (e.g., registered with the Drug Enforcement Administration for handling controlled substances) to obtain the necessary medications for the animals housed at that rehabilitation facility.
- Be able to conduct a full post-mortem exam on all species of pinnipeds treated at the facility.
- Be knowledgeable and able to perform pinniped euthanasia.

- Be knowledgeable about species-specific pharmacology.
- Must certify in writing that animals are fit for transport.
- Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.
- Be knowledgeable of marine mammal zoonotic diseases.

RECOMMENDED

All of the above plus:

- Membership in the International Association for Aquatic Animal Medicine.
- Complete a course which offers basic medical training with marine mammals such as Seavet, Aquavet, or MARVET.
- Have at least one year of clinical experience outside of veterinary school.
- Have access to a current version of the "Handbook of Marine Mammal Medicine" Have basic hands-on veterinary experience with the species most frequently rehabilitated at the facility.
- Be full time employee or the contract veterinarian of record at facilities managing over 50 pinniped cases per year (i.e., live and dead).

2.7.2 Veterinary Program

MINIMUM STANDARD

- Veterinary care for the animals must conform with any State Veterinary Practice Act or other laws governing veterinary medicine which applies to the state in which the facility is located.
- Standard operating procedures should be reviewed and initialed by the attending veterinarian or the animal care supervisor annually and/or whenever the document is changed or updated. This document may be reviewed by NMFS as part of the NMFS Stranding Agreement or as part of inspections.
- Staff caring for animals should be sufficiently trained to assist with veterinary procedures under the direction of the veterinarian and the rehabilitation facility should maintain at least one **Animal Care Supervisor** who is responsible for overseeing prescribed treatments, maintaining hospital equipment, and controlling drug supplies. The person should be adequately trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the animal care supervisor should communicate frequently

and directly with the attending veterinarian to ensure that there is a timely transfer of accurate information about medical issues.

- Veterinary decisions shall be based on "best practices" (i.e., based on informed opinions and expertise of veterinarians practicing marine mammal medicine).
- A schedule of veterinary care which includes a review of husbandry records, visual and physical examinations of the animals, and a visual inspection of the facilities should be implemented
- A health and safety plan for the staff shall be written and accessible at all times. It shall be reviewed by the attending veterinarian or the animal care supervisor annually or as prescribed by the NMFS Stranding Agreement. Also, it may be beneficial to consult with an occupational health medical professional when developing these plans. All animal care staff will be familiar with the plan. The plan shall include protocols for managing bite wounds.

The following reports may be requested annually by NMFS as required under the NMFS Stranding Agreement or as a part of inspections

- SOP reviews
- Health and Safety Plan reviews
- Animal acquisitions and dispositions
- NOAA Form 89864, OMB#0648-0178 (Level A data)
- NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report)
- Case summaries for any rehabilitation performed at a facility, including narrative descriptions of the cases as well as spreadsheets of treatments, blood values, etc.

2.8 Laboratory Tests and Frequency of Testing

Specific requirements for tests will be issued by the NMFS stranding coordinator (or UME Onsite Coordinator) in each region as outlined in the Marine Mammal Health and Stranding Response Program for release determinations, surveillance programs and UME investigations. Routine diagnostic sampling and testing protocols will be determined by the attending veterinarian. NMFS must be provided adequate time and information including a veterinary certificate of health before an animal is released as directed in 50 CFR 216.27 (see NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release).

MINIMUM LABORATORY TESTING

- CBC/Serum Chemistry- For most cases, all animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry; upon admission and prior to release (see *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*). If duration of rehabilitation is shorter than a week, one blood workup may suffice and is at the attending veterinarian's discretion.
- Fecal analysis for parasites- Fecal tests for parasites shall be run upon admission of each animal at the discretion of the attending veterinarian.
- Serology as necessary for release determination based on direction of the NMFS stranding coordinator and the Marine Mammal Health and Stranding Program each year and for additional clinical diagnosis as deemed appropriate by the attending veterinarian.
- If serology is positive for pathogens of concern NMFS must give final sign off before animal is released.
- Measure body weight, and length upon admission, and within one week of release/placement. Measure girth when possible, or whenever a scale is not available to measure weight.
- The attending veterinarian or a trained staff member shall perform a necropsy on every animal that dies within 24 hours of death if feasible. If necropsy is to be performed at a later date (ideally no longer than 72 hours postmortem), the carcass should be stored appropriately to delay tissue decomposition.
- Carcass disposal shall be handled in a manner consistent with local and state regulations.
- Perform histopathology on select tissues from each animal that dies at the discretion of the attending veterinarian. A complete set of all major tissues should be evaluated if the animal dies of an apparent infectious disease process.
- Culture and other diagnostic sampling shall be conducted as directed by the attending veterinarian to determine the cause of stranding or death.
- Contact NMFS for additional laboratory test requirements in all cases of unusual mortality outbreaks or disease outbreaks. More complete testing may be required for diseases of concern.
- For cases involving release decisions, unusual mortality investigations, or surveillance programs, serologic assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations. Guidance will be provided by the NMFS Stranding Coordinators or UME Onsite Coordinator.
- Notify the NMFS Stranding Coordinator of learning of any diseases of concern (e.g., emerging, reportable, and/or zoonotic diseases) that are detected and/or confirmed that could be a potential

hazard for public health or animal health (NMFS will provide guidance on reportable diseases as it becomes available).

- NMFS must be provided adequate time and information (including veterinary certificate of health) before the animal is released in all cases as directed in 50 CFR 216.27 (see NMFS Standards for Release). This information is required under 50 CFR 216.27(a) and must be submitted 15 days prior to release unless advanced notice is waived by the NMFS Regional Administrator. Guidance on the waivers is provided in the *NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release*.

RECOMMENDED

- CBC/Serum Chemistry with electrolytes on admission, within the week prior to release, and every other week during rehabilitation if restraint for sampling is not detrimental to the health of the animal.
- More frequent blood sampling at the discretion of the veterinarian.
- Weight measured on admission, just before release, and weekly for growing pups and underweight animals.
- Weights should be measured monthly for all animals unless the stress of capturing the animal to weigh it outweighs the benefits of the data.
- Complete necropsy performed by a veterinarian or a pathologist within 24 hours of death.
- Full histopathology done on tissues from each animal that dies of apparent infectious disease.
- Bank 1cc of serum per blood draw in –80^{o}F freezer.

2.9 Record Keeping and Data Collection

Record keeping is an essential part of the rehabilitation process. Not only do accurate and complete medical records for each stranded pinniped allow the staff to provide consistent and optimal care for each animal, but retrospective records help scientists and veterinarians make better evaluations on how to treat individuals.

Record Keeping

MINIMUM RECORDS

- Record and report "Level A", and disposition reports as advised by Regional Coordinator and Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178) as in accordance with the NMFS Stranding Agreement.
- Maintain and update individual medical records daily on each animal at the rehabilitation center.
- Individually identify each animal with unique identifier
- Keep an accurate description of the animal, including identification/tag number, date and location of stranding, sex, weight, and length at stranding.
- Subjective, objective, assessment and plan (SOAP) based records are preferred
- Include food intake and medication administered to each animal in the records each day.
- Weight
    a. Recorded weekly for underweight pinnipeds or pups, and more often if the attending veterinarian feels it is necessary to properly care for the animal.
    b. Recorded on admission and release for larger pinnipeds.
- Record all treatments, blood work, test and results and daily observations in the medical records.
- Maintain individual medical records for each animal. Medical records remain on site where the animal is housed and are available for NMFS review upon request as stated in the NMFS Stranding Agreement.
- Hold medical records for a minimum of 15 years on site.
- Maintain up to date water quality records.
- Maintain life support system maintenance records.
- Maintain records of water quality additives.

RECOMMENDED RECORD KEEPING

All of the above plus:

- Full set of standard morphometrics prior to release.
- Photographic documentation of animals with significant lesions, identifying marks.
- Caloric value of daily food intake calculated and recorded for each animal.
- Daily weight of underweight pups. Larger species, where pups exceed 50 kg, may require obtaining weights less frequently.

- Monthly weights of larger pinnipeds (where the stress of capture to weigh does not adversely affect the rehabilitation efforts).
- Maintain food acquisition and analysis records.
- Maintain "paper copy" archive of required NMFS records.

2.9.1 Data Collection

MINIMUM STANDARD

- Written documentation of the medical history, food and observation records must be kept.
- NMFS Required Forms to be completed in writing or submitted electronically in the NMFS National Marine Mammal Stranding Database as prescribed in the NMFS Stranding Agreement:
  a. NOAA Form 89864, OMB#0648-0178 (Level A data)
  b. NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report).

RECOMMENDED

- Computerized documentation with hard copies.
- Ability to network with other institutions.
- Maintain real-time accessible compiled comparative data.

2.10 Euthanasia

- Each institution must have a written euthanasia protocol signed by the attending veterinarian.
- Persons administering the euthanasia must be knowledgeable and trained to perform the procedure.
- Maintain a list of individuals authorized to perform euthanasia signed by the veterinarian.
- Euthanasia shall be performed in a way to minimize distress in the animal.
- Refer to resources such as the American Veterinary Medical Association Panel Report on Euthanasia, the CRC Press Handbook of Marine Mammal Medicine and American Association for Zoo Veterinarians Guidelines for Euthanasia of Nondomestic Animals.
- Appropriate drugs for euthanasia in appropriate amounts for the largest species admitted to the facility shall be maintained in stock on site in an appropriate lockbox or under the control of a licensed veterinarian with a current DEA license.
- Drugs for euthanasia shall be kept with an accurate inventory system in place.
- DEA laws and regulations and State Veterinary Practice Acts must be followed when using controlled drugs

- NMFS may request this information (protocols and DEA number) as part of the NMFS Stranding Agreement.

2.11 Health and Safety for Personnel

There shall be a health and safety plan on site at each rehabilitation facility that identifies all health and safety issues that may be factors when working closely with wild marine mammals. The plan should identify all potential zoonotic diseases as well as including safety plans for the direct handling of all species and sizes of pinnipeds seen at that facility. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

MINIMUM STANDARD

- Identify all potential zoonotic diseases in a written document available to all personnel.
- Include safety plans for the direct handling of all species and sizes of pinnipeds seen at that facility.
- Include safety plan for dealing with handling any untreated discharge water.

2.12 Contingency Plans

Contingency plans shall be in place at each facility and may be required by NMFS as part of the NMFS Stranding Agreement. NMFS may require approved variances or waivers prior to planned projects such as construction. These plans should address in detail the operation of the facility and care of the animals under the following conditions:

- Inclement weather plan, including a hurricane/big storm plans where appropriate.
- Construction in the vicinity of the animal rehabilitation pens or pools.
- Power outages, including plans of how to maintain frozen fish stores and life support systems.
- Water shortages.
- "Acts of God" plan which may include floods, earthquakes or other unpredictable problems known to occur on occasion in the region where the facility is located.

2.13 Viewing

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is "an activity that provides opportunity for the public to view living marine mammals at a facility holding

marine mammals captive". Only remote public viewing or distance viewing should be allowed and only when there is no possible impact of the public viewing on the animals being rehabilitated. There is a regulatory requirement for a variance or waiver by NMFS for facilities planning to offer public viewing of any marine mammal undergoing rehabilitation.

2.14 Training and Deconditioning Behaviors

Basic behavioral conditioning of wild pinnipeds for husbandry and medical procedure may be warranted during rehabilitation as long as every effort is made to limit reinforced contact with humans. Such conditioning may reduce stress for the animal during exams and acquisition of biological samples. Conditioning may assist with appetite assessment and ensuring that e each animal in a group receives the appropriate amount and type of diet and medications. In some cases, extensive contact with humans, including training, may benefit resolution of the medical case by providing mental stimulation and behavioral enrichment, and may facilitate medical procedures. The relative costs and benefits of training should be evaluated by the staff veterinarian, and the likelihood of contact with humans following release should be considered.

Behavioral conditioning of pinnipeds must be done for the shortest time necessary to achieve rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. If an animal has become accustomed to hand-feeding the animal may approach humans after release. Therefore, these behaviors should be deconditioned before the animals can be considered for release. Most behaviors will extinguish through lack of reinforcement, but some may require more concentrated efforts.

Training for research that is above and beyond the scope of normal rehabilitation practices can be approved on a case-by case basis under a NMFS scientific research permit. An exception can be made if the attending veterinarian, facility, and NMFS officials all agree that the research will not be detrimental to the animals' health and welfare and will not impede their ability to be successfully released back to the wild.

2.15 References

Langman VA, Rowe M, Forthman D, Whitton B, Langman N, Roberts T, Kuston K, Boling C, and Maloney D. 1996. Thermal Assessment of Zoological Exhibits I: Sea Lion Enclosure at the Audubon Zoo. Zoo Biology 15:403-411.

3. Frequently Asked Questions

Why are there two sets of standards, "minimum" and "recommended", in the facilities guidelines?

The thought behind the two sets of guidelines was to establish a bare minimum standard which every facility should have to meet in order to rehabilitate either pinnipeds or cetaceans. The "recommended" standards are standards considered more ideal to help maximize the success of the rehabilitation effort, and to minimize the potential spread of disease. Many facilities exceed the recommended standard.

Facilities that just meet the minimum standards may wish to improve their facility over time. The Facilities Guidelines could serve as a method of justifying and helping to secure Prescott Funds or other funding to make improvements to bring a facility up to the recommended standards.

Why are there separate standards for pinnipeds and cetaceans?

While many aspects of rehabilitating cetaceans and pinnipeds that are the same, there are likewise many significant differences. Water quality, pool space and design, and handling debilitated animals are examples of the bigger differences between facility design and equipment required for rehabilitation of these animals. Rehabilitation of cetaceans requires more expensive facilities, as there must be larger, deeper pools available, salt water systems, and more elaborate filtration in closed system situations. While some facilities have adequate equipment and personnel to rehabilitate pinnipeds, they may not meet the standards required for the rehabilitation of cetaceans. Having two sets of guidelines allows NMFS the flexibility of issuing agreements specific to the types of animals that may be rehabilitated at each facility.

Many of the standards listed appear to be directly from the AWA standards. Why don't you just state that the facilities will meet all of the AWA regulations? What if the AWA regulations change?

AWA regulations have specific engineering standards to cover captive marine mammals. These standards for pool size and depth are based on captive adult-sized animals. The majority of pinnipeds admitted to most rehabilitation facilities are pups, juveniles, and sub-adults, and because they are not going to be permanent members of a collection, pool size may be smaller than the minimum sizes

stated in the AWA regulations. Cetacean facility guidelines minimum pool sizes are closer to the AWA regulations in pool size, but not identical, as these animals are not considered to be permanent residents.

AWA regulations may change, however these Facilities Guidelines were created with the consideration that animals being rehabilitated are not permanent residents of the facility. Therefore even if AWA regulations change, it is likely, the Stranding Network Facilities Guidelines will remain the same. Facilities Guidelines apply to the wild animals held by participants of the stranding network, whereas the AWA regulations refer to captive animals owned by the licensees.

Under Water Quality, no mention is made regarding protecting staff and public from discharged water.

This is covered by the statement that "All water must be discharged according to State and Local Regulations". Since state and local regulations vary, it is up to each institution to ensure their discharge policy conforms to the regulations in their area. These regulations should take into consideration the public exposure to the discharged water from the rehabilitation facility. Likewise all rehabilitation facilities should have Standard Operating Procedures in place to protect their staff from hazards which may be posed by the rehabilitation of marine mammals.

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NOAA
National Marine Fisheries Service
Office of Protected Resources

U.S. Fish and Wildlife Service
Fisheries and Habitat Conservation
Marine Mammal Program

FINAL

POLICIES AND BEST PRACTICES

MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

STANDARDS FOR RELEASE

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February 2009

Standards for Release

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Executive Summary

Rescue, rehabilitation, and release of wild marine mammals is allowed for authorized individuals under listed conditions by the Marine Mammal Protection Act (MMPA) [16 U.S.C. 1379 § 109(h)]. Section 402(a) of Title IV of the MMPA specifically mandates that "The Secretary shall… provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild" [16 U.S.C. 1421 §402(a)]. This document fulfills the statutory mandate and is not intended to replace marine mammal laws or regulations.

In accordance with the MMPA, these guidelines were developed by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) in consultation with marine mammal experts through review and public comment on the 1997 draft NOAA Technical Memorandum "Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria." Comments from the public review process and other outstanding issues were compiled by NMFS and FWS. The agencies consulted with experts in three areas: cetaceans, pinnipeds and sea otters, and manatees. The experts reviewed and discussed the public comments and provided individual recommendations. This current document encompasses revisions and updates to the 1997 draft and is titled differently.

These guidelines provide an evaluative process to help determine if a stranded wild marine mammal, following a course of treatment and rehabilitation, is suitable for release to the wild. These guidelines describe "Release Categories" for rehabilitated marine mammals of each taxonomic group (i.e., cetaceans, pinnipeds, manatees, sea otters and polar bears). After completing a thorough assessment as prescribed, the release candidates are to be assigned to a Release Category as follows: **Releasable**, **Conditionally Releasable, Conditionally Non-releasable (Manatees only)**, and **Non-releasable**. This document establishes essential release criteria that trained experts should use to determine whether or not individual animals are healthy enough to release into the wild. The essential release criteria are assessed in the following categories:

1) Historical Assessment
2) Developmental and Life History Assessment
3) Behavior Assessment and Clearance
4) Medical Assessment and Clearance
5) Release Logistics
6) Post Release Monitoring

By using clearly defined Release Categories for rehabilitated marine mammals, NMFS and FWS can evaluate and support the professional discretion of the attending veterinarian and their assessment team (i.e., biologists, veterinarians, animal care supervisors, and other team members of the marine mammal stranding network). Based on these Release Categories, NMFS and FWS can consult experts on challenging cases in which the survival of the rehabilitated marine mammal or its potential to pose a health risk to wild marine mammals is in question.

Refinement of requirements and guidelines for release of rehabilitated marine mammals to the wild is a dynamic process. Use of these standardized guidelines will also aid in the evaluation of rehabilitation procedures, successes, and failures, and will allow for on-going improvement of such protocols. These guidelines are based on the best available science and thus will be revised periodically.

1. Introduction

1.1 Background

Prior to the early 1990s, release decisions for marine mammal species under the jurisdiction of the National Marine Fisheries Service (NMFS) were made by individual rehabilitation facilities without much direction or input from NMFS. Decisions were inconsistent and invoked controversy, especially for cetacean cases. The Marine Mammal Commission and NMFS sponsored several workshops focusing on procedures and needs regarding marine mammal strandings, rehabilitation, and release (see Appendix A). Discussions at these workshops provided starting points for establishing objective release criteria. A stronger impetus to formalize these release guidelines came in 1992 when, as part of the Marine Mammal Health and Stranding Response Act, Congress mandated establishing objective guidelines for determining releasability of rehabilitated marine mammals. The Marine Mammal Protection Act (MMPA) was amended to include Title IV, Section 402(a) which states that: ***"The Secretary [of Commerce] shall, in consultation with the Secretary of Interior, the Marine Mammal Commission, and individuals with knowledge and experience in marine science, marine mammal science, marine stranding network participants, develop objective criteria, after an opportunity for public review and comment, to provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild***."

In accordance with the MMPA, these guidelines were developed by NMFS and the U.S. Fish and Wildlife Service (FWS) in consultation with marine mammal experts through review and public comment of the 1997 draft National Oceanic and Atmospheric Administration (NOAA) Technical Memorandum "Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria." Comments from the public review process and other outstanding issues were compiled by NMFS and FWS. The agencies consulted with experts in three areas: cetaceans, pinnipeds and sea otters (*Enhydra lutris*), and manatees (*Trichechus manatus*). The experts reviewed and discussed the public comments and provided individual recommendations. This current document encompasses revisions and updates to the 1997 draft and is titled differently.

The purposes of this document are as follows:

1. To provide guidance for determining release of rehabilitated marine mammals to the wild including marine mammal species under the jurisdiction of the NMFS (Department of Commerce) and those under the jurisdiction of the FWS (Department of the Interior);

2. To state the NMFS and FWS legal requirements and provide recommendations for medical, behavioral, and developmental assessment of rehabilitated marine mammals prior to release;
3. To identify the persons and agencies responsible for completing an assessment of a rehabilitated marine mammal for a release determination and to describe the communication requirements and process with NMFS or FWS;
4. To state the NMFS and FWS requirements and recommendations for identification of releasable rehabilitated marine mammal, selection of a release site, and post-release monitoring; and
5. This document does not include guidance for the following situations:
    a. Immediate release following health assessment and/or emergency triage typically associated with mass stranding events, out of habitat rescues, and disentanglement efforts.
    b. Release following relocation of healthy marine mammals.

1.2 Review of Key Legislation Pertinent to Marine Mammal Rehabilitation and Release to the Wild

Congress delegates the responsibility for implementing the MMPA to the Secretary of Commerce and the Secretary of the Interior. Cetaceans and pinnipeds, exclusive of walruses (*Odobenus rosmarus*), are the responsibility of NMFS (i.e., NMFS species). Walruses, polar bears (*Ursus maritimus*), manatees, and sea otters are the responsibility of FWS (i.e., FWS species). NMFS and FWS responsibilities for these species are regulated under 50 CFR (See Appendix B).

Rehabilitation and release of wild marine mammals is authorized by key statements within the MMPA (16 U.S.C. 1379 §109(h)) entitled "Taking of Marine Mammals as Part of Official Duties." This section allows for the humane taking of a marine mammal, by a Federal, State, or local government official or employee or a person designated under section 112(c) of the MMPA, for its protection or welfare and states that an animal so taken is to be returned to its natural habitat whenever feasible. Regulations that implement the MMPA for NMFS species (50 CFR 216.27(a)(1)) require that a marine mammal held for rehabilitation be released within six months unless "…the attending veterinarian determines that: (i) The marine mammal might adversely affect marine mammals in the wild; (ii) Release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal; or (iii) More time is needed to determine whether the release of the marine mammal in the wild will likely be successful…" and (b)(1) "The attending veterinarian shall provide the Regional Director or Office Director with a

written report setting forth the basis of any determination." Also, (a)(iii) "releasability must be re-evaluated at intervals of no less that six months until 24 months from capture or import, at which time there will be a rebuttable presumption that release into the wild is not feasible."

For NMFS species, the MMPA section 112 (c) Stranding Agreements (formerly Letters of Agreement or LOAs) are formally established between the *NMFS Regions* and *Stranding Network Participants*. Understanding and following the MMPA and implementing regulations, policies, and guidelines, **is the responsibility of all persons involved** in marine mammal rescue, rehabilitation, and release. These guidelines are founded on and support the MMPA and related regulations. The laws and regulations outlined below are therefore fundamental to proper enactment of marine mammal rehabilitation and release. Appendix B contains the full titles and citations of these laws and regulations.

1.3 Structure of the Document

This document is organized as follows: General Procedures (Section 2); Guidelines for Release of Rehabilitated Cetaceans (Section 3); Guidelines for Release of Rehabilitated Pinnipeds (Section 4); Guidelines for Release of Rehabilitated Manatees (Section 5); Guidelines for Release of Rehabilitated Sea Otter (Section 6); Policies Regarding Release of Rehabilitated Polar Bears (Section 7); References (Section 8); Glossary of Terms (Section 9); and Appendices (Section 10).

The approach developed in this document primarily involves a complete assessment of an animal's health and behavior and release logistics. The assessment is completed by the attending veterinarian and their Assessment Team following this standardized guidance for determining the disposition of a marine mammal after treatment and rehabilitation. Section 2, "General Procedures," summarizes the pertinent laws and regulations and outlines the release requirements and recommendations for all species of rehabilitated marine mammals. This section provides an overview of documentation required throughout rehabilitation and release. Parties responsible for release determinations are identified. General principles for developmental, behavioral, and medical assessments of rehabilitated marine mammals are described, as well as methods for post-release identification (i.e., marking and tagging), monitoring, and selection of appropriate release sites.

There are several critical variables among each taxonomic group, such as natural history, social organization, and species specific rehabilitation and release considerations. These variables are addressed in separate chapters (Sections 3-7) for cetaceans, pinnipeds, manatees, sea otters, and polar

bears. These chapters provide greater detail and rationale for the release guidelines for each marine mammal group.

The reference section lists current literature on marine mammal biology, medicine, rehabilitation, and release. A glossary of terms is provided to define key terms initially noted in the text with italics. The appendices provide ready access to marine mammal laws and regulations and examples of required documentation for rehabilitated marine mammals. Additional appendices include examples correspondence letters between the Stranding Participant and NMFS, lists of Diseases of Concern, and related references for cetaceans, pinnipeds, manatees, and sea otters.

1.4 Funding

Funding of marine mammal rehabilitation is the responsibility of the rehabilitation facility. Specific resources, such as freezers for serum banking, histopathology services, equipment, and personnel for post-release monitoring may be provided through NMFS and FWS to support the biomonitoring program. Some costs associated with response and rehabilitation during a Marine Mammal Unusual Mortality Event (UME) may be reimbursed through the UME National Contingency Fund (in accordance with section 405 of the MMPA). For additional information regarding expense reimbursement, contact the appropriate NMFS or FWS coordinator. For NMFS species, the John H. Prescott Marine Mammal Rescue Assistance Grant Program is also available as a funding source for marine mammal stranding response and rehabilitation. More information on this program can be found on the following website: http://www.nmfs.noaa.gov/pr/health/prescott/.

2. General Procedures

2.1 Stranding Agreements, MMPA 109(h) Authority, and Permits for Stranding Response for ESA species

2.1.1 NMFS Policies

NMFS may enter into a Stranding Agreement (formerly known as a Letter of Agreement or LOA) with a person or organization for stranding response and rehabilitation. The NMFS Stranding Agreement states that the Stranding Network Participant will obey laws, regulations, and guidelines governing marine mammal stranding response and rehabilitation. This includes requirements for communications with NMFS, *humane care* and husbandry and veterinary care of rehabilitated marine mammals, and documentation of each stranding response and rehabilitation activity. The Stranding Agreement does not authorize the taking of any marine mammal species listed as endangered or threatened under the Endangered Species Act of 1973 (ESA), as amended. However, authorization to take ESA-listed species by the Stranding Network is currently provided under *MMPA/ESA Permit No. 932-1489-09*, as amended, and requires authorization and direction from the NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal.

2.1.2 FWS Policies

Rescue, rehabilitation, and release of non ESA-listed marine mammal species under FWS responsibility is authorized with a *Letter of Authorization (LOA)* issued by the *Division of Management Authority (DMA)* in the FWS Headquarters Office in Arlington, VA. For ESA-listed species, an LOA holder is authorized under a permit issued by the DMA. The *FWS Field Offices* in the lower 48 states or the *Marine Mammals Management Office in Alaska* coordinate with LOA and permit holders for all rescue, rehabilitation, and release activities for species under their jurisdiction.

2.2 Parties Responsible for Release Determinations and Overview of Agency Approval

The *attending veterinarian* and their *Assessment Team* (i.e., veterinarians, lead animal care supervisor, and/or consulting biologist with knowledge of species behavior and life history) representing the Stranding Network Participant, Designee, or 109(h) Stranding Participant will assess the animal and make a written recommendation for release or non-release**. For NMFS species, the recommendations are sent to the NMFS Regional Administrator. For FWS species, the**

recommendations are sent to the FWS Field Office and any recommendations for non-release are coordinated with the FWS Division of Management Authority.

In general, for NMFS species that are deemed "Releasable," a 15-day advance written notification is necessary. However, 50 CFR 216.27 (a)(2)(i)(A) allows for waiving this advance notification in writing by the Regional Administrator. Generally, these cases are anticipated (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) and can be appropriately planned. For such waivers, the Stranding Network Participant should submit a protocol for such cases, including location of release. These waivers will require pre-approval by the NMFS Regional Administrator on a schedule as prescribed in the Stranding Agreement. The *release determination recommendation* includes a signed statement from the attending veterinarian, in consultation with their Assessment Team, stating that the **marine mammal is medically and behaviorally suitable for release in accordance with the release criteria** (i.e., similar to a health certificate) and include a written *release plan and timeline*. NMFS may also require a concurrence signature from the "*Authorized Representative" or Signatory* of the Stranding Agreement. The Regional Administrator (i.e., NMFS staff) will review the recommendation and release plan and provide a signed written notification to the Stranding Network Participant indicating concurrence and authorization to release or direct an alternate disposition (*letter of concurrence from the Regional Administrator*) (50 CFR 216.27). For more challenging cases and potential "Conditionally Releasable" cases, plans for release should be submitted well in advance of the 15-day period to provide adequate time for evaluation. Also, it is highly recommended that dissenting opinions among members of the Assessment Team regarding an animal's suitability for release and/or the release plan be communicated to NMFS well in advance of the required 15-day advance notice so that additional consultation can be arranged in adequate time for resolution and planning.

By regulation (50 CFR 216.27 (a)(3), Appendix B), the NMFS Regional Administrator (or Office Director of Protected Resources) has the authority to modify requests for release of rehabilitated marine mammals. In accordance with 50 CFR 216.27 (a)(1), any marine mammal held for rehabilitation must be evaluated for releasability within six months of collection unless the "attending veterinarian determines that the marine mammal might adversely affect other marine mammals in the wild, release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal, or more time is needed to determine whether the release of the marine mammal will likely be successful." If more time is needed, then NMFS will require periodic reporting in writing from the attending veterinarian, including a description of the

condition(s) of the animal that precludes release and a prognosis of release. NMFS may require that the marine mammal remain at the original rehabilitation facility or be transferred to another rehabilitation facility for an additional period of time, be placed in permanent captivity, or be euthanized. NMFS may also require a change of conditions of the release plan including the release site and post-release monitoring. An expanded release plan may be required including a justification and detailed description of the logistics, tagging, location, timing, crowd control, media coordination (if applicable) and post release monitoring. NMFS may require contingency plans should the release be unsuccessful including recapture of the animal following a specified time after release.

Generally for animals deemed "Non-releasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animals is to be placed in permanent captivity, the receiving facility must be registered or hold a license from the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) [7 U.S.C. 2131 *et seq*.] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). These facilities (i.e., the rehabilitation facility or another authorized facility) are required to send a *Letter of Intent* to the Office of Protected Resources, Permits, Conservation and Education Division (NMFS PR1) to permanently retain or acquire the animal (information available at http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm). This letter should include a signature of the "*Responsible Party of Record"*. As part of the decision making process, NMFS will consult with APHIS and may review the qualifications and experience of staff, transport protocols, and placement plans (i.e., integration based on appropriate composition of species, sex, and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization Letter* and include Marine Mammal Datasheets (MMDS), OMB Form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

For FWS species, LOA and permit holders provide recommendations to the FWS Field Offices for decisions regarding releasability of rehabilitated marine mammals (see Appendix H for contact information). The FWS retains the authority to make the final determination on the disposition of these animals. If FWS determines that a marine mammal is non-releasable, the holding facility may request a permit for permanent placement in captivity as prescribed in section 104(c)(7) of the MMPA for non-depleted species, or section 104(c)(3) or section 104(c)(4) and section 10(a)(1)(A) of the ESA for depleted species.

Manatee releases require a minimum 30-day advance notice (although exceptions may be made in the event of extenuating circumstances) and must also include a signed statement from the attending veterinarian that the **animal is medically and behaviorally suitable for release in accordance with the release criteria** (i.e., similar to a health certificate) and include a written release plan and timeline. Upon receipt, FWS will evaluate and determine the suitability of the release site and release conditions (see taxa specific sections for further guidance).

For cases involving declared *UMEs*, the *Working Group on Marine Mammal Unusual Mortality Events* will be consulted to determine if event specific release standards should be implemented as stated in the **1996 NOAA Technical Memorandum – National Contingency Plan for Response to Unusual Marine Mammal Mortality Events**. Priority will be given to protecting the health of wild populations over the disposition of an individual animal. Provisions may require monitoring a representative subset of released animals to determine survivability impact on the affected population or holding rehabilitated animals beyond the projected release time to determine long term health effects.

2.3 Documentation for Rehabilitation and Release of Marine Mammals

2.3.1 NMFS

Pursuant to the Stranding Agreement between the Stranding Network Participant and appropriate NMFS Regional Office that allows a stranding organization to respond to and/or rehabilitate marine mammals, the Stranding Network Participant must provide documentation to NMFS regarding their activities that involve the taking and disposition of marine mammals as described below. The same holds true for actions under MMPA section 109(h). Figure 2.1 presents the documentation and procedures following submission of the written "release determination recommendation."

- **Marine Mammal Stranding Report Level A Data**, NOAA Form 89-864, OMB No. 0648-0178 (Appendix C).

  This report is mandatory for all stranding events and includes basic information regarding the site and nature of the stranding event, a statement that the animal was found alive or a description of the condition of its carcass, morphologic information, photo or video documentation, initial disposition of any live animal, tag data, and information on disposal, disposition, and necropsy of dead animals. This report must be sent to the appropriate NMFS Regional Office within the time stated in the Stranding Agreement.

- **Marine Mammal Rehabilitation Disposition Report,** NOAA Form 89-878, OMB No. 0648-0178 (Appendix C)

  This report is mandatory for all rehabilitation cases (i.e., long-term and short-term temporary holding) and includes a brief history of the stranding and related findings of an individual marine mammal. It also includes the disposition of samples taken from the animal and disposition of the animal including release site and tagging information. This report includes verification and date that a pre-release health screen was done on the animal. This document must be sent to the appropriate NMFS Regional Office no later than 30 days following the final disposition (e.g. released or non-released) of the marine mammal or as prescribed in the Stranding Agreement. NMFS compiles these data annually to monitor success of rehabilitation and identify where changes and enhancements should be made.

- **Release Determination Recommendation 50 CFR 216.27 (a)(2)** (Appendix B)

  This regulation states that the custodian of a rehabilitated marine mammal must provide the appropriate NMFS Regional Office with written notification at least 15 days prior to the release of any marine mammal to the wild, including a release plan. The pre-notification requirement may be waived in writing for certain circumstances (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) by the NMFS Regional Administrator in accordance with specific requirements as stated in the Stranding Agreement. The required notification (release determination recommendation) should provide information sufficient for determining the appropriateness of the release plan, including a description of the marine mammal (i.e., physical condition and estimated age), the date and location of release, and the method and duration of transport prior to release (50 CFR 216.27(a)(2)(ii)). The release recommendation should include a signed report or statement from the attending veterinarian that the marine mammal is medically and behaviorally suitable for release in accordance with NMFS release criteria (i.e., similar to a health certificate under the Animal Welfare Act). NMFS may also require a concurrence signature from the "Authorized Representative" or Signatory of the Stranding Agreement. In the case of more challenging releases such as animals considered Conditionally Releasable," requests for release should be submitted well in advance of the 15-day period to provide adequate time for review and planning. NMFS reserves the right to request additional information and impose additional requirements in any release plan to improve the likelihood of success or to protect wild populations (50 CFR 216.27 (a)(3)). NMFS also can order other disposition as authorized upon receipt of the report (release determination recommendation)

(50 CFR 216.27 (b)(2). For guidance, see Appendix J for a Recommended Standard Checklist for Release Determination.

- **Notification of Nonrelease/Transfer of Custody**

  For animals deemed "Non-releasable," and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or be euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 U.S.C. 2131 *et seq*.] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). Facilities wishing to obtain non-releasable animals should send a *Letter of Intent* to NMFS PR1 to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the *"Responsible Party of Record"*. As part of the decision making process NMFS will consult with APHIS and may review the, qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex, and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization Letter* and include MMDS, OMB Form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

2.3.2 FWS

Requirements for the rehabilitation and release of marine mammals under FWS jurisdiction are specified under individual permits or LOAs. These requirements are specific to the species, the organization, and the activity being conducted. The required documentation for manatee rescue, rehabilitation, and release activities is provided in Appendix C.

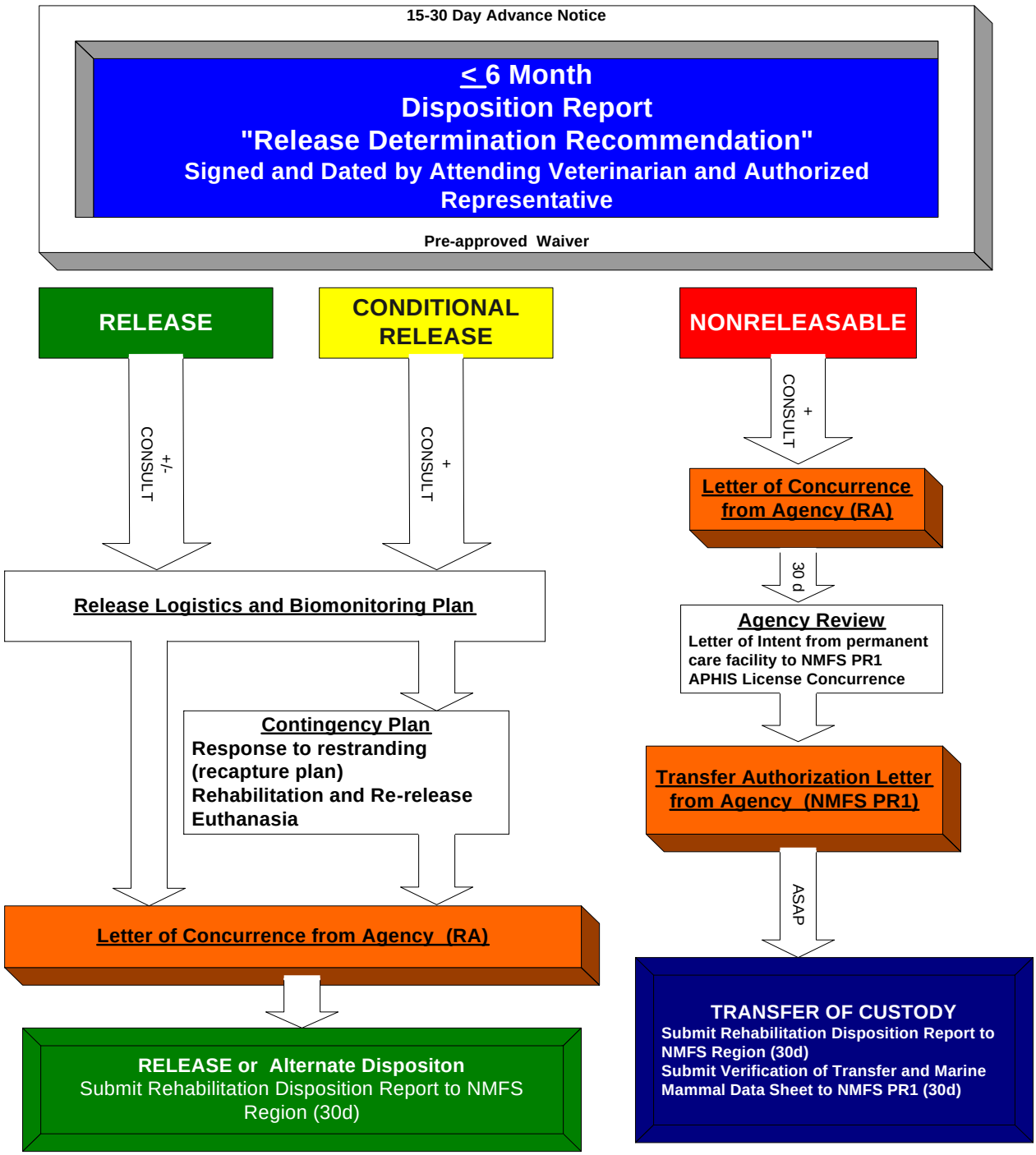

Figure 2.1 Documentation and Procedures Following Submission of the Written "Release Determination Recommendation."

2.4 Assessment Process for a Release Determination

These guidelines provide an evaluative process to determine if a stranded wild marine mammal, following a course of treatment and rehabilitation, is suitable for release to the wild. The basic format for these guidelines provides assignments for each taxonomic group (e.g., cetaceans, pinnipeds, manatees, sea otters, walrus, and polar bears) of rehabilitated marine mammals into "Release Categories." Release potential is characterized and categorized based on a thorough assessment of the health, behavior, and *ecological status* of the animal, as well as the release plan. It is critical that detailed historical, medical, and husbandry records are maintained and reviewed. Following a complete evaluation, the attending veterinarian and Assessment Team should categorize the animal into one of the following Release Categories: **Releasable**, **Conditionally Releasable**, **Conditionally Non-releasable (for manatees only)**, and **Non-releasable.** "Conditionally Non-releasable" is only a category for manatees because the FWS has had success releasing manatees that have been in captivity in excess of 20 years. NMFS species are deemed "Non-releasable" if they have been in captivity for over two years (see 50 CFR 216.27(a)(1)(iii)) and therefore a "Conditionally Non-releasable" category is not necessary. Based on the findings from the Assessment Team, the attending veterinarian provides a recommendation on releasability to NMFS or FWS. The Agencies will review and consider this information as a part of the release determination review process.

In most release cases, NMFS requires the release of marine mammals within six months of admission to rehabilitation (50 CFR 216.27(a)). This assessment can be done at more frequent intervals or earlier in the process of rehabilitation such as for obvious nonrelease cases (e.g., neonatal cetaceans, blind or deaf animals, etc). Rather than staying in a rehabilitation situation for up to six months, it may be in the best interest of the animal to immediately assess, determine releasability, and transfer to a more suitable permanent care facility. This is particularly important for all marine mammals that need socialization or expert care.

The Assessment should include the following steps and general parameters (see Figure 2.2 on page 2-16):

1. **Historical Assessment**. The Assessment Team should complete a historical evaluation that includes information gathered from the time of stranding through the duration of rehabilitation. Such information can impact the management of the case and determination of release. Circumstances such as an ongoing epidemic among other wild marine mammals, presence of environmental events such as a harmful algal bloom or hazardous waste spill,

acoustic insult; and special weather conditions (e.g., El Niño, hurricane, extreme cold, extreme heat, changes in oceanographic parameters, etc.) should be documented. It should be noted if the animal: had previously stranded and been released; was part of an official UME; had been exposed to other wild or domestic animals just prior to and/or during rehabilitation; or had attacked and/or bitten (including mouthing of unprotected skin) a human while being handled. This assessment should also include if the animal is evidence and part of a *human interaction* or criminal investigation. Such information can help guide the diagnostic and treatment strategy during rehabilitation and may impact the plan for post-release monitoring. It should be noted that strict measures are to be in place to prevent any disease transmission from other wild and domestic animals and humans during the rehabilitation process. Other considerations that should be taken into account include whether the animal was transferred from another facility (i.e., short-term triage/holding facility or rehabilitation facility) and the quality of care and treatment of each rehabilitation facility.

2. **Developmental and Life History Assessment.** In order to be deemed "Releasable," all rehabilitated marine mammals should have achieved a developmental stage wherein they are nutritionally independent. **Nursing nutritionally dependent animals should not be released in the absence of their mothers**. The ability of a young marine mammal to hunt and feed itself independently of its mother is critical to successful integration into the wild. Also of great importance is achievement of a robust body condition such that the animal has adequate reserves for survival. Other developmental issues, such as reproductive status and advanced age, seldom stand alone as determinants of release candidacy but are evaluated in conjunction with the overall health assessment. The Assessment Team should seriously consider information concerning the natural life history for the species. Therefore, it is important that the makeup of the team include someone with expertise or working understanding of the species behavior and life history. Important questions to be addressed include: 1.) does the species depend on a social unit for survival or does it exist solitarily in the wild?; 2.) has the animal developed the skills necessary to find and capture food in the wild?; 3.) has the animal developed the social skills required to successfully integrate into wild societies?; 4.) is there knowledge of their home range or migratory routes?; and 5.) does the animal have skills in predator recognition and avoidance? In other words, how important is it to the survival of the animal to be released with or near other cohorts? The Assessment Team can work with NMFS to consult with outside experts to evaluate the animal and

address these questions. Greater details regarding developmental assessment are included in the appropriate section for each taxonomic group.

3. **Behavioral and Ecological Assessment and Clearance.** In order to be deemed "Releasable," a marine mammal should meet basic behavioral criteria and some of which are specific for taxa. Across taxonomic groups, behavioral requirements for release include demonstration of normal breathing, swimming, and diving with absence of aberrant (i.e., abnormal) behavior, auditory, and/or visual dysfunction that may significantly compromise survival in the wild and/or suggest diseases of concern. The rehabilitated animal should also demonstrate the ability to recognize, capture, and consume live prey prior to its release when access to live natural prey is feasible, or, in the case of manatees, the ability to identify and feed on appropriate forage types. Because abnormal behavior may reflect illness or injury, this should be done in concert with the attending veterinarian and the medical assessment. The **behavioral clearance** should be part of the overall recommendation for release that is passed on to NMFS or FWS. Outstanding concerns regarding the behavioral suitability of the marine mammal for release are to be discussed with NMFS or FWS. Additional information is included in the behavioral assessment section for each taxonomic group.

   Also included in this thought process, is the concept of **ecological status**. This concept attempts to integrate the medical and behavioral evaluations into an extrapolation of how the animal would likely do in the wild when exposed to typical ecological pressures (personal comm. Wells 2005). It goes beyond the assessment of the current condition of the animal in an artificial environment at the rehabilitation facility relative to a limited set of immediately observable or measurable parameters. It places the animal in its current rehabilitated condition in the context of life in the wild. This process recognizes the importance of a team approach, involving complementary expertise, to evaluate the probability that a rehabilitated animal will survive and thrive back in the wild. It would be useful to include in the deliberations a behavioral ecologist with knowledge of the species specific (or closely related species) solutions to ecological challenges in the wild. The behavioral ecologist would be familiar with the species habitat, including oceanographic parameters, ranging patterns, life history, feeding ecology, potential predators, social structure, and anthropogenic threats likely to be faced by the animal once it is released.

4. **Medical Assessment and Clearance.** Although this document focuses on the evaluation and preparation of rehabilitated marine mammals for release, the medical assessment spans the entire time the animal is in rehabilitation and is critical to understanding the animal's health prior to release. The medical assessment includes information related to any health trend and diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on physical examination upon admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information, diagnostic test results (i.e., required by NMFS or FWS), and medical and husbandry records. The goal of required testing requested by NMFS or FWS is to safeguard the health of wild marine mammal populations and this is achieved by testing for diseases (*reportable diseases*) that pose a significant morbidity or mortality risk to wild populations.

   Other reportable diseases include those that are of *zoonotic* or *public health and safety concern* and the agencies will require immediate notification to assure proper protocols are put into place. The agencies may request testing for other *emerging diseases* as part of a *surveillance program* to identify potential *epidemics* of concern or to determine health trends. Additional testing will be required if the animal was part of an official UME. Specific testing requirements (i.e., pre-release health screen) will come from the NMFS Marine Mammal Health and Stranding Response Program (MMHSRP) through the National Stranding Coordinator and follows the term and responsibilities stated in the NMFS Stranding Agreement. For FWS species, contact the appropriate Field Office for guidance (see Appendix H for contact information).

   Throughout the rehabilitation period, the frequency of physical exams and decisions for performance of additional diagnostic testing are determined by the attending veterinarian. The animal should be closely monitored for disease throughout rehabilitation. Regardless of the precise cause of the animal's stranding, the stranding event itself and the animal's abrupt transition to a captive environment can cause significant stress, which may increase its susceptibility to disease (St. Aubin and Dierauf 2001). The rehabilitation facility may also harbor pathogens not encountered in the wild or new antibiotic resistant strains (Measures 2004, Moore *et al*. 2007, Stoddard *et al*. in press). Should the animal become infected with such a pathogen during rehabilitation, it could become ill or become a carrier of that pathogen and may pose a threat to a naïve wild population or even public health if it is released.

Introduction of pathogens from rehabilitated animals to free-ranging wild animals is a significant concern for diseases with serious *epizootic or zoonotic* potential (Gilmartin *et al.* 1993, Griffith *et al.* 1993, Spalding and Forrester 1993). Pathogens, particularly viruses, bacteria, and some protozoans, can quickly replicate in their hosts and are susceptible to selective forces that can drive microbial adaptation and evolution leading to changes in transmission rates, virulence, and pathogenicity via genetic modification (Ewald 1980, 1983, 1994; Su *et al.* 2003). Thus, infectious agents may become more pathogenic as they pass through new individuals and naïve species.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the animal. In addition to basic blood work, serology, microbial culture, cytology, urinalysis, and fecal exam, advanced techniques for pathogen detection such as Polymerase Chain Reaction (PCR), microarrays, and toxicology assessments are also available. A number of imaging techniques including radiology, bronchoscopy, and laparoscopy may also be utilized. The marine mammal literature has expanded to include numerous references on the performance and interpretation of diagnostic tests (see references and Appendices D, E, F, and G for partial list).

Except as otherwise noted, acquisition of blood for a complete blood count (CBC) and chemistry profile plus serum banking may be required by NMFS and FWS upon admission of a marine mammal to a rehabilitation facility. Such blood work should to be repeated by the original laboratory, to avoid problems with inter-laboratory variability, prior to release of the marine mammal. Microbial culture and isolation (i.e., aerobic and anaerobic bacterial, viral, fungal) should be a part of the medical evaluation and done upon admission and before exit from rehabilitation centers. Such paired tests help determine the types of pathogens that a marine mammal may have acquired in the wild and those that may have been acquired during its rehabilitation. Because the number of pinnipeds entering a rehabilitation facility annually may be quite high and presenting with similar diagnosis, particularly in El Niño years, NMFS may waive additional clinical evaluation as mentioned above for each pinniped but instead require that a percentage of these animals entering a facility have a thorough clinical work-up. This will be dependent on several factors, such as the stranding location, time of year, the clinical diagnosis upon admission, and disease status of the wild population (e.g., ongoing outbreaks, UMEs, etc). For walrus and polar bears, testing requirements will be on a case-by-

case basis. The NMFS or FWS stranding coordinator can provide guidance on this and other recommendations mentioned above.

The attending veterinarian interprets the results of blood work and additional diagnostic tests in light of physical exam findings, the animal's age, reproductive status, molt status, behavior, and other relevant or historical factors. Circumstances surrounding the stranding, recent environmental events, known health issues of resident wild marine mammals, and exposure to other animals are examples of historical factors that may provide information regarding the health status of the stranded marine mammal. The attending veterinarian should also consider if the animal was held in close proximity to other animals (e.g., penmates) undergoing rehabilitation and the disease history of those animals (e.g., within facility transmission). A number of references provide data useful for the interpretation of marine mammal diagnostic tests. Appendices E, F, G and H provide information on diseases of concern for cetaceans, pinnipeds, manatees and sea otters.

5. **Release Considerations**.

   a. **Required Identification Prior to Release.** Marine mammals must be marked prior to release for individual identification in the wild (see 50 CFR Sec. 216.27(a)(5) for species under NMFS jurisdiction). Examples of identification systems include flipper roto tags, flipper All-Flex tags, flipper Temple tags, passive integrated transponder tags (PIT tags), radio tags, satellite tags, and freeze branding (Geraci and Lounsbury 2005). Invasive tag application procedures should be done under the direct supervision of the attending veterinarian and will need prior approval from NMFS and FWS and may require a monitoring period following the procedure. Proper photo identification for some species should also be considered part of the protocol. Standard identification protocols exist for various groups of marine mammals that detail the methods and procedures for marking for future identification in the wild, and are included in the appropriate section for each taxonomic group. Contact the Agency stranding coordinator for additional information.

      As described, roto tags or flipper tags (basic tags) for cetaceans and pinnipeds (except walrus) are to be obtained from or coordinated through the NMFS Regional Stranding Coordinator. For FWS species, tags for walrus are to be obtained from the *USGS* and tags for polar bears are obtained from FWS. Tags for manatees are to be

obtained from FWS or the appropriate State Agency. Tags for sea otters are obtained by each individual LOA or permit holder.

Depending on the species, if the animal restrands or the tag is found, this information should be reported to the appropriate NMFS or FWS and/or USGS Stranding Coordinator. The NMFS National Marine Mammal Stranding Database centrally archives tag data for NMFS species. The FWS and/or USGS track these data for walruses, sea otters, and polar bears. For manatees, the State agencies maintain the tag data.

b. Release Site Requirements and Recommendations. Rehabilitated marine mammals are to be released to the wild under circumstances that reflect the natural history of their species and maximize the likelihood for their survival. This will vary with age and sex of the individual. Timing should be set to minimize additional energetic and social demands, and maximize foraging success and ease of social acceptance with conspecifics. For NMFS species, information regarding the date, location, and logistics of the release and any other information requested are included in the required 15-day advance notification of the Agency prior to release as cited in 50 CFR 216.27 (a)(2). Key factors in determining a release site include specific habitat, geographic and environmental factors such as weather and oceanographic states, past successful releases, public use, potential for predators, and availability of prey as well as transport time. Maintenance of stock fidelity, proximity of conspecifics, timing in relation to breeding seasons and migration activities are also crucial considerations. As the natural history of each species provides the framework for planning a release, greater details for each taxonomic group are provided in the appropriate section of this document.

6. Post-Release Monitoring. Post-release monitoring is a key method by which the efficacy of rehabilitation efforts can be assessed and revised. Such monitoring may also provide an opportunity to recover individuals that are unable to readjust to the wild. Simple post-release monitoring plans include such methods as visually tracking tagged or marked animals by land, air, or sea. More costly radio-telemetry and satellite tracking are highly desirable methods of post-release monitoring as they provide detailed information of the movement and behavior of released marine mammals. Post-release monitoring is recommended for all

rehabilitated marine mammals and is required for some taxonomic groups, such as cetaceans and manatees, depending on release category. The intensity of post-release monitoring efforts is determined by such factors as the age and species of the marine mammal, its status as threatened or endangered, and concerns regarding its health or developmental issues that may impact its ability to readjust to the wild. Advanced post-release monitoring techniques may be required for "Conditionally Releasable" animals when significant concerns regarding their chances of survival exist. All post-release monitoring plans for rehabilitated marine mammals are to be approved in writing by, and coordinated with, NMFS or FWS. NMFS may require the submission of follow-up monitoring summaries at specified intervals post-release (e.g., 90 day intervals), until such time as contact with the animal has ended. The final update should include tracking data and an evaluation of the success of the rehabilitation and release along with recommendations for future cases. NMFS may use these data in order to make future revisions to marine mammal rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released animals is highly recommended and may be required by NMFS. Formal study of monitoring data and its dissemination to the stranding network will aid in the assessment of marine mammal rehabilitation and release programs.

2.5 Emergency or Special Situations

NMFS and FWS are responsible for monitoring and protecting the health of wild marine mammal populations. To fulfill this responsibility, and as stated in the NMFS Stranding Agreements, these agencies may require or recommend increased documentation, testing, and/or post-release monitoring of rehabilitated marine mammals when a stranding event appears to be related to wide spread environmental events such as algal blooms, hazardous waste spills, outbreaks of disease, UMEs, etc. An increased incidence of illness or injury to marine mammals may prompt NMFS or FWS to require specific diagnostic testing as part of a surveillance program and additional communication regarding case outcomes. NMFS and FWS personnel are to provide Stranding Network Participants and rehabilitation facilities with this information and may be able to provide additional funding and other support regarding such circumstances. For example, NMFS holds contracts with specific diagnostic labs that can provide services for rehabilitation facilities free of charge.

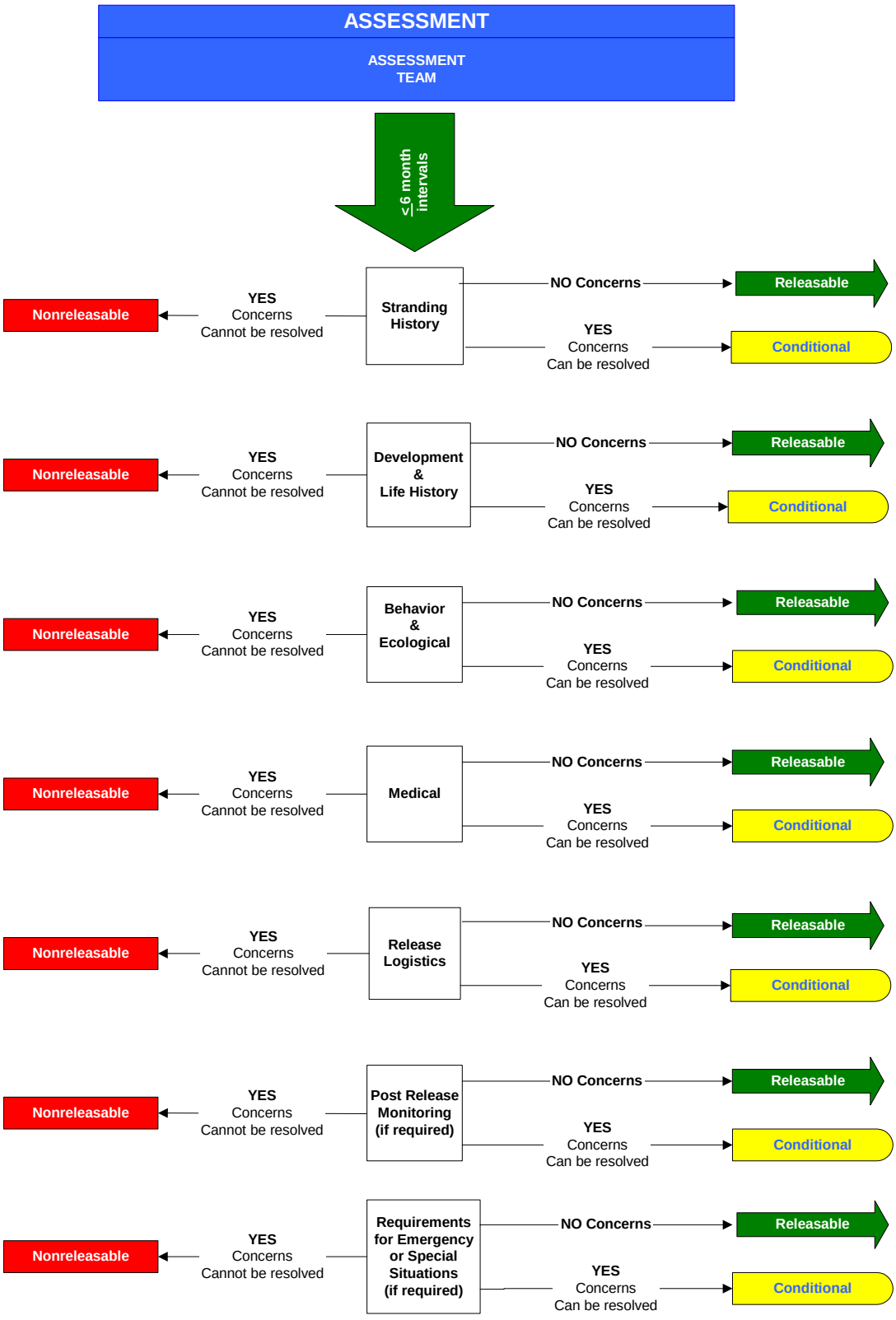

Figure 2.2 Steps and General Parameters for Animal Release Assessment

3. Guidelines for Release of Rehabilitated Cetaceans

3.1 Introduction

Few species of cetaceans (i.e., primarily bottlenose dolphins, rough-toothed dolphins, grampus dolphins, and harbor porpoise) are rehabilitated in the United States each year. Although the natural history of cetaceans differs among the various species, the general release criteria set forth in this document are applicable to all cetaceans in the United States. Prior to the release of any cetacean, NMFS requires that a thorough evaluation of the historical, developmental, behavioral, and medical records and status be completed by the Assessment Team (i.e., Stranding Network Participant, attending veterinarian, animal care supervisor, and biologist with knowledge of species behavior, ecology, and life history). For all cetacean cases, a release determination recommendation must be sent to the NMFS Regional Administrator at least 15 days (typically 30 days) in advance of a proposed release date. Waivers for advanced notice are not generally considered in cetacean cases. The release determination recommendation must include a signed statement from the attending veterinarian in consultation with their Assessment Team that the animal is **medically and behaviorally suitable for release in accordance with the release criteria** and include a written release plan and timeline. The request should also include a statement(s) from an expert biologist(s) with knowledge of the species or similar species that is being considered for release and should state that the animal meets behavior and ecological criteria for release in accordance with the release criteria. NMFS may recommend or require additional testing beyond these guidelines for reportable diseases in light of new findings regarding various disease and health issues. A release plan will require a justification statement and detailed description of the logistics for transporting, tagging, location, timing, crowd control, media coordination (if applicable), post-release monitoring, and recovery should the animal fail to thrive. NMFS may require a recapture contingency plan if the animal appears to be in distress or poses a risk following a specified time after release. NMFS may consult with individual experts for further guidance. NMFS reserves the right to impose additional requirements in the release plan as stated in 50 CFR 216.27 (a)(3).

3.2 Overview of "Release Categories" for Cetaceans

Cetaceans evaluated at rehabilitation facilities can be grouped into one of three "Release Categories" based on historical, developmental, behavioral, ecological, and medical criteria set forth in a **standardized checklist**. It is recommended that the standardized checklist (see Appendix J) be used to assess and document the release candidacy of rehabilitated cetaceans. The checklist includes a

health statement (i.e., health certificate) to be signed by the attending veterinarian and authorized representative, which verifies that a cetacean meets appropriate standards for release. This checklist could be used to determine and document releasability (i.e., as part of the required documentation sent to NMFS – refer to Figure 2.1) and as a final check just prior to release.

The case should fit into one of three **"RELEASE CATEGORIES:"**

1. **"RELEASABLE":** This category indicates that there are no significant concerns related to the likelihood of survival in the wild and/or risk of introducing disease into the wild population. Also, the animal meets basic historical, developmental, behavioral, ecological, and medical release criteria. The release plan has been approved in writing by NMFS Regional Administrator via a letter of concurrence to the applicant.
2. **"CONDITIONALLY RELEASABLE":** This category indicates that there are concerns about the historical, developmental, behavioral, ecological, and/or medical status of the animal, raising a question of survival or health risk to wild marine mammals. A cetacean may be deemed conditionally releasable if requirements for release cannot be currently met but may be met in the future without compromising the health and welfare of the individual animal. In such cases, more time may be needed to determine the feasibility of release (see 50 CFR 216.27(a)(1)(iii)).

   All "Conditionally Releasable" cetaceans must be discussed with NMFS. For some cases, NMFS may consult with individual experts to seek additional advice. The experts may include scientists and veterinarians with expertise in cetacean biology and medicine (i.e., particularly experts with species-specific knowledge). These discussions may reveal that additional medical testing, rehabilitative therapy, and strategies for post-release monitoring may be required to release a "Conditionally Releasable" cetacean.
3. **"NON-RELEASABLE":** This category indicates that there are significant historical, developmental, behavioral, ecological, and/or medical concerns regarding its release to the wild. It has a documented condition demonstrating little chance for survival in the wild and/or a diagnosed health risk to wild marine mammals. This category also includes animals that have been in rehabilitation greater than two years (see 50 CFR 216.27(a)(1)(iii)). Additionally, a cetacean may be deemed "Non-Releasable" if an appropriate release site or post-release monitoring plan cannot be arranged.

For animals deemed "Non-releasable," and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or

euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 U.S.C. 2131 *et seq*.] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). Facilities wishing to obtain non-releasable animals should send a *Letter of Intent* to NMFS PR1 to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the *Responsible Party of Record*. As part of the decision making process NMFS will consult with APHIS and may review the qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex, and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization Letter* and include MMDS and OMB Form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

3.3 Historical Assessment of Cetaceans

Historical stranding information may guide the management of rehabilitation and the plan for post-release monitoring. Important historical information should include:

1. **A record of previous stranding –** Stranded cetaceans that have previously stranded and been released, and subsequently strand again, are deemed "Conditionally Releasable" for further release attempts pending consultation with NMFS. Such animals should be reassessed and as they may have underlying health issues requiring additional evaluation, diagnostic testing, and advanced post-release monitoring. Alternatively, such cetaceans may be assessed as "Non-Releasable" and be transferred to permanent captivity or euthanized.
2. **A mother-calf pair –** A stranding of a mother/calf pair may be the result of illness or injury to either the mother, calf, or both. If the calf dies or is euthanized, the mother could be considered for release following a thorough and appropriate assessment. If the mother dies or is euthanized, a dependent calf is likely non-releasable because it cannot forage on its own and should be placed in permanent captivity or euthanized.
3. **An association with an ongoing epidemic among other wild marine animals or a UME** – If the stranding of a cetacean occurs close to (i.e., temporally and geographically) an ongoing epidemic of wild marine animals or to a UME, fish kill, harmful algal bloom, hazardous waste spill, or other such environmental event, the cetacean is deemed "Conditionally Releasable" and consultation with NMFS is required. NMFS may request additional testing, documentation, and/or post-release monitoring of such cetaceans.

4. **Stranding location and active/home range –** Stranded cetaceans may be deemed "Conditionally Releasable" if they stranded in areas where there is an increase in human activity (e.g., active fishery, increased recreational use, military activity, shipping activity, etc.) or hazardous environmental conditions (e.g., harmful algal bloom or hazardous waste spill, and/or special weather conditions like El Niño, hurricane, extreme cold, extreme heat, etc). The geographical distance between the stranding location and the rehabilitation facility is important to acknowledge, as there could be important differences in the microflora in the facility's water system. Information on areas of human activity and environmental hazards is also vital for determining an appropriate release site.
5. **The animal has been exposed to (or injured by) other wild or domestic animals –** Stranded cetaceans with a history of exposure to terrestrial wild (e.g., raccoons, coyotes, etc.) or domestic animals (e.g., cats, dogs, etc.) are deemed "Conditionally Releasable" and must be discussed with NMFS. There is a potential for zoonotic pathogens to be transmitted between wild or domestic animals to marine mammals but signs of clinical disease are undetectable. Additional testing may be required to better assess the health status and decrease the potential for transmitting diseases of concern to wild marine mammal populations following release. Consultation with NMFS is required for cetaceans that have a history of exposure to terrestrial animals.
6. **The animal was transferred from another holding, triage or rehabilitation facility** – The opportunity for exposure to pathogens can occur at different stages of response and rehabilitation. Therefore, it is important to obtain medical records and document the quality of care and treatment at each stage of this process.
7. **The animal was evidence or part of a human interaction or criminal investigation** – **This includes an investigation by** NOAA Office of Law Enforcement, the U.S. Department of Justice, or other Federal, state or local authorities.
8. **The animal was part of a mass stranding (stranding involving more than one cetacean if not a cow-calf pair)** – Mass strandings are typically influenced by behavior, with the majority of stranded animals being healthy but in need of assistance to return to the ocean. If a stranding response can be mounted quickly and safely and the animals are assessed and deemed healthy, individuals of a mass stranding may be released or relocated for immediate release. However, some individuals may be admitted into rehabilitation and may be "Conditionally Releasable" based on the pathologic findings of the pod mates that perished during the event.

9. **The animal was transferred from a research facility or undergoing permitted research during rehabilitation** – Research activity may extend the frequency and intensity of handling time and could increase the risk of altering behavior or increasing the chance of exposure to facility pathogens or chemicals (e.g., anesthetic agents, metabolic agents, etc). These animals will be considered "Conditionally Releasable" or "Nonreleasable."

3.4 Developmental Assessment of Cetaceans

A fundamental criterion for developmental clearance of a rehabilitated cetacean is that it has attained a sufficient age to be nutritionally independent, including the ability to forage and hunt. The cetacean calf grows from a state of total nutritional dependence through nursing to partial maternal dependence as it learns to forage for fish and/or squid. Eventually the young cetacean achieves total nutritional independence and forages completely on its own. Factors including individual and species variations, rehabilitation practices, health status, plus environmental factors affect the rate at which such development occurs (see Appendix I for Developmental Stages by Cetacean Species). For bottlenose dolphins (*Tursiops truncatus*), the age at which a calf may be completely weaned is approximately 1-4 yrs. Calves that are nutritionally dependent at the time of admission to rehabilitation are automatically placed in the "Conditionally Releasable" category and must be discussed with NMFS. In situations where a nursing, dependent calf strands with its mother and both animals achieve medical, behavioral and ecological clearance, the calf must be released with its mother. Very young nursing calves that strand alone or whose mothers die may lack socialization and basic acquired survival skills as they grow older. Neonatal and very young nursing calves will be deemed "Non-Releasable." Cases involving older calves and juveniles having some foraging skills may be considered "Conditionally Releasable" but require a thorough assessment and optimum planning for release and subsequent monitoring.

Reproductive status in and of itself does not impact release candidacy unless a female strands with its calf or gives birth during rehabilitation. For instance, a single pregnant female should be returned to the wild as soon as both medical and behavioral clearance has been achieved and NMFS approves of the release plan. However, all mother-calf cetacean pairs are deemed "Conditionally Releasable" and must be fully discussed with NMFS and its advisors. The well-being of both the mother and the calf is to be carefully considered in such cases. Efforts should be made to reduce their time in captivity and to keep the mother-calf pair together, yet allow for continued treatment and rehabilitation of both individuals if warranted.

Cases involving cetaceans showing signs of advanced age are considered "Conditionally Releasable" and should also be thoroughly evaluated and discussed with NMFS. Although it is not always feasible to precisely determine the age of a living adult cetacean, the physical condition of the animal may suggest to the Assessment Team that it is geriatric. Geriatric animals may have underlying clinical conditions that contributed to their stranding or may be behaviorally or ecologically unsuited for continued life in the wild.

3.5 Behavioral Assessment of Cetaceans

Complete assessment of the behavior and ecological potential may be limited by the confines of a temporary captive environment and behavior of the animal will differ from that displayed in the wild. A full understanding of what constitutes “normal” for a given cetacean species also may be lacking. Behavioral and ecological clearance is thus founded on evaluation of basic criteria necessary for the survival of the animal in the wild. Behavioral evaluation often overlaps with medical evaluation as abnormal behavior may indicate an underlying disease process. Experts with species specific knowledge of cetacean behavior and ecology, in addition to the attending veterinarian, should assess the behavior of the rehabilitated cetacean. These assessments should involve closely evaluating and documenting behavior throughout rehabilitation (i.e., *ethogram*), relating the behavioral, sensory, and physical capabilities of the animal to its prospects of surviving and thriving in the wild.

To achieve basic behavioral clearance, a cetacean should breathe normally, including rate, pattern, quality, and absence of respiratory noise. A cetacean should swim and dive effectively without evidence of aberrant behavior or auditory or visual dysfunction that may compromise its survival in the wild or suggest underlying disease that may threaten wild marine mammals. Behavioral clearance also should include confirmation that the cetacean is able to recognize, capture, and consume live prey when such tests are practical (for example, it may not be possible to obtain live prey for offshore or deep water species). Documented dependency on or attraction to humans and human activities in the wild would warrant special consideration as a possible conditional release or non-release decision.

Basic behavioral conditioning of wild cetaceans for husbandry and medical procedures may be necessary during rehabilitation as long as every effort is made to limit reinforced contact with humans. Station training may be necessary to assure animals are appropriately fed and to control social dominance when multiple animals are being treated in the same pool or pen. Also, such conditioning may reduce stress for the animal during examinations and acquisition of biological samples. Behavioral conditioning of cetaceans is to be done for the shortest time necessary to achieve

rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. Additional information on behavioral conditioning of marine mammals is provided in the references.

3.5.1 Breathing, Swimming, and Diving

The Assessment Team should evaluate respiration at the pre-release exam to determine that the animal does not exhibit abnormal breathing patterns or labored breathing. Respiratory measurements should be standardized to record the number of breaths per five-minute intervals. Evaluation of swimming and diving should confirm that the cetacean moves effectively and does not display abnormalities such as listing, difficulty submerging, asymmetrical motor patterns, or other potentially disabling conditions. In small pools (i.e., less that 50 ft diameter), cetaceans may not be able to demonstrate a full range of locomotor and maneuvering abilities; therefore, evaluation in larger pools is highly recommended. Cetaceans exhibiting persistent abnormalities of breathing, swimming, or diving, are to be considered "Conditionally Releasable" or "Non-releasable" and must be discussed with NMFS.

3.5.2 Aberrant Behavior

The behavioral clearance of the cetacean should include confirmation that the animal does not exhibit aberrant behavior. Examples of aberrant behavior include, but are not limited to, regurgitation, head pressing, postural abnormalities such as repetitive arching or tucking, decreased range of motion, abnormal swimming or breathing as described above or excessive interest in interaction with humans. Cetaceans displaying abnormal behavior may have an underlying disease process or may have permanent injury or tendencies that will decrease their chance of survival in the wild. Cetaceans displaying aberrant behavior are considered "Conditionally Releasable" or "Non-releasable" and thus are to be fully discussed with NMFS.

3.5.3 Auditory and Visual Acuity

The behavioral and ecological clearance of the cetacean should include evaluation of auditory and visual acuity. Auditory dysfunction, involving production or reception of typical sounds or signals occurring in the wild, may be a reflection of active disease, permanent injury, or degenerative changes associated with aging. Evaluators may suspect that a cetacean has compromised auditory function if it appears to have difficulty locating prey items or various objects via echolocation or if it minimally responds to novel noises. Reduced auditory abilities can compromise the ecological

functionality and social abilities of some species, thus reducing the probability of survival in the wild. In each case, it is highly recommended that hydrophone-recording systems with an appropriate frequency response be used to record sound production in the water to document production of normal classes and qualities of sounds made by the cetacean. It is important to evaluate hearing if there are signs of compromised auditory function and diagnostic testing such as auditory evoked potential (AEP) may be necessary to further evaluate the anima. Such testing requires approval and coordination with NMFS. Cetaceans having discoloration, swelling, abnormal shape, position or appearance of the eye or eyelids may have visual dysfunction and also require discussion with NMFS.

3.5.4 Prey Capture

The rehabilitated cetacean should demonstrate foraging behavior (i.e., the ability to hunt and capture live prey) prior to its release when practical. Normal consumption of solid food should also be part of the medical assessment. This demonstrates the ability to swallow and that there is no pharangeal and/or gastrointestinal abnormalities. This evaluation is especially important for young and geriatric animals. Prey items normally found in the animal's environment and of good quality should be used whenever possible. Natural prey items may not be available for rehabilitating pelagic cetacean species; evaluators may try to utilize other prey species. However, many cetaceans often will not consume non-prey species. For social species, it may be just as important to look for cooperative or coordinated feeding behavior. NMFS should be notified if a rehabilitated cetacean appears compromised in its ability to recognize and/or capture live prey or if logistical issues preclude assessment of this behavior.

Cetaceans that are believed to have had limited foraging experience prior to stranding (i.e., young juveniles) require particularly careful assessment of prey capture ability. This behavior is learned and cetaceans that strand at a young age may not have gained adequate foraging skills to sustain themselves in the wild. Also, knowledge of the natural history of the species may be useful. If the species forages and hunts as a social unit, this may affect its ability to survive in the wild if released as a solitary animal. Similarly, amputated appendages may preclude the use of some specialized feeding techniques or attainment of sufficient speed or maneuverability for prey capture, or diminished auditory function may prevent individuals that prey on soniferous (i.e., noise-producing) fishes from locating sufficient prey to survive (e.g., coastal bottlenose dolphins).

3.5.5 Predatory Avoidance

Testing a cetacean's ability to avoid predators is not practical in most cases, but indirect evidence of abilities can be evaluated. If the individual is determined to have stranded primarily as a direct result of a shark attack (as opposed to secondarily, as an attack on an otherwise compromised animal), then this suggests that the animal may lack the skills or physical abilities to continue to survive in the wild. This would be especially important in the case of young animals, recently separated from their mothers. For social species, observations of group behavior may indicate the cohesiveness of the group which is an important behavioral mechanism for predatory avoidance.

3.5.6 Social Factors

The survival of an individual cetacean may be critically dependent on social organization and conspecifics (see Appendix I for Cetacean Species Specific Group Occurrence). A tremendous range of variability of sociality exists across the cetaceans. Members of species involved in mass strandings (i.e., presumably a social species) should not be rehabilitated singly or in unnatural social groups. The composition of these groups should be carefully considered when animals are recovered from a stranding and considered for release. It would be naïve to assume that any two cetacean species can be put together to form a functional social unit or that even two unfamiliar members of the same species will bond into a functional social unit. Therefore, for social species it is important to assess the group dynamics and behavior (*reasonable social group*) in the same manner as for individuals. Cetaceans that do not live in social groups do not necessarily require conspecifics for release, as long as they are released into an appropriate habitat where conspecifics are likely to occur. Indications of social problems that may be a contributing factor of the stranding (e.g., evidence of extensive fresh tooth raking marks in the absence of other medical factors) and should be considered. Other factors that are important for proper socialization and should be evaluated include hearing, sound production, missing appendages, and missing teeth.

3.6 Medical and Rehabilitation Assessment of Cetaceans

The medical assessment includes information related to any diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on-physical examination upon admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information and diagnostic testing, and medical and husbandry records. The primary goal of the testing required by NMFS is to determine the risk to the health of wild marine mammal populations. This is achieved by testing for diseases that pose a

significant morbidity or mortality risk to wild populations (i.e., reportable diseases). Those that are zoonotic or a public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing will be required if the animal was part of an official UME or suspected anthropogenic exposure (e.g., acoustic insult, hazardous waste spill, etc.). NMFS may request testing for other emerging diseases to support surveillance for potential epidemics of concern and to monitor changes in disease status due to rehabilitation practices. The directive for the pre-release health screen will come from the NMFS Regional Stranding Coordinator through the MMHSRP. Appendix D lists diseases of concern for cetaceans.

A complete health screen should be completed upon admission and just prior to release including basic blood collection for a CBC, chemistry profile (including BUN and creatinine, enzymes and electrolytes), serology, microbial and fungal culture (i.e., blow hole, rectal, ocular, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy be determined as soon as possible to avoid potentially fetal toxic medication. Serum (3ml/each) should be banked at the time of admission and just prior to release for retrospective studies. Cessation of antibiotics should occur two weeks prior to release examination to assure that the animals is no longer dependant on the medication and that the drug has cleared based on the pharmacokinetics and requirements made by the veterinary community and the Food and Drug Administration. Some antibiotics clear the body quickly and require shorter withdrawal time. When this recommendation cannot be met, seek advice from NMFS. **The attending veterinarian should provide written notification to the NMFS Regional Stranding Coordinator that a health screen and assessment of the cetacean has been performed. The notification must also include the final release plan and a plan for hands-on physical examination by the attending veterinarian (including last blood draw and evaluation) within 72 hours of its release. The required documentation and signed release determination will be part of the administrative record along with the signed (by the NMFS Regional Administrator) letter of concurrence approval for release.**

It is of extreme importance that the cetacean be monitored closely for disease throughout its rehabilitation. Regardless of the stranding etiology, handling and care can stress the animal increasing its susceptibility to disease. If not properly managed, rehabilitation facilities provide an environment where mutated or novel pathogens not typically encountered in the wild can easily be transmitted from animal to animal. This scenario can become problematic if an animal is exposed during rehabilitation and may carry a pathogen to a naïve wild population upon release. Introduction

of pathogens from rehabilitation centers to the wild is a concern as diseases with serious epizootic potential have previously been detected (Measures 2004, Moore *et al*. 2007, and Stoddard *et al.* in press). During rehabilitation, infectious agents may become altered (i.e., change in virulence and infectivity) as they pass through new hosts or mix with other microbes and potentially result in a multi-antibiotic resistance strain.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the cetacean. In addition to the complete health screen analyses, advanced techniques for pathogen detection such as PCR and toxicology analyses are available. A number of diagnostic imaging techniques including radiology, CAT scans, and MRI may be used as well as bronchoscopy and laparoscopy. The cetacean literature has expanded to include numerous references on the performance and interpretation of diagnostic tests.

3.7 Release Site Selection for Cetaceans

Ideally, the rehabilitated cetacean is released into its home range, genetic stock, and social unit. For species such as coastal resident bottlenose dolphins, returning the animal to its exact home range may be extremely important. For widely ranging species such as the pilot whale, specificity of the release site may be less critical as the genetics of these cetaceans may be more *panmictic*. Returning the animal to its home range or species range may increase the likelihood that the animal will have a knowledge of available resources, potential predators, environmental features, and social relationships that would support its successful return to the wild. Consideration should also be given to the time of year, since the range of the animal may change based on season and where conspecifics are along their migration route at a given point in time.

In many cases, the precise home range of the individual will not be known. There may not be any information regarding the animal's social unit or its individual ranging patterns prior to its stranding. In some cases, photographic identification records may help identify the home range or social group for some species. When the home range of the cetacean is unknown, the animal should be released at a location near to its stranding site that is occupied regularly by its conspecifics, ideally those of the same genetic stock. Genetic analyses of a tissue sample via a qualified laboratory and appropriate tissue archive may aid with determining the appropriate stock of origin. Pelagic cetaceans are to be released offshore into a habitat occupied by conspecifics at that time of year. For animals that mass strand, depending on the life history, social units should be maintained whenever possible thus cetaceans that stranded together should be released together as a group. Because much of cetacean

behavior is learned, juveniles should be released with adults or in the presence of conspecifics and mothers with their dependent young.

Other factors to be considered in release site selection are availability of resources and condition of the habitat. NMFS and the Stranding Network Participant are to ensure that severely depleted resources or degraded habitat at the release site do not pose an obvious threat to the released animal. Release plans should include alternative release sites or schedules if there is a substantial decline in resources or habitat quality such as massive fish kills, significant declines in commercial and/or recreational fish landings, harmful algal blooms, or high concentrations of environmental contaminants. Animals should not be released into areas of dense public use and/or high commercial and recreational fishing activity.

3.8 Marking for Individual Identification of Cetaceans Prior to Release

Three forms of identification have routinely been used for cetaceans including photo-identification (documenting individual identifying physical characteristics such as scars, color pattern, dorsal fin shape, etc.), freeze branding, and dorsal fin tags. NMFS recommends the use of all three forms of identification for all releases. For delphinids, photo-identification should include body, face, dorsal fin, flukes, and pectoral flippers. Numerical freeze brands should be at least 2" high and may be placed on both sides of the dorsal fin and/or on the animal's side just below the dorsal fin, except for species that lack a dorsal fin or have small dorsal fins such as the harbor porpoise. Roto-tags should be attached on the trailing edge of the dorsal fin. Tag application and freeze branding should only be done by experienced personnel as improper tagging may cause excessive tissue damage, infection, or premature loss of the tag or mark. Marking of non-delphinid cetaceans can be more challenging due to unique anatomical features and should be determined in consultation with NMFS. NMFS must receive advance notification of and approve any additional forms of identification that a rehabilitation facility voluntarily wants to place on a cetacean besides those mentioned above. NMFS authorization is required prior to placement of VHF radio or satellite-linked radio tag.

The identification system to be used on cetaceans deemed "Conditionally Releasable" must be approved by NMFS. As these animals are required to have an advanced post-release monitoring plan, conditionally releasable cetaceans will often require VHF or satellite tagging in addition to photo-identification, freeze-branding, and placement of a visual fin tag.

3.9 Post-Release Monitoring of Cetaceans

Few data is currently available regarding the long-term fates of released cetaceans. Post-release monitoring provides essential information to develop and refine marine mammal rehabilitation and release practices. "Conditionally Releasable" cetaceans should be monitored daily for at least two months after release. The specific post-release monitoring plan for each cetacean is to be coordinated through NMFS. Post-release monitoring methods may include visual observations from land, sea, or air, and/or radio or satellite-linked monitoring. It is understood that post-release monitoring of cetaceans, particularly pelagic species, is an extensive undertaking for which significant support is required, often from multiple sources. In a few instances, NMFS has provided resources such as financial support, personnel, and equipment for post-release monitoring but it is not standard practice. Therefore, the rehabilitation facility is encouraged to seek funding to enhance their post-release monitoring program.

The first month after release is a particularly critical period during which it will become evident whether the animal is thriving, including avoiding predators, capturing sufficient prey, and being accepted by conspecifics. For coastal species it is recommended that monitoring continue on a regular basis for at least one year. Funding resources, such as the Prescott Grant Program, can assist with the financial burden of such endeavors. NMFS requires periodic and final reports on released animals. These reports will facilitate future revisions to the marine mammal rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released cetaceans will be required. NMFS will provide the stranding network with the desired format for receipt of tracking data in reports. Presentation, discussion, and formal study of monitoring data and its dissemination to the stranding network will aid in the assessment of cetacean rehabilitation and release programs.

Release plans should include the contingency plans that are available for recovering the animal, should monitoring indicate its failure to thrive. The release plans should also address treatment and euthanasia if the animal is retrieved or restrands. In addition, NMFS may require such contingency plans for "Conditionally Releasable" cetaceans, depending on the circumstances.

3.10 Decision Tree – Cetacean Release Categories

3.10.1 Releasable

The cetacean is cleared for release by the attending veterinarian (including the Assessment Team) and the NMFS Regional Administrator concurs in writing. This means that the requirements for the health and behavior assessment, marking/tagging, and release plan have been met and both veterinary and biological opinions regarding release have been received (see text for details). For an animal to be considered "releasable" the response to all of the essential release criteria below should be met.

History

Cetacean has no historical information requiring consultation with NMFS such as stranding in close temporal or geographic relation to a UME, stranding associated with an environmental event of concern,, an acoustic insult, a human interaction or criminal investigation, or a mass stranding.

Developmental Stage/Life History

a) Cetacean has attained sufficient size and age to be nutritionally independent.
b) Cetacean is not a female with calf.
c) Cetacean is not a geriatric animal and not compromised due to age related conditions.
d) Cetacean was not exposed to captive or domestic animals during rehabilitation.

Behavioral Clearance

a) Cetacean breathes normally, swims and dives effectively.
b) Cetacean does not exhibit aberrant behavior, auditory, or visual deficits.
c) Cetacean demonstrates appropriate foraging ability.
d) Cetacean did not strand as direct result of a failure to avoid predators.
e) Cetacean did not strand as a result of taking food from humans in the wild.
f) Cetacean did not strand as a direct result of a demonstrated inability to obtain sufficient food in the wild.
g) Cetacean did not strand as a direct result of conspecific injury.

Medical Clearance

a) Health status of the cetacean is deemed appropriate for release by the attending veterinarian.
b) Hands-on physical exam by the veterinarian at time of admission to rehabilitation and within 72 hours of release.
c) Laboratory tests performed at time of admission and within seven days of release are complete and submitted for review:
    - CBC;
    - Chemistry Profile to include: Glucose, Sodium, Potassium, Chloride, Calcium, Phosphorus, Iron, Bicarbonate, Alkaline Phosphatase, ALT, AST, GGT, BUN, Creatinine, Uric Acid, CPK;
    - Serum Banking (3 ml upon admission and 3 ml at time of release, more if available; and
    - Aerobic Bacterial Cultures (Blowhole, Rectal, Lesions).
d) Cetacean is free of drugs (excluding sedatives used for transport) a minimum of 2 weeks prior to release.

Release Logistics

a) Tagging/Marking - Delphinids: 3 forms of identification approved by NMFS (dorsal fin tag, freeze brand, photo, other).
b) Release Site - Return to appropriate stock and geographical site under favorable environmental conditions, and for social species, introduced in areas with conspecifics.
c) Tracking - minimum of 2 months post-release monitoring coordinated with NMFS (provide NMFS with regular tracking updates).
d) Provide NMFS a report at the end of the tracking period.

3.10.2 Conditionally Releasable

The cetacean did not meet one or more of the essential release criteria but may be releasable in the future pending resolution of the problems identified by the attending veterinarian and Assessment Team.. This may involve discussion with outside experts in consultation with NMFS. Contingency plans for recapture, treatment, permanent care, and euthanasia should be required if release is unsuccessful and the animal restrands. The following may be true for one or more assessment points.

History

a) Cetacean stranded in close temporal or geographic relation to a UME.
b) Cetacean stranded in association with an environmental event of concern or an anthropogenic acoustic insult.
c) Cetacean was involved in a mass stranding.
d) Cetacean stranded previously on one or more occasions.
e) Single stranding of a social species.
f) Cetacean was part of a NMFS permitted research project, potentially being handled more frequently.

Developmental Stage/Life History

a) Cetacean is nutritionally dependent, but older calf with some foraging skills.
b) Cetacean is recently weaned.
c) Cetacean is a female with calf.
d) Cetacean is a geriatric animal and is compromised due to age related conditions.

Behavioral Assessment

a) Cetacean exhibits aberrant behavior, which may include but is not limited to, abnormal breathing, swimming, and/or diving, auditory or visual dysfunction.
b) Ability of the cetacean to forage for prey is questionable or logistical circumstances prevent testing of forage or prey capture ability.
c) Cetacean requires significant conditioning due to developmental stage and/or medical condition.
d) Predator wounds were likely secondary to another cause of the stranding.
e) Attraction to humans in the wild has been extinguished.
f) Cetacean is a social species and has stranded due to injury from conspecifics.

Medical Assessment - The attending veterinarian determines that the health status of the cetacean is uncertain regarding suitability for release. The veterinarian arrives at a determination of "Conditionally Releasable" through performance and interpretation of physical examinations and interpretations of tests such as CBC, chemistry profile, cultures, and other tests required by NMFS, plus any other diagnostic tests deemed necessary to fully evaluate the animal. Response of the cetacean to therapy and the clinical judgment of the veterinarian may also contribute to a

determination of "Conditionally Releasable." Further tests may be required including ultrasound or radiographs to clarify medical issues.

Cetaceans exhibiting any of the following medical or physical conditions are to be discussed with NMFS, with the expectation that without resolution, such conditions will make the animal an unsuitable candidate for release:

a) Compromised function of sensory systems (auditory, visual).
b) Decreased range of motion.
c) Deformed or amputated appendage.
d) Laboratory tests interpreted as abnormal or suspicious of disease (CBC, chemistry, cultures, or other tests).

Release Logistics

a) Tagging, marking, post-release monitoring - Extensive post-release monitoring of cetaceans deemed "Conditionally Releasable" is required and is to be approved and coordinated through NMFS. Post-release monitoring of such animals should be at least two months duration, likely longer. Monitoring is likely to include advanced tracking techniques, such as satellite tracking via radio-tracking or photographic identification searches if the animal is likely to move outside of the range of monitoring. The cetacean will continue to be deemed "Conditionally Releasable" until the post-release monitoring plan required by NMFS can be implemented.
b) Stock of origin is unknown, uncertain, or temporarily unreachable due to environmental or natural history factors - When such circumstances exist, the case is to be discussed with NMFS. The cetacean will be deemed "Conditionally Releasable" until specifics of release are approved by NMFS.
c) Plan for recapture - NMFS may request a contingency plan if feasible for a "Conditionally Releasable" cetacean prior to its release should the animal appear to be unable to readjust to the wild. This should include plans for follow up treatment, permanent care and/or euthanasia. The cetacean will continue to be deemed "Conditionally Releasable" until NMFS approves a contingency plan.

3.10.3 Non-Releasable

The cetacean is determined to be unsuitable for release by the attending veterinarian and Assessment Team and the NMFS Regional Administrator concurs. The animal did not meet the essential release criteria, and thus does not have a reasonable chance of survival in the wild or poses health risks to wild marine mammals.

History

a) Cetacean has been in captivity for more than two years or is otherwise too habituated and counter-conditioning techniques have been unsuccessful.
b) Cetacean stranded previously on one or more occasions.
c) Cetacean was part of a NMFS permitted research project, potentially being handled more frequently, and circumstances preclude its suitability for release.

Developmental Stage/Life History

a) Cetacean is nutritionally and socially dependent (neonate and young nursing calf without foraging skills).
b) Cetacean is geriatric and exhibiting other medical and/or behavioral abnormalities.

Behavioral Clearance

a) Exhibits abnormal breathing, swimming, diving, or other aberrant behavior that may compromise survival in the wild or may be caused by a disease of concern to wild marine mammals.
b) Exhibits auditory or visual dysfunction that would compromise survival in the wild or may be caused by an ongoing disease process of concern to wild marine mammals.
c) Unable to capture and consume live prey.
d) Demonstrated inability to avoid predators.

Medical Clearance - The attending veterinarian determines that the health of the cetacean precludes release. In such cases, the medical condition of the animal prevents normal function to a degree that would compromise its survival in the wild or pose a health risk to wild marine mammals. The veterinarian supports the determination of "Non-Releasable" status with required physical examinations and tests such as CBC, chemistry profile, cultures, and those required by NMFS plus any other tests deemed necessary to fully evaluate the animal. Further tests may be required,

including ultrasound or radiographs, to clarify medical issues. The veterinarian presents their findings to the NMFS Regional Stranding Coordinator and recommends that the cetacean be maintained in captivity or be euthanized.

Conditions that warrant consideration that a cetacean is deemed "Non-Releasable" include, and are not limited to, the following:

a) Compromised function of sensory systems (auditory, visual).
b) Decreased range of motion.
c) Deformed or amputated appendage.
d) Laboratory tests interpreted as abnormal or suspicious of disease of concern.
e) Geriatric, or believed to have chronic disease, which may compromise survival in the wild.

Release Logistics

a) Tagging/Biomonitoring - The cetacean requires extensive post-release monitoring for which there are insufficient resources.

4. Guidelines for Release of Rehabilitated Pinnipeds

4.1 Introduction

Each year in the United States, several different species of pinnipeds from three taxonomic families, Phocidae (true seals), Otariidae (eared seals), and Odobenidae (walrus), are rescued and rehabilitated. As walrus are under the jurisdiction of FWS, these guidelines should be generally applied but there are a few exceptions. Close consultation with FWS is required with each walrus case.

Except as otherwise noted, each pinniped is required to have a complete historical, developmental, behavioral, and medical status assessment by the attending veterinarian and animal care supervisor and be properly marked for identification prior to release. The release determination recommendation must include a signed statement from the attending veterinarian in consultation with the Assessment Team that the animal is **medically and behaviorally suitable for release in accordance with the release criteria** and include a written release plan and timeline. NMFS or FWS may require additional testing for reportable diseases in light of new findings regarding various disease and health issues and this information should be included in the release request. A release plan will require a justification statement and detailed description of the logistics for transporting, tagging, location, timing, crowd control, media coordination (if applicable), post release monitoring, and recovery should the animal fail to thrive (e.g., restrands). NMFS or FWS may require recapture if the animal appears to be in distress following a specified time after release. Recapture will require special authorization from NMFS or FWS prior to this activity. NMFS or FWS may consult with individual experts for further guidance. NMFS reserves the right to impose additional requirements in the release plan as stated in 50 CFR 216.27 (a)(3).

The NMFS Regional Administrator may allow for pre-approved waivers for routine pinniped cases as stated in 50 CFR 216.27(a)(2)(i)(A). Typically these cases are anticipated (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) and can be appropriately planned. For such waivers, the Stranding Network Participant should submit a protocol for such cases including location of release. These waivers will require pre-approval by the NMFS Regional Administrator on a schedule as prescribed in the Stranding Agreement. NMFS may require that a certain percentage of these cases that present with similar clinical signs and diagnosis be thoroughly tested and assessed each year. Similarly, NMFS may give blanket authorization for pre-approved release sites and for post-release monitoring plans.

4.2 Overview of Release Categories for Pinnipeds

Pinnipeds evaluated at rehabilitation facilities can be grouped into one of three "Release Categories" based on historical, developmental, behavioral, ecological, and medical criteria set forth in a **standardized checklist**. It is recommended that the standardized checklist (see Appendix J) should be used to assess and document the release candidacy of rehabilitated pinnipeds. The checklist includes a health statement (i.e., health certificate) to be signed by the attending veterinarian and authorized representative, which verifies that a pinniped meets appropriate standards for release. This checklist could be used to determine and document releasability (i.e., as part of the required documentation sent to NMFS) and as a final check just prior to release.

The majority of walrus typically strand as calves and are not good release candidates due to the extended period of maternal dependency. FWS generally considers walrus calves to be "non-releasable" and considers all stranded walrus on a case-by-case basis for permanent placement. If the animal is placed in permanent captivity, the receiving facility must hold an Exhibitor's License from APHIS [7 U.S.C. 2131 *et seq*.] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). Questions regarding disposition of stranded walrus should be directed to the FWS contact as identified in Appendix H.

1. **"RELEASABLE":** There are no significant concerns and the animal meets basic historical, developmental, behavioral, ecological, and medical criteria, supporting the likelihood of survival and a lack of risk to the health of wild marine mammals. The release plan (post-release identification, release site, contingency plans, and post-release monitoring) has been approved in writing by NMFS via the letter of concurrence. For the pinniped to be deemed "Releasable," **all** items on the checklist should be answered as **"Yes."** The attending veterinarian signs the checklist confirming the information and the assessment.

2. **"CONDITIONALLY RELEASABLE":** One or more items on the standardized checklist have been marked **"No"** for pinnipeds in this category. This may pertain to historical, developmental, behavioral, ecological, and/or medical status concerns regarding the animal's potential to survive in the wild and/or its potential to pose a health risk to other marine mammals. A pinniped may also be deemed conditionally releasable if requirements for release cannot be met at present but may be met in the future and without compromising the health and welfare of the individual animal. In such cases, more time may be needed to

determine the feasibility of release (see 50 CFR 216.27(a)(1)(iii) for species under NMFS jurisdiction).

All "Conditionally Releasable" pinnipeds must be discussed with NMFS or FWS. NMFS or FWS may consult with individual experts to discuss specific cases. Experts include scientists and veterinarians with expertise in pinniped biology and medicine (particularly experts with species specific knowledge). Such discussions will clarify the most appropriate disposition. For example, additional medical testing, rehabilitative therapy, and additional strategies for post-release monitoring may be required to release a "Conditionally Releasable" pinniped.

3. **"NON-RELEASABLE":** One or more items on the standardized checklist have been marked **"No"** for pinnipeds in this category. This may pertain to historical, developmental, behavioral, ecological, and/or medical status concerns that preclude release to the wild. It has a documented condition demonstrating little chance for survival in the wild and/or a diagnosed health risk to wild marine mammals. For NMFS species, this category also includes animals that have been in rehabilitation greater than two years (see 50 CFR 216.27(a)(1)(iii)). Additionally, a pinniped may be deemed "Non-Releasable" if an appropriate release site or post-release monitoring plan cannot be arranged. Rehabilitation facilities that believe that they may have a walrus that is non-releasable must contact the FWS Marine Mammals Management Office (as identified in Appendix H) for concurrence on this finding and eventual disposition of the animal. If FWS determines that a walrus is non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under section 104(c)(7) of the MMPA.

   For animals deemed "Non-releasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). Facilities wishing to obtain non-releasable animals should send a *Letter of Intent* to NMFS PR1 to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the *"Responsible Party of Record"*. As part of the decision making process will consult with APHIS and may review the qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex, and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1

will respond with a *Transfer Authorization Letter* and include MMDS, OMB Form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

4.3 Historical Assessment of Pinnipeds

Historical stranding information may guide the management of rehabilitation and the plan for post-release monitoring. Important historical information should include:

1. **A record of previous stranding -** Pinnipeds that have previously stranded and been released, and subsequently strand again, are deemed "Conditionally Releasable" pending consultation with NMFS or FWS. Such animals should be reassessed as they may have underlying health issues requiring additional evaluation, diagnostic testing, and advanced post-release monitoring. Alternatively, such pinnipeds may be assessed as "Non-Releasable" and be transferred to permanent captivity or euthanized.

2. **An association with an ongoing epidemic among other animals or with a UME -** If the stranding of a pinniped occurs in close temporal or geographic proximity to a UME, fish kill, harmful algal bloom, hazardous waste spill, or other such environmental event, the pinniped is deemed "Conditionally Releasable" and consultation with NMFS or FWS is required. The agencies may request additional testing, documentation, and/or post-release monitoring of such pinnipeds.

3. **Stranding location and active or home range -** Areas that are worth assessing are increased human activity (e.g. active fishery, increased recreational use, military activity, shipping activity, etc.) or hazardous environmental conditions (e.g., harmful algal bloom or hazardous waste spill, and/or special weather conditions like El Niño, hurricane, extreme cold, extreme heat, etc). During an El Niño event, the rehabilitation center should consult with NMFS regarding management and release of the animal because unfavorable environmental conditions may persist once an animal is ready for release and thus the animal should be deemed "Conditionally Releasable." Also, the geographical distance between the stranding location and the rehabilitation facility is important to acknowledge as there could be important differences in the microflora at the facility. Information on areas of human activity and environmental hazards is also vital for determining an appropriate release site.

4. **The animal was exposed to (or injured by) other wild or domestic animals -** Pinnipeds having a history of exposure (i.e., confirmed or suspected) to terrestrial wild or domestic animals are deemed "Conditionally Releasable" and must be discussed with NMFS or FWS. Pinnipeds may contract disease from terrestrial wild or domestic animals such as foxes or dogs. For instance, canine distemper represents a serious health threat to pinnipeds. Should a rehabilitating pinniped contract such an pathogen, it could transmit the illness to its wild cohorts. Such transmission of pathogens can occur even when a rehabilitated pinniped is not showing clinical signs of disease. Consultation with NMFS or FWS is thus required for pinnipeds that have a history of exposure (i.e., confirmed or suspected) to terrestrial animals.

5. **The animal has a record of attacking or biting a human -** Pinnipeds that have inflicted a bite (including mouthing of unprotected skin) of a human are deemed "Conditionally Releasable" and must be discussed with NMFS or FWS. A variety of infectious diseases may be transmitted from animals to humans via bite wounds. Although documentation of rabies among pinnipeds is rare (there is one published case of rabies in a ringed seal from the Svalbard Islands, Norway [Odegaard and Krogsrud 1981]) the fatal outcome of this disease in humans warrants careful consideration of factors surrounding pinniped bites to people. NMFS or FWS may require consultation with state public health officials regarding pinnipeds that inflict bites on humans and may request that the facility follow state policies and guidelines for unvaccinated non- domestic animal bites. NMFS may also impose quarantine or additional diagnostic testing requirements prior to authorizing release.

6. **The animal was evidence or part of a human interaction or criminal investigation – This includes an investigation by** NOAA Office of Law Enforcement, the U.S. Department of Justice, or other Federal, state or local authorities.

7. **The animal was transferred from another holding, triage or rehabilitation facility –** The opportunity for exposure to pathogens can occur at different stages of response and rehabilitation. Therefore, it is important to obtain medical records and document the quality of care and treatment at each stage of this process.

8. **The animal was transferred from research facility or undergoing permitted research during rehabilitation** – Research activity may extend the frequency and intensity of handling time and therefore could increase the risk of altering behavior or increasing the

chance of exposure to facility pathogens or chemicals (e.g., anesthetic agents, metabolic agents, etc). These animals will be considered "Conditionally Releasable" or "Non-releasable."

4.4 Developmental Assessment of Pinnipeds

In order to be deemed "Releasable," a young pinniped should be able to feed itself and have adequate body condition to survive readjustment to the wild. Generally, pups are to be held in rehabilitation centers for roughly the normal duration of lactation. Because maternal dependence may vary greatly in some species, it is recommended that the straight length and weight of each pinniped pup be taken at admission and again when evaluating the animal for release to aid in the assessment of the animal's body condition. Such measurements may be compared to known weaning lengths and weights of appropriate wild pinniped species or to data from successfully rehabilitated and released stranded pups (see Appendix I for species specific developmental stages and pupping information). The risk of altered behavior can be related to both the length of treatment and the age of the animal at the time of stranding. Pups stranded as maternally dependent neonates and animals spending an extended time in rehabilitation being at highest risk. Special care should be taken with these species especially if rehabilitating very young pups and should be considered "Conditionally Releasable".

Reproductive status in and of itself does not impact release candidacy of a pinniped unless a female strands with her pup or gives birth during rehabilitation. Such females and their offspring are "Conditionally Releasable" and are to be discussed with NMFS or FWS. The natural history of the pinniped species involved and factors related to maternal relationship may impact the timing and conditions of release for mother or pup. For instance, a pup that has not reached weaning weight may be releasable with its mother, but not alone. A healthy mother may be kept in rehabilitation to assist its sick or injured pup; however, this should be weighed against the risk of habituation that could minimize the chance of a successful release. Female pinnipeds in estrus or late pregnancy are releasable unless the attending veterinarian believes that the health history of the animal warrants extra precautions to minimize stress during its return to the wild. Such animals are "Conditionally Releasable" due to health concerns and are to be discussed with NMFS or FWS.

Pinnipeds that are in molt are "Conditionally Releasable" and these cases should be discussed with NMFS. Because behavior and physiology change during a molt, factors related to the pinnipeds health history, age, reproductive status, and other relevant parameters should be considered in order to determine if release is preferable to holding the animal until molting is completed.

4.5 Behavioral Assessment of Pinnipeds

The limitations imposed by the captive environment of rehabilitation may preclude a detailed behavioral assessment where behavior of the captive animal may differ from that displayed in the wild. Also, there lacks a set of behavioral and functional tests that relate to behavior in the wild and there are limitations on the complete knowledge of "normal" behavioral parameters of each species. Behavioral clearance is thus founded on basic criteria necessary for survival of the animal in the wild. The behavioral evaluation often overlaps with the medical evaluation as abnormal behavior may indicate an underlying illness. Biologists and animal care supervisors with expertise in pinniped behavior and the attending veterinarian should jointly assess the behavior of the animal.

To achieve behavioral clearance, a pinniped should breathe normally and demonstrate effective swimming, diving, and locomotion on land (if appropriate for its species). The animal should not display aberrant behavior or auditory or visual dysfunction that may compromise its survival in the wild or suggest an underlying disease of concern to wild marine mammals (i.e., reportable disease). Behavioral clearance also includes confirmation that the animal can respond to, and is able to capture and consume, live prey.

4.5.1 Breathing, Swimming, Diving, and Locomotion on Land

Evaluation of respiration is done to determine that the pinniped does not exhibit abnormal breathing patterns or labored breathing during exertion. Evaluation of swimming, diving, and locomotion on land is done to confirm that the pinniped moves effectively and does not exhibit abnormalities such as listing to one side, decreased capacity to submerge, asymmetrical motor patterns, etc. Pinnipeds that display abnormalities of breathing, swimming, diving, or locomotion on land are deemed "Conditionally Releasable" or "Non-Releasable," depending on the nature and degree of their dysfunction.

4.5.2 Aberrant Behavior

Behavioral clearance of the pinniped includes confirmation that the animal does not exhibit aberrant behavior that may compromise survival in the wild or suggest an underlying disease of concern to wild marine mammals. Examples of aberrant behavior include, but are not limited to, regurgitation, head pressing, postural abnormalities such as repetitive arching or tucking, head swaying, stereotypic or idiosyncratic pacing, decreased or unusual range of motion, and abnormalities of breathing, swimming, diving, and locomotion on land as previously discussed. Other examples include

attraction to or desensitization to the presence of humans such as in the case of pups imprinting on humans. Pinnipeds displaying aberrant behavior are deemed "Conditionally Releasable" or "Non-Releasable" depending on the nature and degree of the behavior.

4.5.3 Auditory and Visual Function

Behavioral clearance of the pinniped includes evaluation of auditory and visual function. Auditory dysfunction may be a reflection of active disease, permanent injury, or degenerative changes associated with aging. Evaluators may suspect that a pinniped has compromised auditory function if it responds minimally to loud noises created above or below water. Pinnipeds that have visual dysfunction may show difficulty locating prey items, tendency to collide with boundaries of their enclosure, or difficulty maneuvering about objects placed in their path. Discoloration, swelling, abnormal shape, position, or appearance of the eye or eyelids may suggest visual dysfunction. Pinnipeds with auditory or visual dysfunction should be deemed "Conditionally Releasable" or "Non-Releasable" depending on the degree and nature of their condition.

4.5.4 Prey Capture

Rehabilitated pinnipeds should demonstrate the ability to chase, capture, and consume live prey prior to their release. Prey items found in the animal's natural environment should be used whenever possible. If natural prey items are not available, evaluators may utilize other prey species. Evaluation of the pinniped includes assessment of each component of feeding behavior including the ability to chase prey, to actually capture prey, and to consume prey without assistance from humans. Pinnipeds that display ineffective prey capture and consumption are deemed "Conditionally Releasable" or "Non-releasable." If logistical issues preclude evaluation of prey capture and consumption or there is a question about the quality of live prey, NMFS or FWS should be consulted.

Rehabilitated pinnipeds that have been in captivity longer than one year and young pinnipeds having little or no previous foraging experience in the wild require particularly careful assessment of feeding behavior. Repeated feeding trials using live prey with concurrent assessment of the animal's ability to maintain good body condition are helpful in thoroughly evaluating such animals.

4.6 Medical Assessment of Pinnipeds

The medical assessment includes information related to any diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on-physical examination upon admission and prior to the release determination. The attending veterinarian should review the

animal's complete history including all stranding information and diagnostic testing (i.e., required by NMFS and any additional data), and medical and husbandry records (including food consumption and weight and length progression). The primary goal of testing required by NMFS or FWS is to safeguard the health of wild marine mammal populations. This is achieved by testing for diseases that pose a significant morbidity or mortality risk to wild populations (i.e., reportable diseases). Those that are zoonotic or public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing will be required if the animal was part of an official UME. NMFS may request testing for other emerging diseases as part of a surveillance program to identify potential epidemics of concern and to monitor changes in disease status that may have occurred due to rehabilitation practices. The directive for the pre-release health screen will come from the NMFS Regional Stranding Coordinator through the MMHSRP. Appendix E lists diseases of concern for pinnipeds.

A complete health screen should be completed upon admission and just prior to release including basic blood collection for a CBC, chemistry profile (including BUN and creatinine, enzymes and electrolytes), serology, microbial and fungal culture (i.e., nasal, rectal, ocular, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy is ruled out prior to prescribing potentially fetal toxic medication. Serum (3ml/each) should be banked at the time of admission and just prior to release for retrospective studies. Cessation of antibiotics should occur two weeks prior to release examination to assure that the animals is no longer dependent on the medication and that the drug has cleared based on the pharmacokinetics and requirements made by the veterinary community and the Food and Drug Administration. Some antibiotics clear the body quickly and require shorter withdrawal time; therefore, when this recommendation cannot be met seek advice from NMFS. **The attending veterinarian should provide written notification to the NMFS Regional Stranding Coordinator that a pre-release health screen of the pinniped has been performed two weeks prior to release and will be conducted within 72 hours of release as a final check. The two week notification must also include the final release plan. The final assessment at the 72 hour mark can be emailed just prior to the release or immediately following the release as prescribed by the NMFS Regional Stranding Coordinator. The required documentation and signed release determination recommendation will be part of the administrative record along with the signed (by the NMFS Regional Administrator) letter of concurrence approval for release.**

It is of extreme importance that the pinniped be monitored closely for disease throughout its rehabilitation. Regardless of the stranding etiology, handling and care can cause significant stress increasing susceptibility to disease. If not properly managed, rehabilitation facilities provide an environment where genetically altered or novel pathogens not typically encountered in the wild can easily be transmitted from animal to animal. This scenario can be problematic when an animal is exposed and becomes a carrier of that pathogen to a naïve wild population if released. Introduction of pathogens from rehabilitation centers to the wild is a significant concern as diseases with serious epizootic potential have been detected (Measures 2004, Moore et. al., 2007). Infectious agents may become more pathogenic as they pass through new individuals and naïve species or genetically altered from indiscriminant use of antibiotics.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the pinniped. In addition to basic blood work, serology, microbial culture, cytology, urinalysis, and fecal exam, advanced techniques for pathogen detection such as PCR and toxicology analyses are available. A number of diagnostic imaging techniques including radiology, CAT scans, and MRI may be used as well as bronchoscopy and laparoscopy. The pinniped literature has expanded to include numerous references on the performance and interpretation of diagnostic tests.

Both agencies may request testing for other emerging diseases as part of a surveillance program to identify potential epidemics of concern and identify health trends. Additional testing will be required if the animal was part of an official UME. Specific testing requirements (i.e., pre-release health screen) will come from the NMFS Regional Stranding Coordinator through the MMHSRP and follows the term and responsibilities stated in the NMFS Stranding Agreement.

4.7 Release Site Selection for Pinnipeds

The release of a rehabilitated pinniped should be planned to maximize its chances for survival. The release should be timed and staged to increase its likelihood of foraging success and acceptance by conspecifics. Factors including its species, age, reproductive status, previous home range, social unit, and migratory patterns should be considered. Weather conditions at the release site and other environmental factors impacting the habitat and food availability should also be evaluated.

The rehabilitated pinniped is to be released into its home range, genetic stock, and social unit whenever possible. Return of the animal to its home range is preferable as the reacclimating pinniped would presumably have familiarity with available resources, potential predators, environmental

features, and social relationships. In many cases, this can be accomplished by releasing the pinniped at its stranding site through a simple hard-release process (i.e., the animal is released directly after transport to the release site without acclimation through holding in a temporary enclosure at the site).

For wide ranging species, such as hooded and ringed seals, the release site selection is considered on a case-by-case basis. Consultation with NMFS is required for these cases. If the range of conspecifics is distant form the original stranding site, rehabilitators may consider various options depending on the natural history of the species and the temporal relationship of release to seasonal distribution. The pinniped may be released to migrate on its own or with conspecifics still in the vicinity. Alternatively, the pinniped may be held in captivity until conspecifics return or it may be transported to the location of its migrated cohorts. The risks of extended time for the pinniped in captivity, logistics of transport to a migration site, and costs associated with the extended stay are examples of factors to be considered. As explained later in this section, movement of pinnipeds recovering from infectious disease to other sites should be carefully considered regarding disease risk to wild pinnipeds.

When information on the animal's ranging patterns or social unit prior to stranding is not known, or when a pinniped strands outside of the previously known range of its species, NMFS is to be consulted regarding an appropriate release strategy. For pinniped species that have vast territorial ranges, such as those that naturally traverse the length of the North American continent, knowledge of the animal's specific ranging patterns previous to stranding may not be necessary. Such pinnipeds may be released in the general vicinity of their stranding site or anywhere within the vast range inhabited by that species with the following important exception (see below).

When a pinniped has recovered from an infectious disease, it may be preferable to release the animal near its original stranding site in order to minimize disease risks to wild pinnipeds. For example, even if the entire population of a far-ranging pinniped species has been exposed to a particular infectious agent, changes in the virulence of the pathogen may initially occur at distinct geographical sites. A seal exposed to a particularly virulent strain of pathogen in the far Northeast may pose a health risk to pinnipeds in the Mid-Atlantic that have not yet encountered that particular strain of virus. Additionally, the clinical signs of many infectious diseases mimic each other. As rehabilitation centers cannot always perform definitive diagnostic tests for all viral agents, moving rehabilitated pinnipeds from the general region of their stranding to distant locations for release may pose some risk to wild marine mammals. NMFS is to be consulted regarding the preferred release site when pinnipeds recovering from an infectious disease cannot be released near their original

stranding site. Another important consideration is the location of the rehabilitation facility to the normal habitat range for the species, e.g., the rehabilitation of an ice seal in the Caribbean. The decision to release in the normal habitat range would need to be thoroughly discussed with NMFS.

It is important to ensure that conditions at the release site do not pose any obvious immediate threat to the released animal, such as areas where resources and habitat is severely depleted or degraded. If evidence exists of a substantial decline in resources or habitat quality such as massive fish kills, significant declines in commercial and/or recreational fish landings, red tides, etc., it may not be appropriate to release the pinniped until conditions at the release site improve or a different release site is found. Also, release in areas of dense public use and/or high commercial and recreational fishing activity should be avoided.

4.8 Identification of Rehabilitated Pinnipeds Prior to Release

NMFS and FWS have determined that all pinnipeds must be flipper tagged for identification prior to release to the wild. Tags and placement instructions are to be obtained from NMFS or FWS and/or USGS (for walrus) as appropriate for the pinniped species (see Appendix H for contact information. Although resightings of flipper-tagged individuals may provide some information regarding the relative success of a rehabilitation effort, flipper tags are not reliable for long-term monitoring. They may be difficult to read from a distance and may become damaged or lost. Other methods for identification such as freeze-branding, glue tags, etc. may be used in addition to flipper tags (Geraci and Lounsbury 2005).

4.9 Post-Release Monitoring of Pinnipeds

Post-release monitoring of pinnipeds provides essential information for the development and refinement of marine mammal rehabilitation and release practices. Post-release monitoring methods may include visual observations of tagged or freeze-branded pinnipeds from land, sea, or air, as well as radio or satellite-linked monitoring. Radio and satellite-linked monitoring programs are highly desirable as they provide a wealth of information regarding the activities and fates of released animals. NMFS or FWS may require and coordinate post-release monitoring plans for "Conditionally Releasable" pinnipeds. Additionally, rehabilitation centers may voluntarily provide post-release monitoring plans for routinely released pinnipeds. When such monitoring will be performed voluntarily, the rehabilitation center is required to inform NMFS or FWS of the intent to implement post-release monitoring when seeking authorization for release of the pinniped.

The first month after release of the pinniped is a particularly critical period during which it will become evident whether the animal is thriving, including capturing sufficient prey and being accepted by conspecifics. It is recommended that monitoring continue on a regular basis via field observations, radio, or satellite-linked monitoring for up to one full year and such funding resources as the Prescott Grant Program can assist with the financial burden of such endeavors. NMFS may request these data in order to make future revisions to pinniped rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released pinnipeds may be helpful, and this should include the length of the tracking time, the type of tracking equipment, and assessment of outcome. Formal study of monitoring data and its dissemination to the stranding network can aid in the assessment of pinniped rehabilitation and release programs.

Release plans should include contingency plans for recovering the released pinniped, should monitoring indicate its failure to thrive, including options for treatment, permanent care, or euthanasia. In addition, NMFS will request such contingency plans for "Conditionally Releasable" pinnipeds, depending on the circumstances.

5. Guidelines for Release of Rehabilitated Manatees

5.1 Introduction

West Indian manatees (*Trichechus manatus*) are found throughout the Caribbean basin. In the United States, the Florida subspecies (*Trichechus manatus latirostris*) is commonly found in southeastern coastal waters, with Florida at the core of its range. The Antillean subspecies (*Trichechus manatus manatus*) is found outside of Florida throughout the Caribbean basin (including Puerto Rico and possibly Texas). While most reports of distressed manatees occur in Florida, manatees have been rescued throughout the region. The focus of manatee rescue and release activities is to promote the conservation of wild manatee populations.

Reports of distressed manatees include animals compromised by human activities and natural causes. Human causes of distress include collisions with watercraft, entrapment in structures, entanglement in and ingestion of fishing gear and debris, and other sources. Natural causes of distress include exposure to cold and brevetoxins, mother/calf separation, seasonal disorientation, etc. All rescue-related communications and the day to day decision making process in the field are generally handled by the local field Stations of the Florida Fish and Wildlife Conservation Commission (FWC) in conjunction with report from the public utilizing the FWC hotline (1-888-404-FWCC). All activities related to the verification of a report of a manatee in trouble, subsequent rescue, and transport to rehabilitation facilities are communicated through the FWC Field Stations, according to established protocols. The FWS Jacksonville Field Office coordinates the manatee rescue, rehabilitation, and release program to assist these animals. The FWS Jacksonville Field Office conducts this program according to the provisions of an ESA/MMPA marine mammal enhancement permit issued by the FWS DMA. The permit authorizes “take” activities for an unspecified number of manatees for the purpose of enhancing its survival and recovery, consistent with the FWS manatee recovery plan developed pursuant to the ESA.

The FWS Jacksonville Field Office coordinates a network of individuals, facilities, and agencies authorized as subpermittees under their enhancement permit and through LOAs issued under section 109(h) and section 112(c) of the MMPA [16 U.S.C. 1379(h) and 16 U.S.C. 1382(c)] to authorize activities related to the rescue (including temporary capture, possession, transport, and transfer), rehabilitation, and post-release monitoring of manatees.

The following guidelines were first developed by program participants in 1991 and subsequently revised in 2001. They are based on more than twenty years of program history and include the experiences, advice, and expertise of resource managers, field biologists, veterinarians, behavioral experts, animal keepers, and other dedicated individuals. The guidelines are to be used by authorized participants to guide the return of rehabilitated manatees to the wild.

5.2 Overview of Release Categories for Manatees

Manatees undergoing rehabilitation are evaluated by program participants and placed into one of four Release Categories:

1. **"RELEASABLE":** Manatees that have been successfully treated, are of an appropriate size, demonstrate appropriate behaviors, have the skills necessary to thrive in the wild, and do not pose a threat to wild populations will be considered releasable. Additionally, distressed manatees that are assisted in the wild and then released on-site are characterized as "Releasable". These include fit (healthy, non-injured) manatees superficially entangled in fishing gear, animals isolated by high water or detained by structures (such as water control structures, sheet pile walls, booms, and other barriers), seasonally disoriented animals, and others. "Seasonally disoriented" manatees include otherwise fit animals that fail to migrate to appropriate winter habitats during the periods of cold weather. These animals are typically relocated to warm water sites within their region of origin.

2. **"CONDITIONALLY RELEASABLE":** Manatees with a condition and/or circumstances that present a question regarding the success of release or ability to thrive in the wild but likely not pose a threat to wild populations will be considered conditionally releasable. Animals described as "Conditionally Releasable" typically include medically-cleared, captive-reared animals and older, long term-captives. The status of animals considered to be "Conditionally Releasable" may change to "Releasable" if their condition or circumstances improve or to "Conditionally Non-releasable" if their condition or circumstances deteriorate.

3. **"CONDITIONALLY NON-RELEASABLE":** Manatees that cannot be released because their condition and/or circumstances threaten the well-being of the animal and/or may pose a threat to the wild population will be considered conditionally non-releasable. The status of animals considered to be "Conditionally Non-releasable" may change to "Releasable" or "Conditionally Releasable" if their condition or circumstances improve over time. This

category may include individuals with permanently debilitating medical conditions. Because manatees are closely monitored post release (i.e., their normal habitat range is coastal and thus easier to monitor post release) and data have shown that they can survive and thrive post release even after many years in captivity, this category has been added.

4. **"NON-RELEASABLE":** The FWS will review, on a case-by-case basis, requests to establish the non-releasability of certain captive-held manatees. Manatees deemed non-releasable will be medically characterized by a disease process that proves to be a significant risk to the wild population or by significant physical injuries (such as loss of paddle or significant spinal trauma) that would preclude the ability of an animal to thrive in the wild. Petitions to establish non-releasability of individual manatees will be reviewed by an independent panel which will make their recommendations to the FWS. The FWS will consider the request and recommendation and will then determine the status of the animal. Should an animal be deemed non-releasable by the FWS, the receiving facility will need to meet the requirements to receive an enhancement permit in accordance with section 104 (c)(4) of the MMPA (16 U.S.C. 1374(c)(4)), section 10(a) of the ESA (16 U.S.C. 153(a)) and the FWS issuance criteria at 50 CRF 17.22.

5.3 Historical Assessment of Manatees

Efforts are made to maintain complete, detailed records that document rescued manatees from the time of rescue to their eventual disposition. These records generally include information describing the rescue, circumstances surrounding the stranding (e.g., red tide, cold weather, etc.), treatment(s), captive care, and resolution of the case (i.e., death, euthanasia, or release). In the case of previously known wild individuals, these records can include documentation of behavioral and reproductive patterns, migratory habits, and site fidelity. For all released animals, these records should also include all post-release monitoring information.

These records guide the treatment of individual stranded manatees and provide an evaluative tool that allows program managers and participants to assess and improve methods and procedures to better ensure success. As an example, in the case of red tide-related strandings, records detail the rescue of a manatee(s), noting the stranding site in the context of a red tide event, the presentation of the animal (beached, convulsing, etc.), any behaviors noted during transport, appropriate neurologic treatment, post treatment observations, and eventual release. Release plans for the animal should require information characterizing the status of red tide within the planned release area. Such detailed

documentation has helped with efforts to develop effective rescue, rehabilitation, and release methods for red tide stranded animals.

5.4 Developmental Assessment of Manatees

"Releasable" animals must be nutritionally independent (weaned and off of supplemental nutritional support), greater than 200 cm in total length and more than 600 pounds in weight. There should be no concerns regarding the animal's length of time in captivity, relative to its age. On occasion, smaller suckling calves are released with their dam to ensure that the dam's wild experience is passed on to her calf. Based on observations of cow/calf bonding behavior, this will help to improve the calf's wild skills and ability to survive in the wild.

"Conditionally Releasable" manatees should demonstrate nutritional independence, especially in the case of older calves planned for release. Recently weaned juveniles are also considered as release candidates. In both instances, animals should meet "Releasable" criteria for length and weight. Manatees that have spent lengthy periods of time in captivity (relative to their age) also fall into this category. Concern has been expressed that older, long-term captives may have a diminished ability to thrive in the wild (at the extreme are animals that have been in captivity for more than 50 years). While concern for these older animals may be well-placed, it is difficult to know at what age (if any) these animals' condition and lack of wild skills will compromise the success of their release. As such, older animals are considered on a case-by-case basis for release. The release of older manatees is being conducted in the context of a research program that will yield data to help ensure success for subsequently released individuals meeting similar criteria.

"Conditionally Non-releasable" manatees include animals that are not nutritionally independent, do not meet the length and weight criteria for "Releasable" animals, and/or lack the wild skills that are essential for a successful release.

"Non-releasable" manatees will be reviewed by the FWS on a case-by-case basis.

5.5 Behavioral Assessment of Manatees

"Releasable" manatees must exhibit normal behaviors while in captivity and are, therefore, expected to be able to meet behavioral challenges when in the wild. Normal behaviors include typical breathing, swimming, diving, and foraging/drinking patterns. Foraging behaviors include the ability to feed in salt, brackish, and fresh water environments without becoming dehydrated. Manatees must

also demonstrate an ability to feed on natural vegetation located at various levels in the water column. Historically, captive manatees have been fed at the water surface. Naïve animals fed in this fashion have had difficulties finding food on the bottom after release. Current feeding practices include feeding at the bottom and top of the water column.

While abnormal behaviors in manatees have not been defined, animals that exhibit atypical behaviors (as determined by FWS and its advisors) while in captivity will be considered for release on a case-by-case basis. Behaviors that elicit concerns include stereotypic behavioral displays, adaptability or sensitivity to change (including going off feed, shutting down, etc.), and perceived affinities for humans and human activities while in captivity. These affinities should not be confused with the manatee's innate ability to explore their captive environment, including humans, especially in the absence of other engaging stimuli. Efforts should be made to de-condition or extinguish these behaviors before release.

5.6 Medical Assessment of Manatees

Prior to release, release candidates must be examined by a veterinarian experienced in manatee medicine. Examinations should include a review of the animal's complete history, a hands-on physical examination, and diagnostic testing. The exam should include blood work, including CBC and serum chemistries. Serological and bacteriological assessments should be conducted when deemed necessary by the attending veterinarian. Results of analyses should be consistent with known values for animals of similar age, size, and sex and consistent with historical values for that specific animal. A "medically cleared" manatee will be free of medical problems, not limited in its ability to thrive in the wild, and will not pose a threat to wild populations.

Manatees that have unresolved injuries, compromising physical conditions (malnutrition, dehydration, etc.), active/infectious disease processes, injuries that significantly affect mobility and range of motion (e.g., the loss of a paddle, failure to adapt appropriate buoyancy control, etc.) and other debilitating conditions are considered to be "Conditionally Non-releasable". In the event that these concerns are resolved, these animals may be categorized as "Releasable" or "Conditionally Releasable".

5.7 Decision Tree for Release Categories - Manatees

The following is a list of criteria used to help determine the release status of captive manatees. Please note that an animal's status may change as various criteria are met. (These criteria generally apply to all species/subspecies of manatees unless otherwise indicated.)

5.7.1 RELEASABLE

Developmental Stage/Life History

a) Nutritionally independent.
b) For Florida manatees, length must be >200 cm and weight >600 lbs (unless released with dam).
c) No concerns about length of time in captivity relative to age.

Behavioral Assessment

a) Must exhibit normal behaviors, including typical breathing, swimming, and diving patterns while in captivity.
b) Must be able to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Must demonstrate ability to feed on natural vegetation at various levels in water column.

Medical Assessment

a) No active, demonstrable medical problems.
b) Medically cleared based on examination by a veterinarian experienced in manatee medicine.
c) Poses no threat to wild populations.

Pre-release Requirements

a) The animal must be individually recognizable.
    i. All identifiable markings should be completely documented with sketches and photographs.
    ii. In the absence of individually identifiable markings, the animal should be freeze branded. The brands should be sketched and photographed.
    iii. All released manatees should be PIT-tagged and information recorded and logged.
b) Blood and/or tissue samples must be taken for serum banking and genetics.

c) Ultrasound measurements of blubber layers must be taken as an initial indicator of health status.

Release Logistics (a release plan should be prepared for each released animal)

a) Telemetry should be considered when appropriate, subject to approval by FWS.
b) Animals should be released in close proximity to their point of origin, when appropriate (in the case of previously known animals, suitable sites may be selected within the animal's home range).
c) Release sites should be free of harmful algal blooms and other compromising factors.
d) For captive-reared, naïve animals in Florida, release sites should include natural warm water sites within the animal's home range or that of the parent. Such releases should occur during the winter, thereby improving possibilities for bonding to the site and building associations with cohorts.

5.7.2 CONDITIONALLY RELEASABLE

Developmental Stage/Life History - Developmental considerations include animals that may be characterized by one or more of the following conditions:

a) Partial nutritional independence.
b) For Florida manatees, less than 200 cm in length and/or 600 lbs in weight.
c) Social dependence.
d) Recent weaning (stranded as a neonate, captive weaned, etc.).
e) Extended period of time (relative to age) in captivity.

Behavioral Assessment

a) Exhibits abnormal behavior(s) in captivity.
b) Unable to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Unable to feed on natural vegetation at various levels in water column.

Medical Assessment: Animals with the following conditions may be considered for release:

a) Physical impairment (may include animals with damage to or loss of appendages, animals with impaired range of motion, etc.)
b) Reproductive condition (may include pregnant females, lactating females with calves, etc.)

Pre-release Requirements

a) The animal must be individually recognizable.
    i. All identifiable markings should be completely documented with sketches and photographs.
    ii. In the absence of individually identifiable markings, the animal should be freeze branded. The brands should be sketched and photographed.
    iii. All released manatees should be PIT-tagged and information recorded and logged.
b) Blood and/or tissue samples must be taken for serum banking and genetics.
c) Ultrasound measurements of blubber layers must be taken as an initial indicator of health status.

Release Logistics

a) Requires radio-tagging and intensive monitoring efforts following guidelines developed by FWS and its advisors (including veterinarians, animal behavior specialists, and researchers).

5.7.3 CONDITIONALLY NON-RELEASABLE

Developmental Stage/Life History - Developmental considerations include animals that may be characterized by one or more of the following conditions:

a) Nutritionally dependent.
b) For Florida manatees, less than 200 cm in length and/or 600 lbs in weight.
c) Extreme concerns about length of time in captivity relative to age.

Behavioral Assessment

a) Exhibits abnormal behavior(s).
b) Unable to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Unable to feed on natural vegetation at various levels in water column.

Medical Assessment

a) Not medically cleared (animals with active/infectious diseases, permanent, demonstrable physically debilitating injuries, and/or other concerns).
b) Poses a threat to wild populations.

5.7.4 NON-RELEASEABLE

a) Animals deemed permanently non-releasable will be:
   i. Permanently captive
   ii. Euthanized, as deemed necessary, to prevent pain and suffering or in cases with an inevitable outcome.

   If FWS has determined that a manatee is permanently non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under section 104(c)(3) or (c)(4) of the MMPA and section 10 of the ESA.

b) Inbred animals: There are currently two inbred manatees in the U.S. captive manatee population. At the present time, these animals are considered to be conditionally non-releasable due to concerns regarding immunological compromise. Other concerns include observed problems with inbreeding, as seen in the European captive manatee population, which includes high infant mortality and breeding suppression. Given these concerns and questions about the effects of the release of inbred animals into the wild population, these two animals can not be released at this time and are presently considered conditionally non-releasable.

c) Pre-Act animals: The U.S. captive manatee population currently includes four Florida manatees brought into captivity prior to the adoption of Federal prohibitions preventing the display of endangered marine mammals. The care and disposition of these "Pre-Act" animals are the responsibility of their respective owners.

5.8 Pre-release Requirements for Manatees

Prior to release, all animals must be individually recognizable. While many animals are either naturally marked or have scars from encounters with boat propellers, other animals have no markings and should be freeze branded with a unique number/letter combination (the selection of the sequential number/letter combination must be made beforehand in consultation with FWS). All markings (including freeze brands) should be done well in advance of release, if possible, and all markings should be sketched and photographed. PIT tags (one on either side of the shoulders, cranial to each scapula) should also be implanted. Ultrasound measurements of blubber layers must be taken prior to release as a baseline indicator of the animal's body condition. Blood and/or tissue samples should also be taken prior to release for serum banking and genetics.

5.9 Release and Post-release Logistics for Manatees

If at all possible, animals should be released in close proximity to the site where originally rescued. For captive-reared, Florida manatees with no wild experience, these animals should generally be released within their region of genetic origin and into natural warm-water areas during the winter to encourage winter site fidelity and familiarity with local conditions and association with wild manatees. When appropriate, telemetry may occur, pursuant to approval from FWS. (Current tagging methodologies make it difficult to radio tag and belt manatees less than 220 cm in total length.) In the case of rehabilitated, wild born adults, many of these animals can be released back into areas where researchers actively track wild manatees and can be monitored as part of these projects.

Post-release monitoring is required for all conditionally releasable animals. Such monitoring includes equipping animals with transmitters (satellite, VHF, and/or sonic, as appropriate) for both remote and on-site monitoring, On-site monitoring should include visual observations of the animal once or twice a week; protocols vary between higher and lower risk candidates. At a minimum, biomedical assessments should be conducted within the first three months after release, six months after release, and twelve months after release. If there is any question about the animal's health based on field or remote observations, assessments should occur more frequently. If the animal's well-being has been compromised as determined by these assessments, the animal should be returned to captivity. Biomedical monitoring includes an examination of overall body condition, length and other morphometrics that include girths, weight, blubber thickness, collection of blood, fecal, urine, milk, semen, and tissues samples when possible. Results of analyses should be consistent with known values for animals of similar age, size, and sex and consistent with historical values for that specific animal. While there is no agreed upon definition of success, program participants generally agree that if an animal has thrived in the wild (and met foraging and fresh water needs) for at least a year, if it has demonstrated an ability to successfully winter at a warm water site (Florida manatees), and if it has contributed to the production of offspring, then it is considered a successful release.

Pre-release conditioning may be required for conditionally releasable animals. Such conditioning may include exposing manatees to natural forage positioned at the surface and on the bottom of their tank. Natural forage includes a variety of vegetative types found within the animal's range and may also include palatable exotics such as *Hydrilla*. If an animal is to be released into water that differs from the type of water in their tank of origin, the animal should be acclimated to the type of water best suited to the release environment to minimize post-release stress, especially in the case of naïve

animals. Conditioning may also include minimizing exposure to humans to reduce or eliminate any affinity the animal may have or may potentially develop toward humans and human activity. Trained/learned behaviors must be extinguished to the greatest extent possible prior to release.

In special cases, "soft release" methodologies should be considered as a means to enhance survivorship in the wild. "Soft releases" typically rely upon temporary holding facilities established within the release area. Manatee(s) are kept in these facilities where they are maintained and observed for a period of at least several weeks. This temporary adaptation period allows for acclimation to waters at the release site, introduction to in situ forage, close observation of behaviors, and ease in capture/handling for biomedical assessments prior to release. Supplemented forage can be reduced during the containment period. At release, the "soft release" concept initially encourages brief forays away from the enclosure and allows for the individual to return to the now familiar holding facility. Further reduction in supplemental feeding will promote greater use and exploration of surrounding habitats. Use of this methodology is to be considered where individual cases warrant additional release scrutiny and release locations allow for its implementation.

5.10 Manatee Rescue, Rehabilitation, and Rescue Program Reporting/Requesting Requirements

The FWS uses an electronic database that requires program participants to report events within 24 hours of occurrence. Release requests should be received and requested electronically 30 days prior to the release. The Reporting Requirements are listed in Appendix C.

6. Guidelines for Release of Rehabilitated Sea Otters

6.1 Introduction

Sea otters are found in near shore waters of the North Pacific. Several subspecies and stocks have been identified in California, Washington, Alaska, Canada, and Russia. Sea otters may strand for a variety of reasons including trauma, disease, and the inability to forage. Guidelines for the release of rehabilitated sea otters are intended to address the welfare of these animals and any impacts the rehabilitated animals may have on wild otter populations.

Like many other marine mammals, stranded sea otters are often reported on beaches frequented by humans. In some cases, humans intercede and otherwise healthy pups are removed from the wild. The sea otter's small size makes it relatively easy to transport. However, there are currently few facilities capable of meeting the requirements for successful rehabilitation. These guidelines are intended to be used by facilities authorized to rehabilitate marine mammals under the MMPA and ESA, if applicable, and that are actively involved in the rehabilitation of sea otters for subsequent return to the wild. Questions regarding disposition and release approval of stranded sea otters must be directed to the appropriate FWS specialist as identified in Appendix H.

6.2 Developmental Assessment of Sea Otter Pups

Sea otter pups are generally dependent on their mothers for the first 6 to 12 months of life. Newborn pups are readily distinguished by their natal pelage, small size (generally less than 6 lbs), and inability to care for themselves. Pups prematurely separated from their mothers or found stranded on a beach shortly after weaning are generally less than 20 lbs in weight and typically lack foraging skills necessary for survival.

Successful rehabilitation of stranded sea otter pups for release to the wild requires a significant commitment of time and resources. Facilities that receive a stranded pup and are unable to rear the pup for possible release to the wild must immediately contact the FWS (as identified in Appendix H) to determine the disposition of the animal.

Rehabilitated sea otter pups that are at least 6 months of age, weigh at least 20 lbs, demonstrate adequate foraging, grooming, and social skills may be released to the wild. Rehabilitated sea otter pups must be monitored closely post-release to determine if their transition to the wild is successful (see post-release monitoring below).

6.3 Behavioral Assessment of Sea Otters

Certain behaviors are necessary for survival of rehabilitated sea otters. In addition, aberrant behaviors may preclude release to the wild. Rehabilitated sea otters may be released to the wild if the following behavioral criteria are met in the opinion of rehabilitation personnel familiar with normal sea otter behavior:

1. The rehabilitated sea otter must demonstrate the ability and willingness to forage and capture live prey. This includes the use of tools such as rocks used to pound shelled prey;
2. The rehabilitated sea otter must demonstrate basic survival skills and activities including active foraging, pelage management, diving, and resting;
3. The rehabilitated sea otter must demonstrate "normal" social skills including interest in other sea otters and should exhibit a wariness of humans and anthropogenic activities; and
4. The rehabilitated sea otter must not exhibit any aberrant behavior including behavior that may pose an unusual threat to human health and safety, wild sea otter populations, or other marine mammal populations.

6.4 Medical Assessment of Sea Otters

All rehabilitated sea otters must have a comprehensive, hands-on physical examination by a veterinarian experienced in sea otter medicine prior to release. The attending veterinarian must determine that the sea otter is likely to survive in the wild and must certify that:

1. Blood sampling performed within two weeks of the proposed release date, including a CBC and serum chemistry profile, falls within normal ranges for the species;
2. Medical diagnostic tests performed within two weeks of the proposed release date (e.g., cultures, biopsies, urinalysis, serology, virology, parasitology, immunology, etc) fall within normal parameters for the species or indicate a satisfactory state of health (reference CRC Handbook of Marine Mammal Medicine, 2nd Edition, Dierauf and Gulland 2001);
3. The rehabilitated sea otter should be free of drug residues (excluding sedatives used for transport or to facilitate physical examinations) and maintain good clinical health for two weeks prior to release or for a period that satisfies the attending veterinarian that the animal is healthy;

4. The rehabilitated sea otter must have functional vision and hearing, reasonable dental health, and good control and function of all appendages, at least to the degree that its survival in the wild is not compromised; and
5. The rehabilitated sea otter does not pose a known threat (e.g., transmission of pathogens, congenital defects) to the wild sea otter populations or human health and safety.

6.5 Release Categories for Sea Otters

Despite the best efforts to rehabilitate stranded sea otters, many animals die or can never be released to the wild. The following categories have been identified to help determine the status of sea otters being held for rehabilitation:

1. **"RELEASABLE":** All rehabilitated sea otters meeting the medical and behavioral criteria listed above shall be considered releasable. Every effort should be made to release these animals to the wild as soon as they are deemed fit for release.

2. **"CONDITIONALLY RELEASABLE":** All live-stranded sea otters admitted to a rehabilitation program shall be considered conditionally releasable pending the outcome of rehabilitative treatments and a full medical examination and behavioral evaluation.

3. **"NON-RELEASABLE":** Sea otters that fail to meet one or more of the required criteria for release may be considered non-releasable. Rehabilitation facilities that believe that they may have an animal that is non-releasable must contact FWS (as identified in Appendix H) for concurrence on this finding and eventual disposition of the animal. Once FWS has determined that a sea otter is non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under section 104(c)(7) of the MMPA for non-depleted species, or section 104(c)(3) or (c)(4) and section 10 of the ESA for depleted species.

6.6 Identification of Sea Otters Prior to Release

Rehabilitation facilities must affix colored and numbered "Temple" tags to the rear flippers of each sea otter prior to release. In addition, a PIT tag must be implanted in the right inguinal area of each otter. With an appropriate scientific research permit issued by FWS, the rehabilitation facility may implant an abdominal VHF transmitter to facilitate post-release tracking and monitoring of the animals. In all cases, the selection of identification numbers, tag colors/positions, and VHF

frequencies must be coordinated with other facilities and researchers in the area that sea otters are released.

6.7 Release Site Selection for Sea Otters

All rehabilitated sea otters should be released at or near the site where they originally stranded. In cases where this is not feasible, other release sites may be considered under existing Federal permits, letters of authorization, or through consultation with personnel from the FWS (as identified in Appendix H). In all cases, rehabilitated sea otters must be released into the same stock or population from which they originated.

6.8 Post-Release Monitoring of Sea Otters

All facilities releasing rehabilitated sea otters must establish a post-release monitoring program appropriate for each sea otter. The purpose of post-release monitoring is to determine the success of rehabilitation efforts and provide an opportunity for rescue of animals not able to make the transition back to the wild. Sea otters brought into rehabilitation as young pups must be tracked intensively immediately after release. Juveniles or sub-adults may require a focused effort while adult animals may be tracked opportunistically. Sea otters implanted with VHF transmitters should be tracked and monitored periodically for the duration of the battery life of the transmitters (i.e., 1-3 years).

7. Policies Regarding Release of Rehabilitated Polar Bears

Polar bears occur in most ice-covered seas of the Northern Hemisphere and are circumpolar in distribution, although not continuously. Off the Alaskan coast, they normally occur as far south as the Bering Strait. In the Beaufort and Chukchi seas, polar bears make extensive migrations between the United States and Canada or Russian territories, respectively. These movements are thought to be related to seasonal and annual changes in ice position and condition.

Polar bears normally found stranded in Alaska and subsequently recovered are generally orphaned cubs-of-the-year that are either incapable of fending for themselves or have not yet developed the skills to adequately survive in the wild. While these animals are temporarily placed in facilities for the purposes of rehabilitation and release, in the long term, it is highly unlikely that such cubs would be suitable for release back into the wild. Hunting and survival skills are learned during the 2 ½ year dependence on the mother, are not innate to polar bear cubs, and will not be developed in captivity.

For the reasons noted above, the FWS considers polar bear cubs to be poor candidates for release into the wild. If releases were to occur the predicted likely outcomes would be death by starvation or death caused by a predacious attack of another polar bear. Further, adoption by another family group is unlikely or impractical due to the low probability of encountering a receptive family group. Adoption of cubs into family groups has been attempted in Canada with very poor success and Canada is re-evaluating the feasibility of adoption as a management technique. The process of adoption requires substantial investment in searching out a family group in the wild, capture of the group (assisted by helicopter), and placement and follow-up on the fate of the adoptee. In Alaska, holding facilities co-located near release sites are not available. Therefore, FWS does not consider adoption to be a viable alternative and generally consider polar bear cubs to be non-releasable and more suitable for permanent placement in public display facilities. In these cases, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under section 104(c)(7) of the MMPA. However, FWS will continue to evaluate potential release into the wild or permanent placement in public display facilities on a case-by-case basis. Questions regarding disposition of stranded polar bears must be directed to the FWS as identified in Appendix H.

8. References

Dierauf and Gulland 2001 — Dierauf, L.A. and F.M.D. Gulland (eds.). 2001 CRC Handbook of Marine Mammal Medicine. CRC Press, Boca Raton, FL.

Ewald 1993 — Ewald, Paul. W. 1993. Host-parasite relations, vectors, and the evolution of disease severity. *Annual Review of Ecological Systems* 14: 465-485.

Geraci and Lounsbury 2005 — Geraci, J.R. and V.J. Lounsbury. 2005. Tagging and monitoring. Marine Mammals Ashore: A Field Guide for Strandings, Second Edition. National Aquarium in Baltimore, Baltimore, MD.

Gilmartin *et al.* 1993 — Gilmartin, W., E. Jacobson, W. Karesh, and M. Woodford. 1993. Working group report: Monitoring, investigation, and surveillance of disease in free-ranging wildlife. *Journal of Zoo and Wildlife Medicine* 23(3): 389-393.

Griffith *et al.* 1993 — Griffith, B., J.M. Scott, J.W. Carpenter, and C. Reed. 1993. Animal translocations and potential disease transmission. *Journal of Zoo and Wildlife Medicine* 24(3): 231-236

Measures 2004 — Measures, L.N., 2004. Marine mammals and "wildlife rehabilitation" programs. Canadian Science Advisory Secretariat Research Document 2004/122. 35 pp http://www.dfo-mpo.gc.ca/csas/.

Moore *et al*. 2007 — Moore, M., G. Early, K. Touhey, S. Barco, F. Gulland, and R. Wells. 2007. Rehabilitation and release of marine mammals in the united states: risks and benefits. *Marine Mammal Science* 23(4): 731-750

Odegaard and Krogsrud 1981 — Odegaard, O.A. and J.Krogsrud. 1981. Rabies in Svalbard: infection diagnosed in arctic fox, reindeer, and seal. *Veterinary Record* 109: 141-142.

Spalding and Forrester 1993 — Spalding, M.G. and D.J. Forrester. 1993. Disease monitoring of free-ranging and release wildlife. *Journal of Zoo and Wildlife Medicine* 24(3):271-280.

St. Aubin and Dierauf 2001 — St. Aubin, D.J. and, L.A. Dierauf. 2001. Stress and marine mammals. In CRC Handbook of Marine Mammal Medicine. Edited by L.A. Dierauf and F.M.D. Gulland, CRC Press, Boca Raton, FL.

Stoddard *et al.* in press — Stoddard, R.A., E.R. Atwill, P.A. Conrad, B. Byrne, S. Jang, , J. Lawrence, B. McCowan and F.M.D. Gulland, In press. The effect of rehabilitation and use of antimicrobial drugs in northern elephant seals (*Mirounga angustirostris*) on antimicrobial resistance of commensal *Escherichia coli*. *Veterinary Microbiology*.

Su *et al.* 2003 — Su, C., D. Evans. R.H. Cole, J.C. Kissinger, J.W Ajioka, and L.D. Sibley. 2003. Recent expansion of *toxoplasma* through enhanced oral transmission. *Science* 229: 414-416.

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APPENDIX A

Chronology of Development of the Release Criteria

1977 1st Workshop on Marine Mammal Strandings; sponsored by the Marine Mammal Commission - Geraci, J.R. and D. J. St Aubin (eds.) 1979. Biology of marine mammals: Insights through strandings. Marine Mammal Commission. Report. No. MMC-77/13. U.S. Department of Commerce, NTIS Doc. PB 293 890, 343 p. (August 1977- Athens, GA).

One of the workshop objectives was to provide recommendations regarding the handling, care, and disposition of live-stranded animals. A relevant finding that came from this workshop and was published in the proceedings included that if live-stranded animals are rescued and rehabilitated, decisions whether these animals should be released or maintained in captivity must take into account the possibility that the animals may have lost their natural capacity to locate and capture appropriate prey species, avoid predators, and interact normally with other members of the species.

1987 2nd Workshop on Marine Mammal Strandings; sponsored by the Marine Mammal Commission and the National Marine Fisheries Service - Reynolds, J.E. and D.K. Odell (eds.) 1991. Marine mammal strandings in the United States: proceedings of the second marine mammal stranding workshop; 3-5 December 1987, Miami, FL. U.S. Department of Commerce., NOAA Technical Report. NMFS 1998.

A recommendation that came from this workshop and was published in the proceedings was a call to establish guidelines and procedures for determining whether and how live-stranded animals should be marked and returned to the sea, transported to a holding facility, rehabilitated, and subsequently released or maintained in captivity, or euthanized to avoid further pain and suffering.

1991 Workshop on rescue, rehabilitation, and release of marine mammals; sponsored by the Marine Mammal Commission and the National Marine Fisheries Service - St. Aubin, D.J., J.R. Geraci, and V.J. Lounsbury (eds.) 1996. Rescue, rehabilitation, and release of marine mammals: an analysis of current views and practices. Proceedings of a workshop December 3-5, 1991, Des Plaines, IL. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-OPR-8, 65 p.

The participants were charged to address five critical questions as well as discuss other outstanding and relative issues. They made several recommendations to include the assembly a panel of medical and behavioral specialists to recommend criteria for assuring that released animals will prosper humanely and pose no undesirable risk to the wild population. The guidelines should include a recommended set of medical determinations by species, with appropriate reference ranges for blood constituents and other clinical measures, morphometric limits (weight at length and age), a checklist for physical examination, and a means of scoring behavioral attributes that would influence survival in the wild. Minimum values should be set for each of these criteria, such that no animal failing any measure would be released. The panel

would incorporate the recommendations of the group considering the risks associated with specific pathogens, particularly for "carriers" that are otherwise normal and healthy. The participants also made recommendations on disease transmission and monitoring.

1992 Amendment of MMPA Title IV - 16 U.S.C. 1421a, Sec. 402. (a) DETERMINATION FOR RELEASE. The Secretary shall, in consultation with the Secretary of the Interior, the Marine Mammal Commission, and individuals with knowledge and experience in marine science, marine mammal science, marine mammal veterinary and husbandry practices, and marine conservation, including stranding network participants, develop objective criteria, after an opportunity for public review and comment, to provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild. Sec 402 (b) COLLECTION - The Secretary shall, in consultation with the Secretary of the Interior, collect and update, periodically, existing information on – (1) procedures and practices for – (A) rescuing and rehabilitating stranded marine mammals, including criteria used by stranding network participants, on a species-by-species basis, for determining at what point a marine mammal undergoing rescue and rehabilitation is returnable to the wild.

1994 Expert Panel on Behavior, Life History, and Natural History Criteria for Release of Rehabilitated Marine Mammals

Acting on the findings of the 1991 workshop entitled "Workshop on rescue, rehabilitation, and release of marine mammal," NMFS consulted with the Working Group on Unusual Marine Mammal Mortality Events to develop draft criteria. An expert panel of 12 biologists, veterinarians, and animal care professionals was queried by Dr. Randall Wells of the Chicago Zoological Society in August 1994 to address 12 specific questions on marine mammal behavior, life history, and natural history relative to release. Dr. Wells submitted a report summarizing the panel's responses to NMFS in November 1994, and reported the findings at the annual meeting of the Marine Mammal Commission in November 1994. This report included recommendations for release criteria, preparations for release, release, follow-up monitoring, and dissemination of findings. These recommendations were included in the draft document.

1994 Model for Marine Mammal Medical Criteria for Introduction to the Wild

In 1994, Dr. Gregory Bossart of the University of Miami, School of Medicine established a committee of seven nationally-recognized marine mammal veterinarians to formulate a draft of medical criteria that would act as guidelines for the re-introduction of wild marine mammal species. Marine mammal species included in this draft were cetaceans, pinnipeds, sea otters, and manatees. This draft was submitted to NMFS and became the working template for the present NMFS draft release medical guidelines.

1996 Final Rule NMFS 50 CFR Sec. 216.27(a) require release of a marine mammal held for rehabilitation within six months of capture unless "…the attending veterinarian determines that: (i) The marine mammal might adversely affect marine mammals in the wild (ii) Release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal; or (iii) More time is needed to determine whether the release of the marine mammal in the wild will likely be successful…"

1991-1997 Working Group of Marine Mammal Unusual Mortality Events – This group established under Title IV of the Marine Mammal Protection Act closely guided the development of the first draft that was published in 1998.

1998 FR Notice Draft NOAA Technical Memorandum - NMFS and FWS Release for Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria Vol.63, No. 67/ Wed, April 8, 1998

A notice of availability and request for comments was published in the Federal Register.

2001 April 24, 2001 Summary of Public Comments on Draft NOAA Technical Memorandum - NMFS and FWS Release for Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria

NMFS received official responses from 20 individuals or organizations. There were several outstanding issues that required more development and clarification. NMFS decided to convene special working groups to address the comments.

2001 Working groups on pinnipeds and cetaceans

Three working groups were assembled by NMFS and FWS to address outstanding issues noted during the public comment period. Their recommendations have been incorporated into the current document.

APPENDIX B

Key Legislation: Marine Mammal Rescue, Rehabilitation, and Release to the Wild

- **Marine Mammal Protection Act (MMPA) of 1972**
  - Title I. - Conservation and Protection of Marine Mammals
    - Section 109 (h) - Taking of Marine Mammals as Part of Official Duties
    - Section 112 (c) - Contracts, Leases, and Cooperative Agreements
  - Title IV. - Marine Mammal Health and Stranding Response
    - Sec. 402 (a) - Determination for Release
      (b) (1) – Procedures and Practices

- **Endangered Species Act of 1973, as amended**

- **Code of Federal Regulations, Title 50, part 216 – Regulations governing the taking and importing of marine mammals**
  - Section 22 – Taking by the State or Local Government Officials
  - Section 27 - Release, Non- Releasability, and Disposition Under Special Exception Permits for Rehabilitated Marine Mammals
    - (a) Release Requirements, (b) Non-releasability and postponed determinations, (c) Disposition for special exceptions purposes, (d) Reporting
  - Subpart D – Special Exceptions for Threatened and Endangered Marine Mammals
    - Marine Mammal Health and Stranding Response Program Enhancement Permit

- **Code of Federal Regulations, Title 50, part 18 – Marine Mammals**
  - Section 22 – Taking by Federal, State, and Local Government Officials
  - Section 31 – Scientific Research Permits and Public Display Permits

- **Code of Federal Regulations, Title 50, part 17 – Endangered and Threatened Wildlife and Plants**

  - Section 21 (c)(3) – Endangered Wildlife Prohibitions – Take
  - Section 31 (b) – Threatened Wildlife Prohibitions
  - Section 22 – Endangered Wildlife Permits for Scientific Purposes, Enhancement of Propagation of Survival, or for Incidental Taking
  - Section 32 – Threatened Wildlife Permits - General

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APPENDIX C

REQUIRED REPORTING AND DOCUMENTATION

Marine Mammal Stranding Report - Level A Data (NOAA 89-864, OMB #0648-0178)

Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)

Manatee Rescue, Rehabilitation and Release Report

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Manatee Rescue, Rehabilitation, and Release Report Fields

Rescue: Reporting Requirements	**Release: Request Information**	**Transfer: Request Information**	**Death: Reporting Requirements**	**Captive Birth: Reporting Requirements**
Name of Reporting Organization Date Report Filed Date Event Occurred Type of Rescue Identification ▪ Name (if any) ▪ Studbook Number ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) PIT Tag ▪ Right (identifying number) ▪ Left (identifying number) Freeze Brand (yes/no) ▪ Number Sex Weight (lbs/kg) ▪ Actual/estimated Length (cm/inches) ▪ Actual/estimated Ultrasound (yes/no) County Nearest Town/Community Waterbody Latitude/Longitude Probable Cause for Rescue ▪ (Drop down list includes various common causes; additional information is required for entangled animals) Health Status at Time of Report Rehabilitation Facility (if any) Veterinarian Facility Supervisor Rescue Participants Name of Reporter Telephone Number	Name of Requesting Organization Date Request Filed Date Event Proposed Identification ▪ Name (if any) ▪ Studbook Number ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) PIT Tag ▪ Right (identifying number) ▪ Left (identifying number) Freeze Brand (yes/no) ▪ Number Other Tags Name of Tracker/Affiliation Tracker Telephone Number Sex Weight (lbs/kg) ▪ Actual ▪ Date Taken Length (cm/inches) ▪ Actual ▪ Date Taken Peduncle Girth (cm) ▪ Date Taken Ultrasound (yes/no) County Where Rescued Nearest Town/Community Waterbody Latitude/Longitude Date of Rescue Weight at Time of Rescue Length at Time of Rescue Proposed Date of Release Actual Date of Release County Where Released Nearest Town/Community Where Released Waterbody Where Released Veterinarian Facility Supervisor Release Participants Name of Reporter Telephone Number	Name of Requesting Organization Date Request Filed Date Event Proposed Identification ▪ Name (if any) ▪ Studbook Number ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) Sex Weight (lbs/kg) ▪ Actual ▪ Date Taken Length (cm/inches) ▪ Actual ▪ Date Taken Date Brought Into Captivity Date of Proposed Transfer Actual Date of Transfer Veterinarian Facility Supervisor Release Participants Name of Reporter Telephone Number	Name of Reporting Organization Date Report Filed Date Died Identification ▪ Name (if any) ▪ Studbook Number ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) Sex Date Rescued Probable Cause of Death (or Euthanized) Disposition of Carcass Veterinarian Facility Supervisor Name of Reporter Telephone Number	Name of Reporting Organization Date Report Filed Date Born Identification ▪ Name (if any) ▪ Studbook Number ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) Sex Weight (lbs/kg) ▪ Actual ▪ Date Taken Length (cm/inches) ▪ Actual ▪ Date Taken Present Health Status Origin of Dam Circumstances of Birth Dam Identification ▪ Name (if any) ▪ Studbook Number (if any) ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered) Sire Identification ▪ Name (if any) ▪ Studbook Number (if any) ▪ Identification Numbers (in the case of multiple numbers, all numbers should be entered)

APPENDIX D

DISEASES OF CURRENT CONCERN FOR CETACEANS

The diseases listed below are of current concern for cetaceans. Numerous additional diseases exist among cetaceans and should also be considered during diagnostic work-ups. Testing for specific diseases of cetaceans is not required at this time. However, thorough diagnostic testing of rehabilitated cetaceans is strongly recommended as warranted by their history and clinical signs of illness. Clinicians are particularly encouraged to test cetaceans for brucellosis and morbillivirus. NMFS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or concern exists regarding the animal's likelihood of survival in the wild. Contact the NMFS coordinator for information regarding the appropriate diagnostic laboratories.

A good resource to obtain updated literature on diseases of marine mammals is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	COMMENTS
Brucellosis	Serologic evidence or isolation of this bacterium has been made several species of cetaceans as well as those in captivity. Different serovar than terrestrial species. Current limited understanding of pathophysiology and significance. May cause reproductive illness, isolated from an aborted captive bottlenose dolphin fetus. Zoonotic. Human case followed handling of marine mammal tissues. (Dunn et.al., 2001; Brew et al., 1999; Clavareau, 1998; Miller, et.al., 1999).
Erysipelothrix	Has caused acute septicemia or generalized dermatitis in several cetacean species including wild orca. Believed to be acquired from ingestion of fish contaminated with the organism. Zoonotic, causes dermatitis, arthritis, pneumonia, or septicemia in humans. (Dunn et.al., 2001; Young et.al., 1997; Cowan et.al., 2001.)
Respiratory Illness	Respiratory illness is common among both captive and wild cetaceans. Such disease often involves bacterial pathogens and is frequently fatal. *Staphylococcus areus* and *Pseudomonas aeruginosa* as well as Gram negative bacterial organisms are often involved. Pulmonary parasitism may contribute to development of bacterial respiratory disease. (Dunn et.al., 2001; Howard et.al.1983; Kinoshita et al. 1994).

VIRAL DISEASES

Morbillivirus	Has caused major epizootics with high mortalities in bottlenose dolphins, common dolphins, and striped dolphins. Has also infected other cetacean species. Testing for cetacean morbillivirus is strongly recommended for all cetaceans in rehabilitation centers. (Kennedy-Stoskopf, 2001; Kennedy, 1998; Duigan, 1999).
Poxvirus	Common infection of captive and wild cetaceans characterized by skin lesions. Not known to cause systemic infection. Appearance of lesions may correlate with weaning, poor general health, and/or compromised environmental conditions. (Kennedy-Stoskopf, 2001; Van Bressem and Van Waerebeek ,1996; Geraci et.al. 1979).
Papillomavirus	Has caused lesions of the skin, genital area, stomach ,and tongue of several cetacean species. Sometimes referred to as benign tumors. Genital lesions may be transmitted venereally and may interfere with copulation. (Kennedy-Stoskopf, 2001; Deguise et.al., 1994; Van Bressem et al., 1996).

PARASITIC DISEASES

Toxoplasmosis gondii	Protozoan parasite which has caused serious disease and death in cetacean species. Source of infection not clearly defined. (Dailey, 2001; Migaki, 1990.)
Anasakid nematodes	Family of nematodes which parasitize the cetacean gastrointestinal tract. Infections may cause gastritis and ulceration. (Dailey, 2001; Smith, 1989).
Hepatic trematodes	Heavy infection may cause serious liver disease associated with weight loss, increased susceptibility to bacterial infection. May result in death. (Dailey, 2001; Zam et.al, 1971.)
Nasitrema sp.	Nematode parasite which infects nervous systems of cetaceans. May be a significant cause of stranding in odontocetes. Causes eighth cranial neuropathy, encephalitis, and cerebral necrosis. (Dailey, 2001).
Lungworms	Includes nematode genera such as *Halocercus* which may cause severe respiratory disease and may cause death, depending on severity of infection. (Dailey,2001; Measures, 2001; Moser and Rhinehart, 1993).

NONINFECTIOUS DISEASES

Anthropogenic trauma Entanglement in debris such as fishing nets and lines, collisions with boats, and underwater detonation of explosives may injure or kill cetaceans. The number of animals affected relative to total population may cause particular concern for some species (i.e. right whales and boat collisions, small odontocetes and fisheries by-catch). (Gulland et al. 2001, Kraus, 1990, Perrin et.al., 1994).

Biotoxins Toxins naturally produced from dinoflagellates and diatoms have been associated with illness and death in cetaceans. Brevetoxin was a possible cause of bottlenose dolphin mortality in 1946-47 and 1987-1988. Humpback whale mortality was associated with consumption of mackerel containing saxitoxin. (Gunter et.al., 1948; Geraci, et.al., 1989).

Neoplasia Belugas of the St. Lawrence River have had a concerning rate of neoplasia. Other cases of neoplasia have been reported in several species. Etiology of cetacean tumors is not known. Interplay of physical, chemical, and/or infectious agents with host factors such as age, sex, and genetic make-up likely involved with tumorigenesis. (Gulland et.al., 2001; De Guise et.al., 1994).

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APPENDIX E

DISEASES OF CURRENT CONCERN FOR PINNIPEDS

The diseases listed below are of current concern for pinnipeds. Numerous additional diseases exist among pinnipeds and should also be considered during diagnostic work-ups. Testing for specific diseases of pinnipeds is not required at this time. However, thorough diagnostic testing is strongly recommended for pinnipeds as warranted by their history and clinical signs of illness. NMFS, or in the case of walrus the FWS, may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or if there is significant concern regarding the animal's likelihood of survival in the wild. Contact the NMFS coordinator, or the FWS in the case of walrus, for information regarding appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture, National Agriculture Library.

BACTERIAL DISEASES	COMMENTS
Brucellosis	Serologic evidence or isolation of this organism has been obtained for phocids and walrus. Different serovar than terrestrial species. Current limited understanding of pathophysiology and significance. May cause reproductive illness. Zoonotic. Human case followed handling of marine mammal tissues. (Dunn et.al., 2001; Garner et. al., 1997).
Leptospirosis	Severe systemic illness that frequently affects California sea lions and northern fur seals. Infection may be obtained at sea, in rookeries, or via contact with fresh water sources contaminated by infected terrestrial mammals via contamination of water sources. May be treated with antibiotics. Zoonotic. (Dunn et.al., 2001; Schoenwald et. al., 1971; Gulland et.al., 1996, Stamper et al., 1998).
Mycobacterial Disease	Illness characterized primarily by skin or pulmonary lesions diagnosed in several pinniped species. Caused by organisms which include those responsible for tuberculosis. Recently diagnosed in wild subantarctic fur seals. Zoonotic. (Dunn et. al., 2001, Cousins et.al., 1993, Bastida et.al., 1999).

VIRAL DISEASES

Adenovirus	Caused fatal hepatitis in California sea lions. Source of virus unknown, but may be related to canine adenovirus. (Kennedy-Stoskopf, 2001; Dierauf et.al., 1981).
Calicivirus	Several pinniped species susceptible. Causes skin lesions in California sea lions. Numerous animal species may be infected by calicivirus including fish, reptiles, mammals. Transmission from marine mammals to terrestrial animals and vice versa possible. Unconfirmed as zoonotic but possibility exists. (Kennedy-Stoskopf, 2001; Smith and Boyt, 1990; Gage, et.al., 1990; Barlough et.al., 1998).
Herpes Virus	May infect several pinniped species including walrus. Causes fatal disease in neonatal Pacific harbor seals characterized by severe adrenal gland and liver pathology. (Kennedy-Stoskopf, 2001; Gulland et.al., 1997).
Influenza	Caused high mortality among Atlantic harbor seals. Endemic among this population. Changes in virulence may cause disease outbreaks. Related to avian influenza. Zoonotic. Has caused severe conjunctivitis among humans. (Kennedy-Stoskopf, 2001; Webster et.al., 1981).
Morbillivirus	Endemic in several phocid species. May cause high morbidity and mortality. Seals have been infected by the canine morbillivirus as well as a morbillivirus specific for phocids. (Kennedy-Stoskopf, 2001; Kennedy, 1998; Duignan, 1999).
Pox	Causes skin lesions in several pinniped species. Outbreaks may be associated with stress as with postweanling animals recently introduced to captivity. Zoonotic. May cause skin lesions on humans. (Kennedy-Stoskopf, 2001; Hicks and Worthy, 1987).

PARASITIC DISEASES

Helminths	A variety of nematode, trematode, and cestode parasites infect pinnipeds, causing varying degrees of clinical disease. For instance, the nematode *Contracaecum corderoi* has caused gastrointestinal perforations and fatal peritonitis in California sea lions. (Dailey, 2001; Fletcher, 1998.)

Cryptosporidiosis	Protozoan gastrointestinal parasite recently isolated from several pinniped species. Limited current knowledge of pathophysiology in pinnipeds. Zoonotic. (Miller, et.al., 2001; Deng, et.al., 2000).
Giardia	Protozoan gastrointestinal parasite identified in phocids and the California sea lion. Incidence and severity of clinical illness not fully understood. Zoonotic. (Miller, et.al., 2001; Measures and Olson, 1999.)
Sarcocystis	Protozoan parasite that may cause severe neurologic disease and death. Important cause of mortality among Pacific harbor seals. Organism may be found in waste from humans or their activities. (Miller, et. al., 2001; LaPointe, et.al., 1998).

NONINFECTIOUS DISEASES

Anthropogenic trauma	Gunshot, underwater detonation of explosives, and entanglement in debris such as fishing nets and lines cause morbidity and mortality among pinnipeds. (Gulland, et.al., 2001).
Biotoxins	Harmful algal blooms producing domoic acid have caused significant sea lion mortality. (Gulland, 2000; Schoelin, et.al. 2000).
Neoplasia	Carcinoma, an aggressive tumor often associated with the urogenital system is common in California sea lions. May be linked to viral infections and/or exposure to environmental contaminants. (Buckles, et.al., 1996, Gulland, et.al., 1996, Lipscomb, et.al., 2000).

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APPENDIX F

DISEASES AND ISSUES OF CURRENT CONCERN FOR MANATEES

The diseases and issues listed below are of current concern for manatees. Other diseases exist among manatees and should also be considered during diagnostic work-ups. Testing for specific diseases of manatees is not required at this time. However, thorough diagnostic testing of rehabilitated manatees is strongly recommended as warranted by their history and clinical signs of illness. FWS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or concern exists regarding the animal's likelihood of survival in the wild. Contact the FWS stranding support staff for information regarding the appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	**COMMENTS**
Brucellosis	Antibodies to *Brucella* spp. have been reported in Florida manatees, although lesions consistent with brucellosis have not been observed (Geraci et al., 1999).
Other	Systemic mycobacteriosis due to *Mycobacterium marinum* and *M. chelonei (Boever et al., 1976),* and mycotic dermatitis (Dilbone, 1965; Tabuchi et al., 1974), have been reported in adult manatees.
VIRAL DISEASES	
Cutaneous papillomatosis	Recently described in a captive population of manatees. PCR analyses has demonstrated a virus consistent with Type I bovine papilloma virus. (Bossart et al., 1998a)
Morbillivirus	Serologic evidence of morbillivirus has been demonstrated in manatees, although signs of clinical disease or active infection has not been observed (Duignan et al., 1995).
Other	Pseudorabies, San Miguel sea lion virus Type I, and eastern, western, and Venezuelan equine encephalitis have been reported in Florida manatees (Geraci et al., 1999). While these are serologically evident, no signs of clinical disease or active infection have been observed.

PARASITIC DISEASES

Meningoencephalitis — *Toxoplasma gondii* has caused the death(s) of Florida manatees (Buerguelt and Bonde, 1983).

Other — Endoparasites are commonly found in manatees; however, pathological signs or clinical disease are rare (Bossart 2001).

NONINFECTIOUS DISEASES

Anthropogenic trauma — Collisions with boats, entanglement in fishing gear (monofilament fishing line, crab float lines, etc.), crushing in water control structures, etc., are sources of injury and mortality

Biotoxins — Brevetoxins associated with *Kerenia brevi* and possibly other dinoflagellates have killed dozens of Florida manatees. Suspected vectors include ingestion of toxin-containing ascidians and sea grasses and inhalation of aerosolized toxicants (Bossart 2001).

Cold stress syndrome — Exposure to cold for extended periods of time initiates clinical signs and disease processes that characterize manatee cold stress syndrome. Effects include lethargy, anorexia, and terminal hypothermia. Numerous significant cold fronts extending the length of the Florida peninsula have caused deaths and cold stress in dozens of manatees aver the past few decades (Bossart 2001).

APPENDIX G

DISEASES OF CURRENT CONCERN FOR SEA OTTERS

The diseases listed below are of current concern for sea otters. Numerous additional diseases exist among sea otters and should also be considered during diagnostic work-ups. Testing for specific diseases of sea otters is not required at this time. However, thorough diagnostic testing is strongly recommended for sea otters as warranted by their history and clinical signs of illness. FWS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or if there is significant concern regarding the animal's likelihood of survival in the wild. Contact the FWS coordinator for information regarding appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture, National Agriculture Library.

BACTERIAL DISEASES	COMMENTS
Septicemias	Overwhelming bacterial infections, sometimes from infected wounds, dental problems, and intestinal infections, are a common cause of mortality in southern sea otters, often secondary to infectional perforation by acanthocephalans (California Department of Fish and Game (CDFG) unpublished data), and a significant cause of mortality in northern sea otters in Alaska (FWS unpublished data). Connections with sewage or animal wastes are suspected in some infections; however, for northern sea otters, the source of this infection is often unknown.
Valvular endocarditis	This a sporadic disease secondary to chronic bacterial seeding from a primary source of infection such as a bite wound or tooth abscess. However, northern sea otters in Alaska have been diagnosed with VE without a primary source (FWS unpublished data). These animals have tested positive for the *Streptococcus bovis/equinus* complex. In human cases, there is an association between *S.bovis* endocarditis cases and a malignancy of the GI tract.
Brucellosis	One culture and PCR-confirmed case in a California sea otter with a chronic toe joint infection and low-level systemic disease (CDFG unpublished data). Fastidious in culture and easily missed. Marine Brucellae have demonstrated zoonotic potential, so caution is advised when handling fetal tissues, or live or dead animals with infected joints and wounds.

Dental disease	Dental disease is common, particularly in older animals and can lead to systemic bacterial infections.
Leptospirosis	Problem common in sea lions (see above pinniped section). Positive serologic titers in southern sea otters (Hanni *et al*. 2003). Cases reported in northern sea otters in Washington State. No clinical case identified in southern sea otters to date, although seropositive animals are observed. No cases reported for northern sea otters in Alaska.

FUNGAL DISEASES

Coccidiomycosis	Low levels of infections (less than 1 percent) in southern sea otters, mostly off the San Luis Obispo county coast around the mouth of the Santa Maria River. Cases always fatal. Not reported in northern sea otters. Biohazard for people handling dead sea otters.

VIRAL DISEASES

Morbillivirus	Conflicting evidence on whether exposure is relatively common or not in southern sea otters. Canine distemper has been diagnosed in a river otter in coastal British Columbia (Mos *et al*. 2003) and positive serologic titers have been noted in northern sea otters in Washington State. Care must be taken in moving otters if this virus is present in some populations and not others. Seropositivity to both canine and phocine distemper has been identified in northern sea otters in Washington and Alaska (FWS unpublished data).
Papillomavirus	Some evidence of this type of viral infection occurs, significance probably not great. Typically presents as small, raised variably pigmented plaques on the lips, tongue, or buccal mucosa. Occurrence often episodic and invariably incidental in southern sea otters (CDFG unpublished data).
Herpesvirus	Associated with corneal, oral, and esophageal ulcers, often in debilitated animals in California and Alaska.

PARASITIC DISEASES

Toxoplasma gondii	Protozoan parasite which can cause serious disease and death in southern sea otters (Miller *et al*. 2004) and northern sea otters in Washington State. High prevalence of exposure in California with moderate mortality rate. There is evidence of wide exposure in California and Washington State (Lindsay *et al*. 2001; Miller *et al*. 2002; Dubey *et al*. 2003; Conrad *et al.* 2005). Northern sea otters in Alaska rarely test positive (FWS unpublished data). Source of infection not clearly defined but hypothesized to be associated with freshwater inputs to the ocean in California (Miller *et al*. 2002; Dailey 2001; Migaki 1990).
Sarcocystis neurona	Protozoan parasite that may cause severe neurologic disease and death. Important cause of mortality among southern sea otters and northern sea otters in Washington State. Infections appear to progress more quickly than *T. gondii* (Miller *et al*. 2001; Miller 2006). No evidence of this in northern sea otters in Alaska.
Helminths	A variety of nematode, trematode, and cestode parasites infect sea otters, causing varying degrees of clinical disease. Acanthocephalan thorny headed worms, particularly the *Profilicollis* spp. may be pathogenic when overwhelming infestations occur, particularly in young animals (Mayer *et al.* 2003).
Mites	Nasal mite infestations are uncommon in wild animals, but heavy infections may occur in captive and rehabilitated animals. Heavy infections can result in secondary bacterial nasopharyngitis and pneumonia.
Giardia	Some live, captive northern sea otters in Alaska have tested positive (FWS unpublished data).

NONINFECTIOUS DISEASES

Anthropogenic trauma	Gunshot, boatstrike, oil spills, and entanglement in debris such as fishing nets, fishing lines, and hooks cause morbidity and mortality among sea otters. Alaskan otters have died from impactions with fish bones when feeding at cannery outfalls (FWS unpublished data).
Biotoxins	Harmful algal blooms particularly those producing domoic acid have caused some morbidity and mortality of sea otters in California (Gulland 2000; Jessup *et al.* 2004).

Persistent Organic Pollutants	Levels in southern sea otters and northern sea otters in Alaska adjacent to known military dump sites are high (50-100 times control populations). Potential effects on endocrine and immune functions are a cause for concern, but evidence for this or for acute toxicity are lacking.
Predation	White shark predation on southern sea otters is well documented. Some cases may be secondary to brain infections or intoxications that render otters helpless. Killer whale predation is hypothesized to be very significant in the decline of certain northern sea otter populations in Alaska.
Neoplasia	A number of types of neoplasia have been documented in northern sea otters (FWS unpublished data).
Intestinal Disease	Sea otters have been known to suffer from intestinal intussusceptions, torsions, and impactions not caused by human related causes.
Conspecific Trauma	Territorial males will often attack other male or pups. Males may also injure females during mating.

References:

Conrad, P.A., M.A. Miller, C. Kreuder, E.R. James, J. Mazet, H. Dabritz, D.A. Jessup, F. Gulland, and M.E. Grigg. 2005. Transmission of *Toxoplasma*: Clues from the study of sea otters as sentinels of *Toxoplasma gondii* flow into the marine environment. International Journal for Parasitology 35:1155-1168.

Dailey, M. D. 2001. Parasitic Diseases. *In* CRC Handbook of Marine Mammal Medicine, 2nd Edition L. A. Dierauf and F. M. D. Gulland (eds.). CRC Press, Boca Raton, Florida. Pp. 309-335.

Dubey, J.P., R. Zarnke, N.J. Thomas, S.K. Wong, W.Van Bonn, M. Briggs, J.W. Davis, R. Ewing, M. Mense, O.C.H. Kwok, S. Romand, and P. Thulliez. 2003. *Toxoplasma gondii, Neospora caninum, Sarcocystis neurona,* and *Sarcocystis canis*-like infections in marine mammals. Veterinary Parasitology 116:275-296.

Gulland, F. 2000. Domoic acid toxicity in California sea lions (*Zalophus californianus*) stranded along the central California coast, May-October 1998. Report to the National Marine Fisheries Service Working Group on unusual Marine Mammal Mortality Events. US Dept. Commerce NOAA Technical Memorandum NMFS-OPR-17, December 2000.

Hanni, K.D., J.A.K. Mazet, F.M.D. Gulland, J. Estes, M. Staedler, M.J. Muray, M. Miller, and D.A. Jessup. 2003. Clinical pathology and assessment of pathogen exposure in southern and Alaskan sea otters. Journal of Wildlife Diseases 39(4):837-850.

Jessup D.A., M.A. Miller, M.Harris, B. Hatfield, J.A. Estes. 2004. The 2003 southern sea otter (*Enhydra lutris nereis*) unusual mortality event: A preliminary report to NOAA and USFWS.

Lindsay, S.D., N.J. Thomas, A.C. Rosypal, and J.P. Dubey. 2001. Dual *Sarcocystis neurona* and *Toxoplasma gondii* infection in a Northern sea otter from Washington state, U.S.A. Veterinary Parasitology 97:319-327.

Mayer, K., M. Dailey and M. Miller. 2003. Helminth parasites of the southern sea *otter (Enhydra lutris nereis*) from central California: abundance, distribution and pathology. Diseases of Aquatic Organisms. 53:77-82.

Migaki, G., Sawa, T.R. and Dubey, J.P. 1990. Fatal disseminated toxoplasmosis in a spinner dolphin (*Stenella longirostris*). Vet. Pathol. 27:463-464.

Miller, M.A., P. R. Crosbie, K. W. Sverlow, K. Hanni, B. C. Barr, N. Kock, M. J. Murray, L. J. Lowenstine, A. Packham and P. A. Conrad. 2001. Isolation and characterization of *Sarcocystis* from brain tissue of a free-living southern sea otter (*Enhydra lutris nereis*) with fatal meningoencephalitis. Parasitology Research. 87:252-257.

Miller, M..A., I.A. Gardner, A. Packham, J.K. Mazet, K.D. Hanni, D.A. Jessup, J. Estes, R. Jameson, E. Dodd, B.C. Barr, L.J. Lowenstine, F.M. Gulland and P.A. Conrad. 2002. Evaluation of an indirect fluorescent antibody test (IFAT) for demonstration of antibodies to *Toxoplasma gondii* in the sea otter (*Enhydra lutris*). J. Parasitol. 88:594-599.

Miller, M.A., M.E. Grigg, C. Kreuder, E.R. James, A.C. Melli, P.R. Crosbie, D.A. Jessup, J.C. Boothroyd, D. Brownstein, and P.A. Conrad. 2004. An unusual genotype of *Toxoplasma gondii* is common in California sea otters (*Enhydra lutris nereis*) and is a cause of mortality. International Journal for Parasitology 34:275-284.

Miller, M. A. 2006. Tissue Cyst-Forming Coccidia of Marine Mammals. In: *Zoo and Wildlife Medicine*. M. Fowler and E. Miller, Eds: In press.

Mos, L., P.S. Ross, D. McIntosh, and S. Raverty. 2003. Canine distemper virus in rivers otters in British Columbia as an emergent risk for coastal pinnipeds. Veterinary Record 152:237-239.

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APPENDIX H

Contact Information for NMFS and FWS National and Regional Stranding Support Staff

National Marine Fisheries Service

OFFICE	ADDRESS	PHONE
Headquarters	Office of Protected Resources Marine Mammal Health and Stranding Response Program 1315 East-West Highway Silver Spring, MD 20910	Phone: (301) 713-2322 Fax: (301) 427-2522
Northeast Region	Administrator, Northeast Region One Blackburn Drive Gloucester, MA 01930-2298	Phone: (978) 281-9250 Fax: (978) 281-9207
Southeast Region	Administrator, Southeast Region 263 13th Ave. South St. Petersburg, FL 33701	Phone: (727) 824-5301 Fax: (727) 824-5320
Northwest Region	Administrator, Northwest Region 7600 Sand Point Way, NE Bin C 15700, Bldg. 1 Seattle, WA 98115-0070	Phone: (206) 526-6150 Fax: (206) 526-6426
Southwest Region	Administrator, Southwest Region 501 West Ocean Blvd. Suite 4200 Long Beach, CA 90802-4213	Phone: (562) 980-4001 Fax: (562) 980-4018
Alaska Region	Administrator, Alaska Region P.O. Box 21668 Juneau, AK 99802-1668	Phone: (907) 586-7221 Fax: (907) 586-7249
Pacific Islands Region	Administrator, Pacific Islands Region 1601 Kapiolani Blvd., Suite 1110 Honolulu, HI 96814	Phone: (808) 944-2280 Fax: (808) 973-2941

U.S. Fish and Wildlife Service

OFFICE	ADDRESS	PHONE
Headquarters	Division of Habitat and Resource Conservation 4401 N. Fairfax Drive, Room 400 Arlington, VA 22203	Phone: (703) 358-2161 Fax: (703) 258-1869
LOAs and Permits	Division of Management Authority 4401 N. Fairfax Drive, Room 700 Arlington, VA 22203	Phone: (703) 358-2104 Fax: (703) 358-2281
Manatees	Jacksonville Field Office 6620 Southpoint Drive South, Suite 310 Jacksonville, FL 32216	Phone: (904) 232-2580 Fax: (904) 232-2404
Southern Sea Otters in California	Ventura Field Office 2493 Portola Road, Suite B Ventura, CA 93004	Phone: (805) 644-1766 Fax: (805) 644-3958
Northern Sea Otters in Washington	Washington Field Office 510 Desmond Drive SE, Suite 102 Lacey, WA	Phone: (360) 753-9440 Fax: (360) 753-9518
Polar Bears, Pacific Walrus, and Northern Sea Otters in Alaska	Marine Mammals Management Office 1011 E. Tudor Road Anchorage, AK 99503	Phone: (907) 786-3800 Fax: (907) 786-3816

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APPENDIX I

Cetacean – Species Specific Developmental Stages (Age-Length) and Social Dynamics

Scientific Name	Common Name	Approx Length at Birth (cm)	Approx "NEONATE" length (cm)	Approx Length at 1 Year of Age (cm)	Approx Length at 2 Years of Age (cm)	Approx. Age at Weaning (yrs)	Approx Length at Weaning (cm)	Approx. Adult Length (cm)	Typical Group Size	Freq. of Occur. Single Individuals
Delphinapterus leucas	Beluga Whale	160	130-160	216	250	2	250	300-400 F 400-450 M	up to hundreds	uncommon
Delphinus capensis	Long-beaked Saddleback Dolphin	< 100							up to thousands	uncommon
Delphinus delphis	Common Dolphin	80-90	80-100				110-120	230-250	up to thousands	uncommon
Feresa attenuata	Pygmy Killer Whale	80						240-270	1-70	occasional
Globicephala macrorhynchus	Short-finned Pilot Whale	140-185	150			2-3		400-500 F 500-600 M	up to several hundred	rare
Globicephala melas	Long-finned Pilot Whale	177	160-200			2-3	240	450-500 F 450-600 M	up to several hundred	rare
Grampus griseus	Risso's Dolphin	110-150	120-160					300-400	single to several hundred	occasional
Kogia breviceps	Pygmy Sperm Whale	120	100-120			1		300 - 370	1-6	not uncommon
Kogia sima	Dwarf Sperm Whale	95	100			1		210-270	1-10	not uncommon
Lagenodelphis hosei	Fraser's Dolphins	100	100					240	100-1000	uncommon
Lagenorhynchus acutus	Atlantic White-sided Dolphin	108-122	100-130	142-156	176-190	1.5	180	240-270	2-500	uncommon
Lagenorhynchus albirostris	White Beaked Dolphin	110-120	110-130					300-320	1-100 (to 1500)	occasional
Lagenorhynhchus obliquidens	Pacific White-sided Dolphin	92	80-100					220-230	tens to thousands	uncommon
Lissodelphis borealis	Northern Right Whale Dolphin	80-100	80-100					220-230 F 260-300 M	100-200	occasional
Mesoplodon densirostris	Blainville's Beaked Whale	200						450-470	1-7	occasional
Mesoplodon europaeus	Gervais' Beaked Whale	210	210					450-520	small groups	uncommon
Orcinus orca	Killer Whale	183-228	210-250			1.5-2.0	400	700-800 F 800-950 M	2-100	infrequent - adult males
Peponocephala electra	Melon-Headed Whale	100						270	150-1500	uncommon
Phocoena phocoena	Harbor Porpoise	70	70-90	110-135	115-155	0.3 - 1.0	100 - 110	140-170	small groups	not uncommon

Scientific Name	Common Name	Approx Length at Birth (cm)	Approx "NEONATE" length (cm)	Approx Length at 1 Year of Age (cm)	Approx Length at 2 Years of Age (cm)	Approx. Age at Weaning (yrs)	Approx Length at Weaning (cm)	Aprox. Adult Length (cm)	Typical Group Size	Freq. of Occur. Single Individuals
Phocoenoides dalli	Dall's Porpoise	100	100			0.3-2.0		180-220	2-12	uncommon
Physeter macrocephalus	Sperm Whale	400	350-500		670	2+	670	1100-1300 F 1500-1800 M	20-40 (50)	adult males
Pseudorca crassidens	False Killer Whale	160	170-200			1.5-2.0		500 F 550-600 M	10-20+	rare
Stenella attenuata	Pantropical Spotted Dolphin	85	80-100	129-142		1-2	140	120	<100 to thousands	uncommon
Stenella clymene	Clymene Dolphin							180-200	1-50	occasional
Stenella coeruleoalba	Striped Dolphin	93-100	100	166	180		170	220-260	10-100s	uncommon
Stenella frontalis	Atlantic Spotted Dolphin	100	80-120				140	200-230	1-15	uncommon
Stenella longirostris	Spinner Dolphin	76-77	70-80	133-137		1-2		180-220	up to thousands	uncommon
Steno bredanensis	Rough-toothed Dolphin	100						240-270	10-20	uncommon
Tursiops truncatus	Bottlenose Dolphin	117	100-130	170-200	170-225	1.5-2.0	225	220-300 (coastal) 250-650 (offshore)	2-15	occasional
Ziphius cavirostris	Cuvier's Beaked Whale	270	200-300					670 - 700	1-7	not uncommon

Pinniped – Species Specific Developmental Stages (Age-Length) and Pupping Information

Scientific Name	Common Name	Approx Length at Birth (cm)	Approx "NEONATE" length (cm)	Approx. Age at Weaning	Approx Length at Weaning (cm)	Approx. Adult Length (cm)	Pups Born	Peak of Pupping
Arctocephalus townsendi	Guadalupe Fur Seal	60	60	9-11 months		140-170 F 180-240 M	June	June
Callorhinus ursinus	Northern Fur Seal	60-65	60	3-4 months		100-150 F 190-230 M	June-July	June-July
Cystophora cristata	Hooded Seal	90-100	90-110	4-12 days		200-230 F 230-290 M	Late March	Late March
Erignathus barbatus	Bearded Seal	130	130	12-18 days	150	210-250	Mid-October to Mid-November	End of October
Eumetopias jubatus	Steller Sea Lion	100	100	Within 1 yr	180	220-290 F 240-330 M	Mid-May to Mid-June	Mid-June
Halichoerus grypus	Gray Seal	90-110	80-110	16-21 days	110	180-210 F 220-250 M	January-February	January
Histriophoca fasciata	Ribbon Seal	80-90	80-90	3-4 weeks	90-110	150-180	April-May	Early April
Mirounga angustirostris	Northern Elephant Seal	125	120-140	28 days	150	200-320 F 380-410 M	January	End of January
Monachus schauinslandi	Hawaiian Monk Seal	100	100	3-7 weeks	100	230-240 F 210-220 M	December-August	March- May
Odobenus rosmarus	Walrus	100-120	100-140	2+ years	200	230-260 F 270-320 M	April-June	May
Pagophilus groenlandicus	Harp Seal	85	80-110	12 days	100	160-190	February-March	March
Phoca larga	Spotted Seal	77-92	80-90	4-6 weeks	110	160-170	Early April-Early May	Early April
Phoca vitulina	Harbor Seal	70-100	70-90	3-6 weeks	90	150-190	May-June	May
Pusa hispida	Ringed Seal	60-65	60-70	6-8 weeks	80	120-150	Mid-March to Mid-April	Early April
Zalophus californianus	California Sea Lion	75	70	10-12 months		150-200 F 200-240 M	June	June

References:

Marine Mammals Ashore: A Field Guide for Strandings second edition, J.R.Geraci and V.J.ounsbury, ©National Aquarium in Baltimore, 2005.

Marine Mammals Ashore : A field guide for strandings J.R. Geraci and V.J. Lounsbury ©SeaGrant College Program, Texas A&M University, 1993. ISBN: 1883550017

Guide to Marine Mammals of the World. R.R. Reeves, B.S. Stewart, P.J. Clapham, and J.A. Powell. Chanticleer Press, Inc., New York, 2002.

Seals of the World. Judith E. King Comstock Publishing Association, Cornell Press, Ithaca, New York, 1983

Handbook of Marine Mammals Volume 4 *River dolphins and the larger toothed whales.* Edited by Sam H. Ridgway and Richard Harrison. Academic Press, London, New York, 1989. ISBN: 0125885040

Handbook of Marine Mammals Volume 5 *The first book of dolphins*. Edited by Sam H. Ridgway and Richard Harrison. Academic Press, London, New York, 1994. ISBN: 0125885059

Handbook of Marine Mammals Volume 6 *The Second book of dolphins and the porpoises*. Edited by Sam H. Ridgway and Richard Harrison. Academic Press, San Diego, 1999. ISBN: 0125885067

APPENDIX J

"Recommended" Standard Checklist to Determine Release Category of all Rehabilitated Cetaceans

Yes = true statement, No= untrue statement (shaded areas may not be applicable)

	Release Determination Assessment (within 2 weeks of release)		Pre-Release Assessment (within 72 hours of release)	
History	**Yes**	**No**	**Yes**	**No**
1. The release candidate has NOT previously stranded				
2. Stranding was NOT associated with a Marine Mammal Unusual Mortality Event or ongoing epidemic				
3. Stranding was NOT associated with anthropogenic environmental accident (e.g., hazardous waste spill, acoustic insult)				
4. Stranding was NOT associated with an environmental event of NMFS concern (e.g., harmful algal bloom, fish kill, etc.)				
5. Stranding was NOT associated with an El Niño event				
6. The animal is NOT evidence or part of a human interaction or criminal case				
7. Stranding was NOT associated with a mass stranding				
8. The animal was NOT part of a "permitted" research project				
Developmental Stage				
9. The release candidate is of sufficient size and age to be nutritionally dependent				
10. The release candidate is NOT a female with calf				
11. The release candidate is NOT a geriatric animal and is NOT compromised due to age related conditions.				
12. There is NO evidence that the release candidate was exposed to terrestrial wild or domestic animals prior to and during rehabilitation				
Behavioral Clearance				
13. The release candidate demonstrates appropriate breathing, swimming, and diving				
14. The release candidate does NOT exhibit aberrant behavior including attraction to or desensitization to the presence of humans				
15. The release candidate does NOT exhibit auditory or visual dysfunction				
16. The release candidate demonstrates appropriate foraging ability				
17. The release candidate did NOT strand as a direct result of a failure to avoid predators				

	Release Determination Assessment (within 2 weeks of release)		Pre-Release Assessment (within 72 hours of release)	
Behavioral Clearance (continued)	**Yes**	**No**	**Yes**	**No**
18. The release candidate did NOT strand as a result of taking food from humans in the wild				
19. The release candidate did NOT strand as a direct result of a demonstrated inability to obtain sufficient food in the wild				
20. The release candidate did NOT strand as a direct result of a conspecifics injury				
Medical Clearance				
21. The attending veterinarian has reviewed the release candidate's history and medical records, including records from other facilities that have previously held the animal.				
22. The attending veterinarian has examined the release candidate within two weeks of release				
23. The required health screen and assessments were conducted with good results				
24. Hands-on physical exam to be performed by attending veterinarian within 72 hours of release				
25. NO congenital defects				
26. CBC compatible with good health				
27. Chemistry profile compatible with good health				
28. Serum banked upon admission and prior to release (3 ml)				
29. Additional testing requested and reviewed by NMFS and no apparent concerns				
30. Free of drugs (exclusive of sedatives used for transport) minimum of 2 weeks prior to release				
31. Veterinarian's signature on health statement				

Health Statement

I have examined the cetacean (Species and ID#)_____ on (Date) _____ and have determined that the animal is medically and behaviorally suitable for release in accordance with the release criteria in that the animal will not pose a risk to the wild population and is likely to survive upon reintroduction to the wild.

_____ _____

Signature of the Attending Veterinarian *Printed Name of the Attending Veterinarian*

_____ _____

Signature of the Authorized Representative *Printed Name of the Authorized Representative*

"Recommended" Standard Checklist to Determine Release Category of all Rehabilitated Pinnipeds (except walrus)

Yes = true statement, No= untrue statement (shaded areas may not be applicable)

	Release Determination Assessment (within 2 weeks of release)		Pre-Release Assessment (within 72 hours of release)	
History	**Yes**	**No**	**Yes**	**No**
1. The release candidate has NOT previously stranded				
2. Stranding was NOT associated with a Marine Mammal Unusual Mortality Event or ongoing epidemic				
3. Stranding was NOT associated with anthropogenic environmental accident (e.g., hazardous waste spill, acoustic insult)				
4. Stranding was NOT associated with an environmental event of NMFS concern (e.g., harmful algal bloom, fish kill, etc.)				
5. Stranding was NOT associated with an El Niño event				
6. There is NO evidence that the release candidate was exposed to terrestrial wild or domestic animals prior to and during rehabilitation				
7. The release candidate is NOT known to have inflicted a bite on human(s)				
8. The animal is NOT evidence or part of a human interaction or criminal case				
9. The animal was NOT part of a "permitted" research project				
Developmental Stage				
10. The release candidate is weaned, and has a proven ability to feed itself				
11. The release candidate is sufficiently robust, having adequate reserves to survive readjustment in the wild				
12. The release candidate shows no sign of molt				
Behavioral Clearance				
13. The release candidate demonstrates appropriate breathing, swimming, diving, and locomotion on land				
14. The release candidate demonstrates an absence of aberrant behavior including attraction to or desensitization to the presence of humans				
15. The release candidate does NOT exhibit auditory or visual dysfunction				

	Release Determination Assessment (within 2 weeks of release)		Pre-Release Assessment (within 72 hours of release)	
Behavioral Clearance (continued)	**Yes**	**No**	**Yes**	**No**
16. The release candidate demonstrates a capacity to chase and capture live prey				
Medical Clearance				
17. The attending veterinarian has reviewed the release candidate's history and medical records, including records from other facilities that have previously held the animal.				
18. The attending veterinarian has examined the release candidate within two weeks of release				
19. The required health screen and assessments were conducted with good results				
20. Hands-on physical exam to be performed by attending veterinarian within 72 hours of release				
21. NO congenital defects				
22. NO nonfunctional or damaged appendages				
23. NO defects in vision				
24. CBC compatible with good health				
25. Chemistry profile compatible with good health				
26. Serum banked upon admission and prior to release (3 ml)				
27. Additional testing requested and reviewed by NMFS and no apparent concerns				
28. Free of drugs (exclusive of sedatives used for transport) minimum of 2 weeks prior to release				
29. Veterinarian's signature on health statement				

Health Statement

I have examined the pinniped (Species and ID#)_____ on (Date) _____ and have determined that the animal is medically and behaviorally suitable for release in accordance with the release criteria in that the animal will not pose a risk to the wild population and is likely to survive upon reintroduction to the wild.

_____ _____

Signature of the Attending Veterinarian *Printed Name of the Attending Veterinarian*

_____ _____

Signature of the Authorized Representative *Printed Name of the Authorized Representative*

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NATIONAL MARINE FISHERIES SERVICE (NMFS) CRITERIA FOR DISENTANGLEMENT ROLES AND TRAINING LEVELS

Levels of Participation in the Disentanglement Network – Definitions

Roles	Levels
First Responder	1-5
Primary First Responders	3-5
Primary Disentanglers	4-5

First Responder is a general term that is used to describe anyone in the Network with any level of training who may respond to an entanglement report under Network protocols and authorization. At a minimum they will voluntarily attempt to standby with an entangled whale and, depending on training, experience, authorization and equipment available, may also assess and perhaps tag the whale. Individuals with higher Network ratings (Levels 3-5) may act as **Primary First Responders** in local areas. Primary First Responders direct efforts locally and, under certain conditions and authorization, may attempt disentanglements during first response. These individuals have rapid access to vessels and specialized equipment. Additionally, Primary First Responders are on call full-time or at least during those times when there is a high likelihood of an entanglement report in their area of responsibility.

A First Responder's anticipated range of tasks is generally dependent on their classification in the Network. Classifications to various levels are determined on an individual basis and are based on a number of factors including, but not limited to the following:

- Preexisting experience and skills
- Willingness and commitment to build experience and improve skills
- Training
- Opportunity and available resources
- Location
- Commitment to being “on-call”
- Commitment to respond as needed

Primary Disentanglers are individuals who can perform all of the responsibilities of a first responder, but who also meet the criteria used by NMFS for selecting individuals who may undertake the very dangerous activity of disentangling (i.e. attaching to, stopping and cutting a whale free). Primary Disentanglers must have the experience, training, support and proper equipment at the time of the event to conduct a full disentanglement with a high likelihood of success. Primary Disentanglers are those rated at Level 4-5 in the Disentanglement Network. A summary of the various levels of certification follows.

DISENTANGLEMENT NETWORK CERTIFICATION

LEVEL 1

Targeted Individuals: Professional mariners (*i.e.* fishermen, naturalists, Marine Patrol Officers) Boating experience and/or experience around whales is highly suggested (*i.e.* professional fishing, field biology, marine law enforcement, whale watching, etc.)

Responsibilities

Level 1 activities: report, standby, and assess (within experience)

- Rapidly alert Disentanglement Network of first-hand and/or second-hand knowledge of local entanglements
- Depending on experience, stand by an entangled whale until backup arrives, and/or
- Communicate with crew on the vessel that is directly standing by the entangled whale and offer to replace the stand by vessel until additional backup or the response team arrives (if needed and within experience)

Criteria for certification

- Completed Level 1 classroom training, or
- Viewed Provincetown Center for Coastal Studies (PCCS) Training Video and demonstrated equivalent knowledge and experience (submit resume)

LEVEL 2

Targeted Individuals: Professional mariners (*i.e.* fishermen, naturalists, Marine Patrol Officers). There is a higher expectation of commitment and participation from Level 2 responders.

Responsibilities

Level 2 activities: report, stand by, and assess at a higher level (within experience)

- Provide a thorough assessment of the nature of the entanglement and the species, condition and behavior of the whale
- Provide local knowledge, transportation, and assistance to Primary First Responders, as needed, on a voluntary basis
- Be on call, as available, to assist in planned disentanglement operations on telemetry tagged whales

Criteria for certification

Level 1 certification in addition to the following:

- Completed Level 2 on-water training, or
- Viewed PCCS Training Video and demonstrated equivalent knowledge and experience (submit resume)

LEVEL 3

Targeted Individuals: Whale researchers and naturalists, fishermen, natural resource agency personnel, Marine Patrol Officers.

Responsibilities

Level 3 activities- report, stand by, assess, document and attach a telemetry buoy. Other activities may include:

- Be on call 24 hours and should respond if conditions allow
- Initiate and maintain preparedness with local fishing industry, Coast Guard, and other resources
- Prepare local disentanglement action plan
- Provide entanglement assessment, documentation and recommendations to Primary
- Disentanglers during events
- Attach telemetry equipment to entangling gear if needed and authorized
- May be asked (depending on experience) to disentangle a minor entanglement with potential to adversely affect any whale other than right whales under the supervision/authorization of

Level 4 or 5 network members. Authorization and supervision may be given over the phone or radio depending on the circumstances and level of experience.

Criteria for certification

Level 1 and 2 certification and experience in the following elements:

- Large whale species identification and behavior, and the ability to safely follow a free swimming, entangled whale
- Boat handling and safety including basic seamanship, driving, and close approaches to whales
- Line handling and safety including knowledge of knots, handling lines under pressure, and an understanding of how working lines behave
- Follows instructions and response plans

Note: Each candidate will be evaluated for each element and any deficiencies must be supplemented with adequate training and/or experience.

Additionally, all Level 3 responders must have:

- Basic Level 3 training, or
- Advanced Level 3 training - an apprenticeship with PCCS

LEVEL 4

Targeted Individuals: Whale researchers and naturalists, fishermen, natural resource agency personnel, Marine Patrol Officers.

Responsibilities

Level 4 activities-

- Report, stand by, assess, document, attach a telemetry buoy, consult on an action plan and disentangle all large whales except right whales
- Report, stand by, assess, document and attach a telemetry buoy to right whales
- On a case by case basis and after consultation (see commitment to consult under Level 5 below), certain cuts on known entangled right whales may be permitted at level 4 ***if the proposed action is first approved by level 5 disentanglers and NMFS***

Please Note: Entangled whale behavior varies considerably by species. However, Level 4 Disentanglers should routinely be able to attempt disentanglement of all large whales other than right whales.

Criteria for certification

Basic or Advanced Level 3 Certification and:

- Direct experience in a supervised (by PCCS/Network coordinators or NMFS) large whale disentanglement, documentation of that experience, and a positive evaluation from NMFS using information provided by PCCS/Network Coordinators and any hard documentation (*i.e.* video)
- When possible, commitment to consultation as detailed in Level 5 below

LEVEL 5

Targeted Individuals: Level 4 Responders

Responsibilities

Level 5 activities - report, stand by, assess, document, attach a telemetry buoy, consult on an action plan and disentangle all large whales including right whales.

Please Note: Right whales are aggressive and therefore generally the most difficult whales to disentangle. North Atlantic right whales are among the most critically endangered large whales in the world. Certification at this level is highly selective and specialized.

Criteria for certification

Level 4 certification and:

- Experience w/ right whale behavior and/or includes a person on the team directly involved in the whale disentanglement (in the boat with the whale) that is experienced in right whale behavior
- Documented participation in a right whale disentanglement and/or NMFS/PCCS review of video of participation in a right whale disentanglement that followed NMFS protocol
- Commitment to Consultation to include:

- Immediate Consultation: when possible, use satellite/cell phones to bring in additional ideas/experience from other level 5s and level 4s (and vets and behaviorists if appropriate) while on scene with an entangled right whale
- Action Plan Development: For a tagged right whale, consultation required with NMFS, level 5s and 4s, veterinarians, behaviorists, etc.

Rationale for consultation: First assessments and strategies almost invariably change with more discussion or information. Consultation will likely help to increase human safety and critical choices regarding risks to whale health must be made with the best available information.

Best Practices for Marine Mammal Response, Rehabilitation, and Release

Glossary of Terms

Animal Care Supervisor– Responsible for overseeing prescribed treatments, maintaining hospital equipment, and controlling drug supplies. The person should be adequately trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the animal care supervisor should communicate frequently and directly with the attending veterinarian to ensure that there is a timely transfer of accurate information about medical issues.

Assessment Team – The team of individuals who collectively assess the rehabilitation case and make a release determination recommendation. This team could include the attending veterinarian, lead animal care supervisor, and/or consulting biologist with knowledge of species behavior and life history).

Attending Veterinarian - U.S. licensed veterinarian [i.e., graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates or has received equivalent formal education as determined by NMFS Administrator (adapted from the Animal Welfare Act Regulations 9 CFR Ch. 1)] who has the responsibility to oversee veterinary medical aspects of live animal care and is also responsible for assuring the health of marine mammals released back to the wild following rehabilitation.

Authorized Representative- Individual with signatory authority for the stranding organization. This individual may be the signatory of the stranding agreement (e.g., Executive Director, President, CEO, etc.).

Bite - An injury from an animal that results in a break in the skin (epidermis).

Cohorts- Belonging to same species.

Conspecifics- Belonging to same species.

Diseases of Public Health and Safety Concern- Diseases that have been identified by Federal and State agencies (e.g., Centers for Disease Control and Prevention and state public health agencies) that pose a significant risk to public health.

Diseases of Zoonotic Concern- Diseases that are transmitted from animals to humans.

Ecological Status- A concept to consider when making release determinations. This concept attempts to integrate the medical and behavioral evaluations into an extrapolation of how the animal would likely do in the wild when exposed to typical ecological pressures

Emerging Diseases- Newly recognized serious disease, the cause of which may or may not yet be established, that has the potential to spread within and between populations.

Epidemic (adjective)- Affecting or tending to affect an atypically large number of individuals within a population, community, or region at the same time.

Epizootic (noun)- An outbreak of disease affecting many animals of one kind at the same time (similar to epidemic and term typically used in for animals)

ESA- Endangered Species Act

Ethogram- A catalogue of the discrete behaviors typically employed by a species. These behaviors are sufficiently stereotyped that an observer may record the number of such acts, or the amount of time engaged in the behaviors in a period of time.

FWC – Florida Fish and Wildlife Conservation Commission

FWS (U.S. Fish and Wildlife Service) - The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

FWS Division of Management Authority (DMA)- The Division of Management Authority implements domestic laws and international treaties to promote long term conservation of global fish and wildlife resources. In response to ever-increasing global pressures of wildlife trade and habitat loss on species worldwide, the office dedicates its efforts to conserving species at risk through trade and implementing policies that have a broad impact on conservation overall.

FWS Field Offices- The program operations of the FWS are performed at various types of field installations within FWS Regional Offices. The FWS Field Offices that are involved with health and stranding of marine mammals under jurisdiction of the FWS are identified in Appendix H.

FWS Letter of Authorization (LOA) - LOAs are issued by the FWS Division of Management to authorize under a "permit" network individuals, facilities, and agencies to rescue, rehabilitate, and release species under their jurisdiction that are in need of assistance. Authorizations and requirements are specific to the species, the organization, and the activity being conducted.

Humane Care- Treatment of an animal in such a way to both minimize pain and suffering and (by providing for proper care and use of the animal) to maximize well being of the individual and the population into which it is to be released.

Human Interaction- Physical signs or evidence (e.g., wounds, marks, gear, etc.) of direct human associated interaction that may or may not be related to the stranding.

Key Personnel – Individuals who represent the stranding organization and serve in key positions such as the authorized representative, primary responder, animal care supervisor, and attending veterinarian.

Letter of Concurrence from the NMFS Regional Administrator (RA) - The official notification from the NMFS regional office that concurs with the release determination recommendation.

Letter of Intent- A letter from a prospective permanent care facility requesting custody of a non-releasable animal. This letter must be sent to the NMFS Office of Protected Resources, Permits, Conservation and Education Division (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm).

MMPA- Marine Mammal Protection Act

MMPA/ESA Permit No. 932-1489-09- A permit issued by the NMFS Office of Protected Resources, Permits, Conservation and Education Division to the Marine Mammal Health and Stranding Response Program (MMHSRP). The permit covers some of the MMHSRP's activities, including emergency response activities for threatened and endangered species, large whale disentanglement activities, health assessment studies, and other research projects.

Marine Mammal Unusual Mortality Event- A stranding that is unexpected, involves a significant die-off of any marine mammal population, and demands immediate response.

Necropsy Team Leader- A NMFS approved team leader, responsible for all aspects of the necropsy. The Necropsy Team Leader assigns task during the necropsy and is responsible for the gross report and final necropsy report.

NMFS- National Marine Fisheries Service

NMFS National Stranding Coordinator- Develops national policy and guidance and oversees the national marine mammal stranding program (part of the NMFS Marine Mammal Health and Stranding Response Program)

NMFS Office Director- Office Director for the National Marine Fisheries Service, Office of Protected Resources

NMFS PR1- NMFS Office of Protected Resources, Permits, Conservation and Education Division

NMFS Regional Director- Regional Administrator for the National Marine Fisheries Service Regional Office (regional specific)

NMFS Regional Stranding Coordinator- Coordinates administration of the stranding program within the region.

NMFS Stranding Agreement- The official written agreement between NMFS and Stranding Network Participant as allowed under section 112(c) of the Marine Mammal Protection Act.

Primary Responder – Oversees all aspects of each stranding response and be on-site or supervising when live or dead animals are being examined or handled (i.e., paid staff and unpaid staff). If working with live animals, be in direct contact with the attending veterinarian if necessary.

Panmictic- Referring to unstructured populations (random mating).

Pre-Release Health Screen- Required to be completed prior to release of animals following rehabilitation in accordance with these guidelines

Reasonable Social Group- Refers to in association with conspecifics of similar age, sex, and/or relatedness as would be found in social groups observed in the wild.

Release Determination Recommendation- The official written recommendation for release or non release signed by the attending veterinarian and signatory rehabilitation facility and sent to the NMFS Regional Director.

Release Plan- If release is recommended and NMFS concurs, the release plan will include a timeline, release site, method of transport and tagging/post release monitoring. Conditional releases will require an expanded release plan including a justification and detailed description of the logistics, tagging, location, timing, crowd control, media coordination (if applicable), and post release monitoring. NMFS may require contingency plans, should the release be unsuccessful, including recapture of the animal following a specified time after release.

Reportable Diseases- Diseases that pose a significant concern to public health, agriculture, and marine mammal populations and are required to be reported to NMFS and state agencies.

Responsible Party of Record- This is the official who has the legal authority to make acquisition and disposition decisions on behalf of an organization, institution, or agency that is holding marine mammals in captivity. This person's signature is required on the Letter of Intent to permanently retain or acquire a nonreleasable animal.

Signatory- The individual who signed the official stranding agreement between the stranding organization and NMFS (e.g., Executive Director, President, CEO).

Stranding Network Participant - A nongovernmental entity authorized by an agreement (Stranding Agreement) with NMFS to respond to stranded marine mammals under section 112(c) of the Marine Mammal Protection Act, which provides special exemption from the take prohibition.

Sub Designee- An entity acting under the authority and oversight of the Stranding Network Participant.

Surveillance Program- A method of surveillance that generates a source of information on the animal health status of populations.

Transfer Authorization Letter- The letter issued by NMFS PR1 to the receiving facility which authorizes retention or acquisition of a marine mammal that has been deemed nonreleasable.

USGS – United States Geological Survey

Working Group on Marine Mammal Unusual Mortality Events- An official panel of scientific experts established by the Marine Mammal Protection Act to who advise the NMFS and FWS regarding unusual mortality events.

109(h) Stranding Participant- State or local government official who can respond to a stranded marine mammal for the protection or welfare of the marine mammal and protection of public health and welfare during the course of their official duties. Section 109(h) of the Marine Mammal Protection Act provides special exemption from the take prohibition.

Zoonotic- Diseases caused by infectious agents that can be transmitted between (*or are shared by*) animals and humans.

APPENDIX D

SCOPING REPORT- MARCH 2006

Marine Mammal Health and Stranding Response Program Environmental Impact Statement

Scoping Report
March 2006


Photo by NMFS NWR


Photo by Lynne Barre, NMFS


Photo by Provincetown Center for Coastal Studies

National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

ACRONYMS

CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
ESA	Endangered Species Act
MMHSRP	Marine Mammal Health and Stranding Response Program
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOAA	National Oceanic and Atmospheric Administration
OSP	Optimal Sustainable Population
SA	Stranding Agreement
UME	Unusual Mortality Event

SCOPING REPORT FOR THE
MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM
ENVIRONMENTAL IMPACT STATEMENT

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APPENDICES

TABLES

1. Introduction

The National Marine Fisheries Service (NMFS) published a Notice of Intent (NOI) in the Federal Register on December 28, 2005 (Appendix A). The NOI announced NMFS' decision to prepare an Environmental Impact Statement (EIS) on the activities of the Marine Mammal Health and Stranding Response Program (MMHSRP) and conduct public scoping meetings. The EIS is being prepared in accordance with the National Environmental Policy Act (NEPA). The NOI began the official scoping process for the EIS. This document summarizes the scoping process and the comments received during the process.

1.1 EIS Background Information

NMFS coordinates and operates the MMHSRP for response to stranded marine mammals and research on marine mammal health, pursuant to Title IV of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1421). Marine mammal stranding response is primarily conducted by a network of volunteer organizations across the country that are government officials under the authority of §109(h) or other groups that have entered into a Stranding Agreement or Letter of Agreement (SA or LOA) with NMFS pursuant to §112(c) of the MMPA. The MMHSRP operates at the national and regional level to coordinate and facilitate these responses.

To provide further guidance to marine mammal stranding network members and to nationally standardize the guidelines and protocols of participants in the stranding network, NMFS has developed several policy documents that are collectively named the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*. These documents are currently issued on an interim basis, and the MMHSRP is proposing to issue them in final after the NEPA analysis is concluded.

Some activities of the MMHSRP are conducted under a permit issued under the MMPA and Section 10(a)(1)(A) of the Endangered Species Act (ESA) by the Permits, Conservation, and Education Division of the NMFS Office of Protected Resources. The permit covers stranding and emergency response activities (including disentanglement) for endangered marine mammal species, health assessment studies, and a variety of other research projects.

The current MMPA/ESA permit expires on June 30, 2007. A NEPA analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. A NEPA analysis must

also be completed to issue the final version of the *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release* manual.

1.2 Purpose of Scoping

NEPA defines scoping as an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). NMFS is required by NEPA to include scoping as part of the EIS process. The scoping meetings provided NMFS the opportunity to inform the public regarding the MMHSRP's EIS and to obtain pubic input on the range of issues to be covered in the EIS. Comments were also collected via e-mail, postal mail and fax during the scoping process.

2. Scoping Meetings Summary

2.1 Public Notices

Announcements for the dates and locations of scoping meetings were sent to 253 entities, including federal and state government agencies, Alaska natives, Native American tribes, and non-governmental organizations. In addition, a total of 160 packets with the scoping meeting information and additional background documentation were sent to marine mammal stranding network members, marine mammal disentanglement network members, and MMPA/ESA research permit co-investigators.

Meeting announcements were sent to the email list for the Northeast, Southeast, and Southwest Regional stranding networks. An announcement was also sent to the MARMAM list-serve, an edited e-mail discussion list focusing on marine mammal research and conservation. The scoping meeting schedule was also available on the MMHSRP website at http://www.nmfs.noaa.gov/pr/health/eis.htm.

2.2 Newspaper Announcements of Public Notice

Public notices announcing the scoping meetings were published in a newspaper in each of the meeting locations. The notices were published one week before the meeting date. Each notice included the date, time, and location of the meeting, and where additional information on the EIS could be obtained. The newspapers and dates the announcements were published are listed below:

- Santa Barbara News-Press: January 17, 2006
- The San Francisco Examiner: January 18, 2006

- The Honolulu Advertiser: January 20, 2006
- The Seattle Times: January 23, 2006
- Anchorage Daily News: January 25, 2006
- St. Petersburg Times: January 31, 2006
- The Boston Globe: February 6, 2006
- The Washington Post: February 10, 2006

2.3 Information Repositories

Information on the MMHSRP and the EIS was available at a public library in each of the scoping meeting locations. Information was also available on the MMHSRP website. Information included the interim draft of the Best Practices and Policies Manual; the NOI; and handouts summarizing the MMHSRP, the EIS Process, and the Proposed Action and Alternatives.

2.4 Public Scoping Meetings

Eight public scoping meetings were held in January and February of 2006. Meeting locations were chosen in each of the six NMFS regions: Alaska, Northeast, Northwest, Southeast, Southwest (two meetings), and the Pacific Islands. A meeting was also held at the National Oceanic and Atmospheric Administration (NOAA) Headquarters in Silver Spring, Maryland. Table 1 lists the meeting locations, date, time, number of attendees, and the number of oral comments received. The number of attendees is an approximation, as not all attendees signed in at the meeting. The number of attendees also includes the NMFS regional stranding coordinators, when applicable.

At the entrance to each meeting, attendees were encouraged to sign the registration sheet. Attendees could sign up to present oral comments or to be placed on the EIS mailing list. Written comment forms, the NOI, and handouts with information on the EIS and MMHSRP were also available at the entrance (see Appendix B).

The meetings consisted of a poster session, a formal presentation by NMFS personnel, an oral comment period, and an informal question and answer session. The poster session allowed the public to ask NMFS personnel questions before the meeting. The formal presentation provided the audience with information on NEPA, the EIS process, the MMHSRP, and the alternatives under consideration. The oral comment period provided attendees the opportunity to make a formal statement. The informal question and answer period allowed attendees to ask questions about information provided

in the presentation. Each meeting was captured by a court reporter for an accurate public record (the informal question and answer session was not recorded). Official transcripts from each meeting are in Appendix C. Written comments were also accepted at the meeting. Attendees were informed that NMFS would accept written comments until February 28, 2006.

Table 1. Public Scoping Meeting Information

Location	Date/Time	Number of Attendees	Number of Oral Comments
Santa Barbara, CA Santa Barbara Natural History Museum	January 24, 2006 7:00-10:00 pm	6	1
San Francisco, CA Bay Conservation and Development Commission	January 25, 2006 2:00-5:00 pm	12	2
Honolulu, HI Hawaiian Islands Humpback Whale National Marine Sanctuary	January 27, 2006 3:00-6:00 pm	7	0
Seattle, WA NMFS Northwest Regional Office	January 30, 2006 2:00-5:00 pm	15	2
Anchorage, AK USFWS Building	February 1, 2006 2:00-5:00 pm	12	0
St. Petersburg, FL NMFS Southeast Regional Office	February 7, 2006 5:00-8:00 pm	20	1
Boston, MA New England Aquarium	February 13, 2006 5:00-8:00 pm	25	5
Silver Spring, MD Silver Spring Metro Center, Building 4, Science Center	February 17, 2006 2:00-5:00 pm	17	2

3. Scoping Comments

During the scoping period (December 28, 2005 to February 28, 2006) 35 comments were collected regarding the EIS during public meetings and through e-mail, fax, and mail (Appendix D). Comments addressed two specific areas: the EIS and the interim Policies and Best Practices documents.

3.1 EIS Comments

The following is a summary of the types of comments received on the EIS during the scoping process:

Alternatives

General

- Support for the MMHSRP's Proposed Actions.
- The No Action, Status Quo, and the activity curtailed immediately alternatives are not reasonable alternatives.
- All stranded marine mammals should be treated equally.
- Information gained from one species may be applied to another species.
- Some prioritizing process is needed, due to limited funding.
- Priority for response (in Alaska) should be based upon factors such as knowledge of the species and if the species is involved in a fishery interaction or human consumption.
- The mandate of the MMPA to protect and conserve marine mammals does not discriminate or distinguish among species.
- Support for the current level of effort under the MMHSRP activities.
- Status quo alternative does not give enough flexibility to conduct research on stranded animals.

Response Alternatives

- Support for the alternative to revise and implement stranding agreement (SA) criteria.
- There should not be different standards of stranding response for different species or regions, regardless of status.
- Standards and levels of responses should be the same regardless of species with the exception that endangered and threatened should receive priority in the face of conflicts of space or commitment.
- For initial animal response, the "Response to some animals required, others optional" alternative is preferred, but suggest re-wording the alternative and a different required/optional breakdown under the alternative.

Carcass Disposal/Euthanasia Alternatives

- Support for the alternative of transporting chemically euthanized animals off-site (other animals are left, buried, or transported as feasible).
- Need to be treated as two separate activities, as disposal of non-euthanized carcasses is also an issue.
- None of the proposed alternatives are optimal, but removal of chemically euthanized animals is the best.

- Unclear whether the "All animals buried on site" and "All animals transported off-site for disposal" alternatives refer to all carcasses or only those that have been chemically euthanized. Stranding members cannot be responsible for either burial or off-site transport of all marine mammal carcasses (without further funding).
- Euthanasia guidelines are needed for large animals and endangered animals.

Rehabilitation Alternatives

- We do not agree with any of the alternatives as written.
- Rehabilitation should be a part of any effective environmental program for the protection and conservation of marine mammals.
- Support for the alternative to modify and implement the rehabilitation facility guidelines.
- Rehabilitation efforts for different populations and/or species might be prioritized based on their status. Resources for rehabilitation should be weighted towards species that are known to be below the optimal sustainable population (OSP) or towards species for which there is insufficient data to accurately assess the population size. Species at or above the OSP should receive lower priority, allowing stranding network members to choose, based on availability, whether or not they rehabilitate these animals.
- Unwise to stop requiring rehabilitation of more common species as emerging diseases, harmful algal blooms, and other unusual events are more likely to be detected in these species.

Release of Rehabilitated Animals Alternatives

- Support for the alternative to modify and implement the release criteria.
- Agree with "All animals released" alternative if release criteria are adopted as is or with minimal changes. However, there may be exceptions when a rehabilitated animal is not authorized for release to ensure protection of the environment.

Disentanglement Alternatives

- Support for the alternative to implement the disentanglement guidelines and training requirements for network participants.

Biomonitoring and Research Activities Alternatives

- Support for the alternative to issue a new permit with current and new (foreseeable) projects.

MMHSRP Activities

- Support for the current activities under the MMHSRP.
- Support for the John H. Prescott Marine Mammal Rescue Assistance Grant Program.
- More collaboration is needed between researchers and those working with stranded animals.
- Database of stranding response personnel and their experience would be valuable.
- MMHSRP should focus on the protection of wild populations and not on the recovery of single live animals that strand.
- Suggest the establishment of a central MMHSRP diagnostic laboratory and sample bank to alleviate costs to individual centers and provide central data bank for research.
- Recommend establishing two disentanglement training facilities (one in Provincetown, Massachusetts and one on the West Coast) that are accredited to teach the protocols of the disentanglement network.
- Support for a National Disentanglement Coordinator.
- Need for more trained disentanglement responders with proper gear.
- Photo documentation of all strandings should be encouraged and guidelines should be established for photo and video documentation to facilitate future analysis.
- Responders collecting Level A stranding data should be properly trained in the collection of the data, the importance of the data, and how it will be used by investigators.
- Level A data forms should incorporate morphological data. May be appropriate to have different forms for cetaceans and pinnipeds.
- Training for response to unusual mortality events (UMEs) needs to be offered to all network participants. Network participants should be kept apprised of UMEs in their region and nationwide.

Biological Resources

- The potential for unintended effects from release of rehabilitated animals that can impact wild populations should be considered.
- Personnel should be trained in animal transport mechanisms to reduce possible animal injuries.
- Toxicity of chemically euthanized carcasses left on beaches may impact scavengers.

Coastal Zone Management

- Personnel need to know the rules/policies for responding on private land, Federal land, etc.
- A consistency determination must be made for federal activities affecting Virginia's coastal resources or uses.

Human Health and Safety

- Personnel should be trained in physical environment they will be working in and informed about the risk of injuries.
- Euthanasia solution can be dangerous to personnel. Need to find less toxic solution to use.
- Without the MMHSRP, the general public would likely take matters into their own hands in regards to stranded animals. Human health and safety would be at a grave risk without the MMHSRP.

Public Outreach and Education

- Public education about stranded animals is not well supported in present national priorities. This would help reduce the interaction between humans and stranded animals.
- Funding should be available to stranding network participants to have an educational program.

Treaty Rights

- The Makah Tribe has the right to stranded animals within their reservation boundaries and their Usual and Accustomed areas.
- Scientific practices and tribal cultural activities on stranded animals can occur at the same time.

3.2 Interim Policies and Best Practices Comments

The following is a summary of the types of comments received on the interim Policies and Best Practices documents during the scoping process:

General

- Support for national standards and guidelines for the MMHSRP.
- Support for issuance of policies and best practices if they are flexible to account for species differences and the pressures and conflicts unique to each region.

- Policies and practices only address release.
- Suggest establishing public viewing guidelines that protect animals and visitors.
- The premier criteria for standards should be the health and welfare of wild populations.
- Policies seem redundant to requirements instituted by the US Department of Agriculture for display of marine mammals and Institutional Animal Care and Use Committees requirements. These references could be directly cited to stress where NMFS policies may differ or compliment the requirements.
- It is unclear how the documents work together and the legal status of the documents is unclear.
- How will NMFS enforce these policies?
- Documents must available to stranding network participants prior to signing SAs.
- If stranding network participants will be held to strict reporting time frames, NMFS' should agree to do the same.
- Needs to be a balance so that participating in the stranding program is not overly burdensome to institutions. The guidelines being reviewed as part of the EIS process fail to achieve a good balance.

Interim SA Template

- Agree with conditions described in the template.
- Concern with Section C, Participant Responsibilities that states that the Participants shall bear any and all expenses they incur from activities under the SA. Alaska stranding network participants have been provided funding from the NMFS regional office. This practice should continue and Alaska should not be aligned with logistics available in other regions.
- If the SA is terminated, is there a length of time before the entity can reapply?

Interim Minimum Eligibility Criteria for an SA

- It is important to recognize the different roles required for response, rehabilitation, and release activities.
- Consideration of requiring letters of recommendation for new and renewing SA applicants.
- The proposed qualifications should be implemented as written.
- There should be an appeals procedure for those entities denied an SA.

Interim Rehabilitation Facility Standards

- Rehabilitation Facility Standards should be minimum standards.
- Providing a designated quarantine building is not feasible.
- Cost of administering bimonthly diagnostic tests on animals is financially prohibitive and staff is not available to administer tests.
- Standards are standards, the minimal should be removed.

Interim Standards for the Release of Rehabilitated Marine Mammals

- Standards do not address immediate release from the beach, or relocation and release without entering a rehabilitation facility.
- More emphasis should be placed on post-release monitoring.
- Standards are acceptable as written.

Interim Disentanglement Guidelines

- Support for national disentanglement protocols with respect to safety, documentation, reporting, and operations. Some protocols would need to be flexible to tailor them to specific circumstances and variable conditions.
- National standards for the disentanglement network should require that participation and advancement at all levels is founded on experience and training.
- Standards are acceptable as written.
- The Provincetown Center for Coastal Studies gear and techniques are not necessarily applicable in all regions.
- Clarify why NMFS is liable for injuries or fatalities during disentanglement.
- Needs to be a process in place for organizational growth and training opportunities need to be offered on a regular basis.
- Divers should be seriously considered in the official protocol for the disentanglement network. The protocol should limit diving to disentangle a whale only to those personnel who are trained and certified divers.

4. Conclusion

NMFS has completed the formal public scoping process for the MMHSRP EIS. The agency will consider the comments received, individually and cumulatively, and will address those comments in the EIS, to the extent required. Comments received on the interim Policies and Best Practices documents will be reviewed and considered during the revision process. Scoping is an iterative

process and NMFS will continue to consider all relevant input received throughout the development of the EIS.

APPENDIX A

FEDERAL REGISTER NOTICE OF INTENT
DECEMBER 28, 2005

scope of this order. These include stainless steel strip in coils used in the production of textile cutting tools (*e.g.*, carpet knives).[5] This steel is similar to American Iron and Steel Institute (AISI) grade 420 but containing, by weight, 0.5 to 0.7 percent of molybdenum. The steel also contains, by weight, carbon of between 1.0 and 1.1 percent, sulfur of 0.020 percent or less, and includes between 0.20 and 0.30 percent copper and between 0.20 and 0.50 percent cobalt. This steel is sold under proprietary names such as ''GIN4 Mo.''[6] The second excluded stainless steel strip in coils is similar to AISI 420–J2 and contains, by weight, carbon of between 0.62 and 0.70 percent, silicon of between 0.20 and 0.50 percent, manganese of between 0.45 and 0.80 percent, phosphorus of no more than 0.025 percent and sulfur of no more than 0.020 percent. This steel has a carbide density on average of 100 carbide particles per 100 square microns. An example of this product is ''GIN5''[7] steel. The third specialty steel has a chemical composition similar to AISI 420 F, with carbon of between 0.37 and 0.43 percent, molybdenum of between 1.15 and 1.35 percent, but lower manganese of between 0.20 and 0.80 percent, phosphorus of no more than 0.025 percent, silicon of between 0.20 and 0.50 percent, and sulfur of no more than 0.020 percent. This product is supplied with a hardness of more than Hv 500 guaranteed after customer processing, and is supplied as, for example, ''GIN6.''[8]

Rescission of Review

The applicable regulation, 19 CFR 351.213(d)(1), states that if a party that requested an administrative review withdraws the request within 90 days of the publication of the notice of the initiation of the requested review, the Secretary will rescind the review. It further states that the Secretary may extend this time limit if the Secretary finds it reasonable to do so. As noted above, three of the five petitioners that requested this review timely withdrew their request for review. On December 1, 2005, the Department informed counsel to petitioners that the instant review cannot be rescinded unless all five petitioners withdraw their request. *See* Memorandum to the File from Richard O. Weible, Office Director, Regarding ''Phone Conversation with David Hartquist,'' dated December 6, 2005. By December 6, 2005, one week after the 90-day deadline, all five petitioners (Allegheny Ludlum Corporation, North American Stainless, United Auto Workers Local 3303, Zanesville Armco Independent Organization, Inc., and the United Steelworkers), withdrew their request for review.

The Department finds it reasonable to extend the time limit by which a party may withdraw its request for review in the instant proceeding. The Department has not yet devoted considerable time and resources to this review, all five petitioners have withdrawn their request, and no other party requested the review. Therefore, we are rescinding this review of the antidumping duty order on SSSS in coils from Italy covering the period July 1, 2004, through June 30, 2005. The Department will issue appropriate assessment instructions directly to U.S. Customs and Border Protection within 15 days of publication of this notice.

Notification to Importers

This notice serves as a final reminder to importers of their responsibility under 19 CFR 351.402(f) to file a certificate regarding the reimbursement of antidumping duties prior to liquidation of the relevant entries during this review period. Failure to comply with this requirement could result in the Secretary's assumption that reimbursement of antidumping duties occurred and subsequent assessment of double antidumping duties.

Notification of Administrative Protective Order

This notice also serves as a reminder to parties subject to administrative protective order (APO) of their responsibility concerning the return on destruction of proprietary information disclosed under APO in accordance with 19 CFR 351.305, which continues to govern business proprietary information in this segment of the proceeding. Timely written notification of the return/destruction of APO materials or conversation to judicial protective order is hereby requested. Failure to comply with the regulations and terms of an APO is a violation that is subject to sanction.

This notice is issued and published in accordance with sections 751 and 777(i) of the Act and 19 CFR 351.213(d)(4).

Dated: December 21, 2005.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E5–7984 Filed 12–27–05; 8:45 am]

BILLING CODE 3510–05–S

[5] This list of uses is illustrative and provided for descriptive purposes only.

[6] ''GIN4 Mo'' is the proprietary grade of Hitachi Metals America, Ltd.

[7] ''GIN5'' is the proprietary grade of Hitachi Metals America, Ltd.

[8] ''GIN6'' is the proprietary grade of Hitachi Metals America, Ltd.

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 120805B]

Notice of Intent to Conduct Public Scoping Meetings and Prepare an Environmental Impact Statement on the Activities of the National Marine Mammal Health and Stranding Response Program

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of Intent to prepare environmental impact statement; request for comments.

SUMMARY: The National Marine Fisheries Service (NMFS) announces its intent to prepare an Environmental Impact Statement (EIS) to analyze the environmental impacts of the national administration of the Marine Mammal Health and Stranding Response Program (MMHSRP).

Publication of this notice begins the official scoping process that will help identify alternatives and determine the scope of environmental issues to be addressed in the EIS. This notice requests public participation in the scoping process, provides information on how to participate, and identifies a set of preliminary alternatives to serve as a starting point for discussions.

ADDRESSES: See **SUPPLEMENTARY INFORMATION** for specific dates, times, and locations of public scoping meetings for this issue.

FOR FURTHER INFORMATION CONTACT: All comments, written statements and questions regarding the scoping process, NEPA process, and preparation of the EIS must be postmarked by February 28, 2006, and should be mailed to: P. Michael Payne, Chief, Marine Mammal and Sea Turtle Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Room 13635, Silver Spring, MD 20910–3226, Fax: 301–427–2584 ATTN: MMHSRP EIS or e-mail at *mmhsrpeis.comments@noaa.gov* with the subject line MMHSRP EIS.

SUPPLEMENTARY INFORMATION:

Background

NMFS proposes to continue to coordinate and operate the National Marine Mammal Health and Stranding Response Program (MMHSRP) for response to stranded marine mammals and research into questions related to marine mammal health, including causes and trends in marine mammal health and the causes of strandings, pursuant to Title IV of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1421). Title IV of the MMPA established the MMHSRP under NMFS. The mandated goals and purposes for the program are to: (1) facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild; (2) correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters; and (3) coordinate effective responses to unusual mortality events by establishing a process in the Department of Commerce in accordance with section 404.

To meet the goals of the MMPA, the MMHSRP carries out several important activities, including the National Marine Mammal Stranding Network, the John H. Prescott Marine Mammal Rescue Assistance Grant Program, the Marine Mammal Disentanglement Program, the Marine Mammal Unusual Mortality Event and Emergency Response Program, the Marine Mammal Biomonitoring Program, the Marine Mammal Tissue and Serum Bank Program, the Marine Mammal Analytical Quality Assurance Program, the MMHSRP Information Management Program, and the facilitation of several regional health assessment programs on wild marine mammals.

A marine mammal is defined as ''stranded'' under the MMPA if it is dead and on the beach or shore or floating in waters under US jurisdiction, or alive and on the beach and unable to return to the water, in need of medical assistance, or out of its natural habitat and unable to return to its natural habitat without assistance. NMFS is currently developing and plans to issue national protocols that will help standardize the stranding network across the country while maintaining regional flexibility. These protocols are proposed to be issued in one consolidated manual, titled *Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release* (Policies and Practices). This document is currently released on an interim basis, and will be available on our website after January 9, 2006, at: *http://www.nmfs.noaa.gov/pr/health/* for reference and review. The future development of these policies may involve issuance of regulations, but none are currently proposed.

Individuals, groups and organizations throughout the country have been responding to stranded marine mammals for decades. After the passage of Title IV, NMFS codified the roles and responsibilities of participant organizations in the National Marine Mammal Stranding Network through a Letter of Agreement (LOA) or Stranding Agreement (SA), issued under MMPA section 112(c). By issuing SAs, NMFS allows stranding network response organizations, acting as 'agents' of the government, an exemption to the prohibition on ''takes'' of marine mammals established under the MMPA. Federal, state and local government officials already have an exemption to the take prohibition under section 109(h) of the MMPA, which allows the taking of marine mammals (not listed as threatened or endangered) during the course of official duties, provided such taking is for the protection or welfare of the mammal, for public health, or for the nonlethal removal of nuisance animals. SAs (as conceived) extend the same exemption to organizations and individuals that are outside of the government.

Stranding Agreements are issued by NMFS Regional Administrators, and in the past a high level of variability has occurred between regions. A standardized national template for the format of the SA has been developed, including sections that may be customized by each region in order to maintain flexibility. This SA template has been subject to public comment on several occasions after publication on NMFS' public website and distribution to interested parties (most recently on Nov. 8, 2004). NMFS has also developed a list of minimum criteria for organizations wishing to obtain a SA and participate in the stranding network, and these have also been distributed for public comment. These criteria differ based on the level of involvement of the participant (response only; response and transport; rehabilitation, etc.). Substantive comments received on these documents have been either incorporated or responded to, if the authors chose not to incorporate them. The LOA Template and Minimum Eligibility Criteria are the first two elements of the ''Policies and Practices'' manual.

While the MMPA provides an exception to the take prohibition for the health and welfare of stranded marine mammals, no similar exemption is contained in the Endangered Species Act (ESA). Not all, but many, species of marine mammals are listed as threatened or endangered under the ESA, and are therefore protected by both laws. Therefore, the MMHSRP has obtained a permit from the Permits, Conservation and Education Division of the NMFS Office of Protected Resources, issued under the MMPA and section 10(a)(1)(A) of the ESA, to provide the necessary exemption to the take prohibition where the stranded animal in question is listed under the ESA, or when response to a stranded animal would or could incidentally harass a listed species. The permit covers stranding and emergency response activities, including for example, disentanglement, hazing, close approaches, and humane euthanasia. Captures of wild (presumably healthy) animals are also permitted to conduct health assessment studies, where such activities are part of an investigation into a morbidity or mortality issue in the wild population, but this is a rare occurrence (not routine procedure). Stranding network responders are listed as co-investigators under this permit. The permit also authorizes a variety of research projects utilizing stranded animals, tissue samples, and marine mammal parts for investigations into die-offs and other questions regarding marine mammal health and stranding. The current permit issued to the MMHSRP will expire on June 30, 2007, and a NEPA analysis of the activities covered under the permit must be completed prior to the issuance of a new permit. This EIS will serve as the NEPA analysis of these permitted activities.

Marine mammals that are undergoing rehabilitation, and the facilities that are conducting rehabilitation activities, are not subject to inspection or review by the Animal and Plant Health Inspection Service (APHIS) under the United States Department of Agriculture, provided that they are not also a public display facility (separate from their rehabilitation activities) or a research facility. These facilities are therefore not subject to APHIS minimum requirements for facilities, husbandry, or veterinary standards. NMFS has developed minimum standards for marine mammal rehabilitation facilities that will be required of all facilities operating under a SA with NMFS, and the interim rehabilitation facility standards document is the third element of the Policies and Practices manual.

Section 402 (a) of the MMPA charges NMFS with providing ''guidance for determining at what point a rehabilitated marine mammal is

releasable to the wild.'' Interim standards for release of rehabilitated marine mammals have been developed by NMFS and the US Fish and Wildlife Service in consultation with marine mammal experts through review and public comments, including publication in the **Federal Register** on April 8, 1998 (63 FR 17156). Three panels of experts were also assembled in 2001 to provide individual recommendations, which have been incorporated into the current interim document. These guidelines provide an evaluative process for the veterinarians and animal husbandry staff at rehabilitation facilities to use in determining if a stranded marine mammal is suitable for release to the wild, and under what conditions such a release should occur. The interim standards are provided in the Policies and Practices manual.

Purpose and Scope of the Action

NMFS will prepare an EIS to evaluate the cumulative impacts of the activities of the MMHSRP, including the issuance of a final Policies and Procedures manual and a new MMPA/ESA permit for the program. This EIS will assess the likely environmental effects of marine mammal health and stranding response under a range of alternatives characterized by different methods, mitigation measures, and level of response. In addition, the EIS will identify potentially significant direct, indirect, and cumulative impacts on geology and soils, air quality, water quality, other fish and wildlife species and their habitat, vegetation, socioeconomics and tourism, treaty rights and Federal trust responsibilities, environmental justice, cultural resources, noise, aesthetics, transportation, public services, and human health and safety, and other environmental issues that could occur with the implementation of the proposed action. For all potentially significant impacts, the EIS will identify avoidance, minimization and mitigation measures to reduce these impacts, where feasible, to a level below significance.

Major environmental concerns that will be addressed in the EIS include: NMFS' information needs for the conservation of marine mammals; the types and levels of stranding response and rehabilitation activities, including level of effort; and the cumulative impacts of MMHSRP activities on marine mammals and the environment. Comments and suggestions are invited from all interested parties to ensure that the full range of issues related to the MMHSRP and its activities are identified. NMFS is therefore seeking public comments especially in the following areas:

(1) *Types of activities.* What sort of activities in response to stranded marine mammals or outbreaks of disease in marine mammals should be conducted on a national level? Are there critical research needs that may be met by stranding investigations, rehabilitation, biomonitoring, disentanglement, and other health-related research activities? If so, are these needs currently being met? If there are additional needs, what are they, how are they likely to benefit the marine mammal species, and how should they best be met?

(2) *Level of response effort.* For example, should there be different standards or levels of effort for different species or groups of species (i.e. pinnipeds vs. cetaceans; threatened or endangered species vs. increasing populations, etc.)? How should NMFS set these standards or limits?

(3) *Organization and qualifications.* How should the national stranding network be organized at the local, state, regional, eco-system, and national levels? How should health assessment research be coordinated or organized nationally? What should the minimum qualifications of an individual or organization be prior to becoming an SA holder or researcher (utilizing samples from stranded animals) to ensure that animals are treated successfully, humanely, and with the minimum of adverse impacts?

(4) *Effects of activities.* NMFS will be assessing possible effects of the activities conducted by, for, and under the authorization of the MMHSRP using all appropriate available information. Anyone having relevant information they believe NMFS should consider in its analysis should provide a complete citation or reference for retrieving the information. We seek public input on the scope of the required NEPA analysis, including th range of reasonable alternatives; associated impacts of any alternatives on the human environment, including geology and soils, air quality, water quality, other fish and wildlife species and their habitat, vegetation, socioeconomics and tourism, treaty rights and Federal trust responsibilities, environmental justice, cultural resources, noise, aesthetics, transportation, public services, and human health and safety, and suitable mitigation measures. We ask that comments be as specific as possible.

Alternatives

NMFS has identified several preliminary alternatives for public comment during the scoping period and encourage information on additional alternatives to consider. Alternative 1, the Proposed Action Alternative, would result in the publication of the Practices and Protocols Handbook and the establishment of required minimum standards for the national marine mammal stranding and disentanglement networks. The MMHSRP permit would also be issued under this alternative to permit response activities for endangered species, disentanglement activities, biomonitoring projects, other research projects conducted by or in cooperation with the program, and import and export of tissue and other diagnostic or research samples.

Alternative 2, the No Action Alternative, would continue the activities of the national stranding and disentanglement networks without issuance of the Policies and Practices. No new or renewal Stranding Agreements would be issued or extended, and the MMHSRP would not apply for or receive a new permit. As Stranding Agreements with organizations expired, the network would cease to function. The No Action Alternative is required to be included for consideration by CEQ regulations.

Alternative 3 is considered the Status Quo alternative and would allow for the continuation of the stranding and disentanglement networks currently in place in the country, and the Policies and Practices documents would not be issued. However, under the Status Quo alternative, Stranding Agreements could be renewed or extended (though not modified), such that the current level of response would continue. No new SAs would be issued to facilities that are not currently part of the national stranding network. This would preclude adaptive changes in the stranding network as organizations change priorities and wish to leave the network, or as new facilities are created and wish to become involved. The MMHSRP permit could be renewed or reissued as written, with no modifications. There could be no adaptive changes to the research protocols as new issues were raised or advances made in technology.

Other alternatives considered by NMFS may be eliminated from detailed study because they would limit or prohibit activities necessary for the conservation of the species by NMFS. The other alternatives that have been considered but may be eliminated from further study are: (1) An alternative that allows for biomonitoring activities only (tissue sampling and study of animals caught during targeted health assessment projects, subsistence hunts, and as incidental bycatch in fishery activities only); (2) an alternative that allows for a stranding response only (no

rehabilitation activities; response to live animals would be limited to euthanasia or release; no disentanglement or health assessment activities;); (3) an alternative that allows for response and rehabilitation for cetaceans only; and (4) an alternative that allows for response and rehabilitation for ESA-listed marine mammals only. The elimination of any of these activities would impede data collection regarding strandings and the health of marine mammals that is necessary for NMFS conservation and recovery efforts for many species.

In addition to the alternatives listed above, NMFS will also utilize the scoping process to identify other alternatives for consideration. It should be noted that although several of the listed alternatives would not allow for the mandated activities listed in the MMPA, under 40 CFR 1506.2(d), reasonable alternatives cannot be excluded strictly because they are inconsistent with Federal or state laws, but must still be evaluated in the EIS.

For additional information about the MMHSRP, the national stranding network, and related information, please visit our website at *http://www.nmfs.noaa.gov/pr/health/*.

Public Involvement and Scoping Meetings Agenda

Public scoping meetings will be held at the following dates, times, and locations:

1. Tuesday, January 24, 2006, 7 – 10 p.m., Santa Barbara Natural History Museum, 2559 Puesta del Sol, Santa Barbara, CA;

2. Wednesday, January 25, 2006, 2 – 5 p.m.; Bay Conservation and Development Commission, 50 California Street, Suite 2600, San Francisco, CA;

3. Friday, January 27, 2006, 3 – 6 p.m., Hawaiian Islands Humpback Whale National Marine Sanctuary O'ahu Office, 6600 Kalaniana'ole Highway, Honolulu, HI;

4. Monday, January 30, 2006, 2 – 5 p.m., NMFS Northwest Regional Office, Building 9, 7600 Sand Point Way NE, Seattle, WA;

5. Wednesday, February 1, 2006, 2 – 5 p.m., U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, AK;

6. Tuesday, February 7, 2006, 5 – 8 p.m., NMFS Southeast Regional Office, 263 13th Avenue, South, St. Petersburg, FL;

7. Monday, February 13, 2006, 5 – 8 p.m., New England Aquarium, Conference Center, Central Wharf, Boston, MA;

8. Friday, February 17, 2006, 2 – 5 p.m., Silver Spring Metro Center, Building 4, Science Center, 1301 East-West Highway, Silver Spring, MD.

Comments will be accepted at these meetings as well as during the scoping period, and can be mailed to NMFS by February 28, 2006 (see **FOR FURTHER INFORMATION CONTACT**).

We will consider all comments received during the comment period. All hardcopy submissions must be unbound, on paper no larger than 8 1/2 by 11 inches (216 by 279 mm), and suitable for copying and electronic scanning. We request that you include in your comments:

(1) Your name and address;

(2) Whether or not you would like to receive a copy of the Draft EIS (please specify electronic or paper format of the Draft EIS); and

(3) Any background documents to support your comments as you feel necessary.

All comments and material received, including names and addresses, will become part of the administrative record and may be released to the public.

Special Accommodations

These meetings are accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Sarah Howlett or Sarah Wilkin, 301–713–2322 (voice) or 301–427–2522 (fax), at least 5 days before the scheduled meeting date.

P. Michael Payne,

Chief, Marine Mammal and Sea Turtle Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. E5–7990 Filed 12–27–05; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 122005C]

Notice of Intent to Prepare an Environmental Impact Statement on Impacts of Research on Steller Sea Lions and Northern Fur Seals Throughout Their Range in the United States

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of Intent to prepare environmental impact statement.

SUMMARY: The National Marine Fisheries Service (NMFS) announces its intent to prepare an Environmental Impact Statement (EIS) to analyze the environmental impacts of administering grants and issuing permits associated with research on endangered and threatened Steller sea lions (*Eumetopias jubatus)* and depleted northern fur seals (*Callorhinus ursinus*). Publication of this notice begins the official scoping process that will help identify alternatives and determine the scope of environmental issues to be addressed in the EIS. This notice requests public participation in the scoping process and provides information on how to participate.

The purpose of conducting research on threatened and endangered Steller sea lions is to promote the recovery of the species' populations such that the protections of the Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*) are no longer needed. Consistent with the purpose of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361 *et seq.*), the purpose of conducting research on northern fur seals is to contribute to the basic knowledge of marine mammal biology or ecology and to identify, evaluate, or resolve conservation problems for this depleted species.

Research on Steller sea lions and northern fur seals considered in this EIS is funded and permitted by NMFS, which are both federal actions requiring National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) compliance. The need for these actions is to facilitate research to: (1) Prevent harm and avoid jeopardy or disadvantage to the species; (2) promote recovery; (3) identify factors limiting the population; (4) identify reasonable actions to minimize impacts of human-induced activities; (5) implement conservation and management measures; and (6) make data and results available in a timely manner for management of the species. As part of this action, NMFS is developing measures that will improve efficiency and avoid unnecessary redundancy in Steller sea lion and northern fur seal research, utilize best management practices, facilitate adaptive management, and standardize research protocols.

ADDRESSES: See **SUPPLEMENTARY INFORMATION** for specific dates, times, and locations of public scoping meetings for this issue.

FOR FURTHER INFORMATION CONTACT: Written statements and questions regarding the scoping process must be postmarked by February 13, 2006, and should be mailed to: Steve Leathery, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Room 13705, Silver Spring, MD 20910–3226,

APPENDIX B

INFORMATIONAL FACT SHEETS FROM PUBLIC SCOPING MEETINGS

NEPA/EIS FACT SHEET

The Environmental Impact Statement (EIS) will be prepared in accordance with the National Environmental Policy Act (NEPA) of 1969.

What is NEPA?

The purposes of NEPA are to:

- Encourage harmony between man and the environment;
- Promote efforts to prevent or eliminate environmental damage; and
- Enrich man's understanding of important ecological systems and natural resources.

NEPA requires that the National Marine Fisheries Service (NMFS):

- Consider the potential consequences of its decisions (major federal actions) on the human environment before deciding to proceed; and
- Provide opportunities for public involvement, which include: participating in scoping, reviewing the Draft and Final EIS, and attending public meetings.

NEPA does not dictate the decision to be made by NMFS, but informs the decision-making process.

What is an EIS?

An EIS evaluates the actions that a federal agency plans to undertake with respect to the potential impacts of these actions on the human environment. The purpose of this EIS is to objectively analyze and evaluate the potential impacts on environmental resources from activities conducted under the Marine Mammal Health and Stranding Response Program (MMHSRP).

The EIS will include descriptions of the:

- Proposed Action
- Purpose and need for the Proposed Action
- Alternatives to the Proposed Action
- Affected environment
- Environmental consequences of the Proposed Action and alternatives
- Required mitigation or recommended best management practices (BMPs)

What environmental resources are normally considered during an EIS?

- Fish and Wildlife
  - Protected Species
    - > Threatened and Endangered Species
    - > Marine Mammals
    - > Migratory Birds
  - Non-protected Species
- Protected and Sensitive Habitats
  - National Marine Sanctuaries
  - Essential Fish Habitat
  - Designated Critical Habitat
  - Vegetation
- Coastal Zone Management
- Geology and Soils
- Air Quality
- Water Quality
- Noise
- Aesthetics
- Human Health and Safety
- Socioeconomics and Tourism
- Public Services
- Cultural Resources
- Environmental Justice
- Treaty Rights
- Federal Trust Responsibilities
- Cumulative Impacts

Photo by NOAA Fisheries

The EIS Process

Opportunities for Public Involvement

Notice of Intent (NOI) to Prepare EIS Published

↓

Public Outreach/Scoping

↓

Refine Proposed Action

↓

Preparation of Draft EIS

↓

Notice of Availability of Draft EIS Published in Federal Register

↓

Public Information Meetings and Comment Period

↓

Preparation of Final EIS

↓

Notice of Availability of Final EIS Published in Federal Register

↓

30-Day Waiting Period

↓

Record of Decision

Photo by Provincetown Center for Coastal Studies

PUBLIC INPUT

NMFS needs your participation in scoping for the EIS.

What is Scoping?

Scoping is defined as an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action." NEPA requires that NMFS include scoping as part of the EIS process. For our scoping, we have chosen a combination of public meetings around the country and repositories of the information - both virtual (on our website) and real (in a library in each city where a scoping meeting is held).

Photo by NMFS NWR

Your involvement and input are essential to the EIS process. Many opportunities exist to be involved in the EIS on the activites of the National Marine Mammal Health and Stranding Response Program (MMHSRP):

- Participate in a scoping meeting
- Identify specific issues
- Submit comments
- Sign up for the mailing list
- Review and comment on the Draft EIS
- Participate in a public hearing
- Review the Final EIS

NMFS is seeking public comments on all issues relating to the MMHSRP, including the following specific questions:

- What sort of activities should be conducted on a local, regional and national level in response to stranded, entangled, sick, injured, and other marine mammals in distress?
- Are there critical research or management needs that may be met by stranding investigations, rehabilitation, disentanglement or health-related research and biomonitoring activities? Are these needs currently being met? If not, what are they, how are they likely to benefit the marine mammal species, and what should be done to meet them?
- Should there be different standards or levels of MMHSRP effort for different species or groups of species (i.e. pinnipeds vs. cetaceans; threatened or endangered species vs. increasing populations, etc.)? If so, how should NMFS set these standards or priorities?
- Is the current organization of the national stranding and health assessment networks at the local, state, regional, ecosystem, and national levels adequate to meet the necessary management and research needs for conservation? If not, what changes should be implemented to make the organization more effective?
- What should be the minimum qualifications of an individual or organization prior to becoming a Stranding Agreement holder to ensure that animals are treated appropriately, humanely, and with the minimum of adverse impacts?
- Are public and animal health and safety needs adequately addressed in the current organization and operations of the MMHSRP?
- Are there any other relevant issues or data NMFS should consider in its analysis of activities conducted by, for, and under the authorization of the MMHSRP? If so, please provide if or a reference for it.

Photo by Lynne Barre, NMFS NWR

Information Repository Sites:

Santa Barbara Public Library 40 East Anapamu Street Santa Barbara, CA 93101	San Francisco Public Library 100 Larkin Street San Francisco, CA 94102
Hawaii State Library 478 South King Street Honolulu, HI 96813	Seattle Public Library 1000 4th Avenue Seattle, WA 98104
Z.J. Loussac Public Library 3600 Denali Street Anchorage, AK 99503	St. Petersburg Public Library 3745 9th Avenue North St. Petersburg, FL 33713
Boston Public Library 700 Boylston Street Boston, MA 02116	NOAA Central Library 1315 East-West Highway 2nd Floor, SSMC3 Silver Spring, MD 20910

Contacts:

Sarah Howlett or Sarah Wilkin
Marine Mammal and Sea Turtle Division
Office of Protected Resources
NMFS 1315 East-West Highway
Silver Spring, MD 20910-3226
Phone: 301-713-2322

Address your comments by February 28, 2006 to:

P. Michael Payne, Chief
Marine Mammal and Sea Turtle Division
NMFS 1315 East-West Highway
Silver Spring, MD 20910-3226
mmhsrpeis.comments@noaa.gov
Fax: 301-427-2584

For More Information:
http://www.nmfs.noaa.gov/pr/health/eis.htm

Scoping Meeting Dates and Locations:

PLACE	DATE
Santa Barbara, CA Natural History Museum 2559 Puesta del Sol	Tuesday January 24, 2006 7:00 to 10:00 pm
San Francisco, CA Bay Conservation and Development Commission 50 California Street, Suite 2600	Wednesday January 25, 2006 2:00 to 5:00 pm
Honolulu, HI Hawaiian Islands Humpback Whale National Marine Sanctuary O`ahu Office 6600 Kalaniana`ole Highway	Friday January 27, 2006 3:00 to 6:00 pm
Seattle, WA NMFS Northwest Regional Office Building 9 7600 Sand Point Way NE	Monday January 30, 2006 2:00 to 5:00 pm
Anchorage, AK U.S. Fish and Wildlife Service 1011 East Tudor Road	Wednesday February 1, 2006 2:00 to 5:00 pm
St. Petersburg, FL NMFS Southeast Regional Office 263 13th Avenue, South	Tuesday February 7, 2006 5:00 to 8:00 pm
Boston, MA New England Aquarium Conference Center Central Wharf	Monday February 13, 2006 5:00 to 8:00 pm
Silver Spring, MD Silver Spring Metro Center, Building 4, Science Center 1301 East-West Highway	Friday February 17, 2006 2:00 to 5:00 pm

Marine Mammal Health and Stranding Response Program

National Marine Mammal Stranding Network

The National Marine Mammal Stranding Network consists of volunteer stranding networks in all coastal states. These networks are authorized through Stranding Agreements with the National Marine Fisheries Service (NMFS) regional offices. Network member organizations respond to live and dead stranded marine mammals on the beach, take biological samples, transport animals, rehabilitate sick or injured marine mammals and potentially release them back to the wild. NMFS oversees, coordinates, and authorizes stranding network activities through one national and six regional stranding coordinators. NMFS also provides training to network members.

Marine Mammal Disentanglement Network

Photo courtesy Provincetown Center for Coastal Studies

The Disentanglement Network is a partnership between NMFS, the Provincetown Center for Coastal Studies, the U.S. Coast Guard, State agencies, National Marine Sanctuaries, and other entities. The Network is responsible for monitoring and documenting whales that have become entangled in gear as well as conducting rescue operations. The network established protocols for all aspects of response, including animal care and assessment, vessel and aircraft support, and media and public information. Multiple levels of training are required for animal welfare and human safety.

John H. Prescott Marine Mammal Rescue Assistance Grant Program

The Prescott Grant Program provides grants to eligible stranding network participants and researchers for:

- Recovery and treatment of stranded marine mammals;
- Data collection from living or dead stranded marine mammals; and
- Facility upgrades, operation costs, and staffing needs directly related to the recovery and treatment of stranded marine mammals and collection of data from living or dead stranded marine mammals.

Since the inception of the program in 2001, over $16,000,000 has been disbursed in 187 grant awards. There is an annual competitive program as well as funding made available throughout the year for emergency response.

Marine Mammal Unusual Mortality Event and Emergency Response Program

The Working Group on Marine Mammal Unusual Mortality Events made up of federal and non-federal experts from a variety of biological and biomedical disciplines, including federal agency representatives, and two international participants from Canada and Mexico. The Working Group advises NMFS with regards to marine mammal Unusual Mortality Events (UMEs). The Program coordinates emergency response, investigations into causes of mortality and morbidity, evaluates the environmental factors associated with UMEs, provides training and resources as possible, and oversees the Marine Mammal Unusual Mortality Event Fund.

MMHSRP Information Management Program

The MMHSRP Information Management Program is responsible for the development and maintenance of a variety of databases, websites and other tools for disseminating information within the program, Network, and to the public. A major recent accomplishment was the rollout of a web-accessible national Level A database for reporting and sharing near-real time stranding data to all regions. The Marine Mammal Tissue Bank inventory will become web-accessible to the public in 2006. Data access policies are being developed to codify protocols for data accuracy, quality assurance, and public access to stranding network data.

Marine Mammal Health Biomonitoring, Research, Development and Banking Programs

Photo courtesy NIST

The MMHSRP coordinates national biomonitoring, research and banking efforts to analyze the health and contaminant trends of wild marine mammal populations. The program collects information to determine anthropogenic impacts on marine mammals, marine food chains, and marine ecosystems. In addition, the program uses information to analyze the contribution of environmental parameters to wild marine mammal health trends. Finally, the program operates the National Marine Mammal Tissue Bank, a joint effort with the National Institute of Standards and Technology, as a long-term repository of samples for future retrospective evaluations.

PROPOSED ACTION & ALTERNATIVES

Proposed Action

- Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release (Policies and Practices) Manual would be issued, establishing required minimum standards for the national marine mammal stranding and disentanglement networks.
- MMHSRP permit would be issued to permit response activities for endangered species, entanglement activities, biomonitioring projects, and import and export of marine mammal tissue samples.
- Stranding Agreements (formerly LOAs) would continue to be issued or renewed on a case-by-case basis as necessary.

Photo courtesy Gulfworld Marine Park

Purpose and Need

Purpose: NMFS proposes to continue to coordinate and operate the National Marine Mammal Health and Stranding Response Program (MMHSRP) for response to stranded marine mammals and research into questions related to marine mammal health, including causes and trends in marine mammal health and the causes of strandings, pursuant to Title IV of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1421).

Need: To operate the MMHSRP effectively and efficiently, making the best use of available limited resources; to collect the necessary data on marine mammal health and health trends to meet information needs for appropriate conservation and management; and to ensure that human and animal health and safety is always a high priority.

Alternatives

No Action Alternative:

- Allow continuation of stranding and disentanglement networks currently in place.
- Stranding Agreements (SAs) would not be renewed and new SAs would not be issued.
- Policies and Practices Manual would not be issued.
- MMHSRP would not apply for or receive a new permit.
- As SAs with organizations expired, the national stranding network would cease to function.

Status Quo Alternative:

- Allow continuation of stranding and disentanglement networks currently in place.
- SAs could be renewed or extended, but not modified (current level of response would continue).
- Policies and Practices Manual would not be issued.
- No new Stranding Agreements would be issued to facilities not currently part of the national stranding network.
- MMHSRP permit could be renewed or reissued with no modifications.

Alternatives Considered That May Be Eliminated From Further Study

Photo courtesy The Marine Mammal Center

Biomonitoring Activities Only:

- Tissue sampling and the study of the health of animals caught during targeted health assessment projects, as incidental bycatch in fishery activities, and during subsistence hunting only

Stranding Response Only:

- No rehabilitation activities– response to live animals would be limited to euthanasia or release.
- No disentanglement or health assessment activities.

Response and Rehabilitation for Cetaceans Only

- No stranding response, rehabilitation, disentanglement, or health assessment activities would be conducted for pinnipeds (seals and sea lions).

Response and Rehabilitation for Threatened and Endangered Marine Mammals Only

- No stranding response, rehabilitation, disentanglement, or health assessment activities would be conducted for marine mammals not listed as threatened or endangered under the Endangered Species Act.

The Marine Mammal Health and Stranding Response Program Scoping Report (March 2006), Appendix C- Public Comments, has been removed to reduce the size of the appendices. A summary of the comments can be found in the Scoping Report. The entire Scoping Report can be found at the following website: http://www.nmfs.noaa.gov/pr/pdfs/health/eis_appendix_d.pdf

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APPENDIX E

BIOLOGICAL RESOURCES TABLES

Table E-1. Protected and Sensitive Habitats on the U.S. Atlantic Coast

Protected and Sensitive Habitat	Type	State/ Territory
Acadia National Park	NP	ME
Alligator River National Wildlife Refuge	NWR	NC
Anagansett National Wildlife Refuge	NWR	NY
Archie Carr National Wildlife Refuge	NWR	FL
Ashepoo Combahee Edisto Basin National Estuarine Research Reserve	NERR	SC
Assateague Island National Seashore	NS	MD-VA
Back Bay National Wildlife Refuge	NWR	VA
Biscayne National Park	NP	FL
Blackbeard Island National Wildlife Refuge	NWR	GA
Blackbeard Island Wilderness	W	GA
Blackwater National Wildlife Refuge	NWR	MD
Block Island National Wildlife Refuge	NWR	RI
Bombay Hook National Wildlife Refuge	NWR	DE
Brigantine Wilderness	W	NJ
Buck Island Reef National Wildlife Refuge	NWR	VI
Cabo Rojo National Wildlife Refuge	NWR	PR
Canaveral National Seashore	NS	FL
Cape Cod Bay Northern Right Whale Critical Habitat	CH	MA
Cape Cod National Seashore	NS	MA
Cape Hatteras National Seashore	NS	NC
Cape Lookout National Seashore	NS	NC
Cape May National Wildlife Refuge	NWR	NJ
Cape Romain National Wildlife Refuge	NWR	SC
Cape Romain Wilderness	W	SC
Cedar Island National Wildlife Refuge	NWR	NC
Chesapeake Bay (MD) National Estuarine Research Reserve	NERR	MD
Chesapeake Bay (VA) National Estuarine Research Reserve	NERR	VA
Chincoteague National Wildlife Refuge	NWR	VA
Conscience Point National Wildlife Refuge	NWR	NY
Crocodile Lake National Wildlife Refuge	NWR	FL
Cross Island National Wildlife Refuge	NWR	ME
Culebra National Wildlife Refuge	NWR	PR
Cumberland Island National Seashore	NS	GA
Cumberland Island Wilderness	W	GA
Currituck National Wildlife Refuge	NWR	NC
Delaware National Estuarine Research Reserve	NERR	DE
Desecheo National Wildlife Refuge	NWR	PR
Dry Tortugas National Park	NP	FL

Table E-1. Protected and Sensitive Habitats on the U.S. Atlantic Coast (continued)

Protected and Sensitive Habitat	Type	State/ Territory
E.A. Morton National Wildlife Refuge	NWR	NY
E.B. Forsythe National Wildlife Refuge	NWR	NJ
Eastern Shore Virginia National Wildlife Refuge	NWR	VA
Everglades National Park	NP	FL
Fire Island National Seashore	NS	NY
Fisherman Island National Wildlife Refuge	NWR	VA
Florida Keys National Marine Sanctuary	NMS	FL
Florida Keys Wilderness	W	FL
Franklin Island National Wildlife Refuge	NWR	ME
Gray's Reef National Marine Sanctuary	NMS	GA
Great Bay National Estuarine Research Reserve	NERR	ME
Great Bay National Wildlife Refuge	NWR	NH
Great South Channel Northern Right Whale Critical Habitat	CH	MA
Great White Heron National Wildlife Refuge	NWR	FL
Green Cay National Wildlife Refuge	NWR	VI
Green Sea Turtle Critical Habitat	CH	PR
Guana Tolomato Matanzas National Estuarine Research Reserve	NERR	FL
Harris Neck National Wildlife Refuge	NWR	GA
Hawksbill Sea Turtle Critical Habitat	CH	PR
Hobe Sound National Wildlife Refuge	NWR	FL
Hudson River National Estuarine Research Reserve	NERR	NY
J. H. Chafee National Wildlife Refuge	NWR	RI
Jacques Cousteau National Estuarine Research Reserve	NERR	NJ
Johnson’s Seagrass Critical Habitat	CH	FL
Key West National Wildlife Refuge	NWR	FL
Leatherback Sea Turtle Critical Habitat	CH	VI
Mackay Island National Wildlife Refuge	NWR	VA
Mackay Island National Wildlife Refuge	NWR	NC
Marjory Stoneman Douglas Wilderness	W	FL
Martin National Wildlife Refuge	NWR	MD
Mashpee National Wildlife Refuge	NWR	MA
Merritt Island National Wildlife Refuge	NWR	FL
Monitor National Marine Sanctuary	NMS	NC
Monomoy National Wildlife Refuge	NWR	MA
Monomoy Wilderness	W	MA
Moosehorn National Wildlife Refuge	NWR	ME
Nantucket National Wildlife Refuge	NWR	MA
Narragansett Bay National Estuarine Research Reserve	NERR	RI

Table E-1. Protected and Sensitive Habitats on the U.S. Atlantic Coast (continued)

Protected and Sensitive Habitat	Type	State/ Territory
Navassa Island National Wildlife Refuge	NWR	PR
Ninigret National Wildlife Refuge	NWR	RI
Nomans Land Island National Wildlife Refuge	NWR	MA
North Carolina National Estuarine Research Reserve	NERR	NC
North Inlet-Winyah Bay National Estuarine Research Reserve	NERR	SC
Oyster Bay National Wildlife Refuge	NWR	NY
Parker River National Wildlife Refuge	NWR	MA
Pea Island National Wildlife Refuge	NWR	NC
Pelican Island National Wildlife Refuge	NWR	FL
Pelican Island Wilderness	W	FL
Petit Manan National Wildlife Refuge	NWR	ME
Pinckney Island National Wildlife Refuge	NWR	SC
Piping Plover Critical Habitat	CH	NC-FL
Plum Tree Island National Wildlife Refuge	NWR	VA
Pond Island National Wildlife Refuge	NWR	ME
Prime Hook National Wildlife Refuge	NWR	DE
Rachel Carson National Wildlife Refuge	NWR	ME
S.B. McKinney National Wildlife Refuge	NWR	CT
Sachuest National Wildlife Refuge	NWR	RI
Salt River Bay National Historic Park and Ecological Preserve	Preserve	VI
Sandy Point National Wildlife Refuge	NWR	VI
Sapelo Island National Estuarine Research Reserve	NERR	GA
Savannah National Wildlife Refuge	NWR	SC
Seal Island National Wildlife Refuge	NWR	ME
Seatuck National Wildlife Refuge	NWR	NY
Southeastern Right Whale Critical Habitat	CH	GA-FL
Stellwagen Bank National Marine Sanctuary	NMS	MA
Swanquarter National Wildlife Refuge	NWR	NC
Swanquarter Wilderness	W	NC
Thatches National Wildlife Refuge	NWR	MA
Trustom Pond National Wildlife Refuge	NWR	RI
Tybee National Wildlife Refuge	NWR	SC
Vieques National Wildlife Refuge	NWR	PR
Virgin Islands National Park	NP	VI
Waccamaw National Wildlife Refuge	NWR	SC
Wallops Island National Wildlife Refuge	NWR	VA
Waquoit Bay National Estuarine Research Reserve	NERR	MA
Wassaw National Wildlife Refuge	NWR	GA

Table E-1. Protected and Sensitive Habitats on the U.S. Atlantic Coast (continued)

Protected and Sensitive Habitat	Type	State/ Territory
Wells National Estuarine Research Reserve	NERR	ME
Wertheim National Wildlife Refuge	NWR	NY
West Indian Manatee Critical Habitat	CH	FL
Wolf Island National Wildlife Refuge	NWR	GA
Wolf Island Wilderness	W	GA
Yellow-shouldered Blackbird Critical Habitat	CH	PR

Source: DOC/NOAA and DOI 2006, Wilderness.net 2006

Notes: CH – Critical Habitat
NERR – National Estuarine Research Reserve
NP – National Park
NS – National Seashore
NWR – National Wildlife Refuge
W – Wilderness

Table E-2. Protected and Sensitive Habitats in the Gulf of Mexico

Protected and Sensitive Habitat	Type	State
Anahuac National Wildlife Refuge	NWR	TX
Apalachicola National Estuarine Research Reserve	NERR	FL
Aransas National Wildlife Refuge	NWR	TX
Bayou Sauvage National Wildlife Refuge	NWR	LA
Big Boggy National Wildlife Refuge	NWR	TX
Big Branch Marsh National Wildlife Refuge	NWR	LA
Bon Secour National Wildlife Refuge	NWR	AL
Brazoria National Wildlife Refuge	NWR	TX
Breton National Wildlife Refuge	NWR	LA
Cedar Keys National Wildlife Refuge	NWR	FL
Cedar Keys Wilderness	W	FL
Chassahowitzka National Wildlife Refuge	NWR	FL
Chassahowitzka Wilderness	W	FL
Crystal River National Wildlife Refuge	NWR	FL
Delta National Wildlife Refuge	NWR	LA
Egmont Key National Wildlife Refuge	NWR	FL
Everglades National Park	NP	FL
Flower Garden Banks National Marine Sanctuary	NMS	TX
Grand Bay National Estuarine Research Reserve	NERR	AL-MS
Grand Bay National Wildlife Refuge	NWR	AL-MS
Gulf Islands National Seashore	NS	FL-MS
Gulf Sturgeon Critical Habitat	CH	FL-LA
Island Bay National Wildlife Refuge	NWR	FL
Island Bay Wilderness	W	FL
J.N. “Ding” Darling National Wildlife Refuge	NWR	FL
J.N. “Ding” Darling Wilderness	W	FL
Laguna Atascosa National Wildlife Refuge	NWR	TX
Lower Suwanee National Wildlife Refuge	NWR	TX
Mandalay National Wildlife Refuge	NWR	LA
Marjory Stoneman Douglas Wilderness	W	FL
Matlacha Pass National Wildlife Refuge	NWR	FL
McFaddin National Wildlife Refuge	NWR	TX
Mission-Aransas National Estuarine Research Reserve	NERR	TX
Moody National Wildlife Refuge	NWR	TX
Padre Island National Seashore	NS	TX
Passage Key National Wildlife Refuge	NWR	FL
Passage Key Wilderness	W	FL
Pine Island National Wildlife Refuge	NWR	FL

Table E-2. Protected and Sensitive Habitats in the Gulf of Mexico (continued)

Protected and Sensitive Habitat	Type	State
Pinellas National Wildlife Refuge	NWR	FL
Piping Plover Critical Habitat	CH	FL-TX
Rookery Bay National Estuarine Research Reserve	NERR	FL
Sabine National Wildlife Refuge	NWR	LA
San Bernard National Wildlife Refuge	NWR	TX
Shell Keys National Wildlife Refuge	NWR	LA
St. Marks National Wildlife Refuge	NWR	FL
St. Marks Wilderness	W	FL
St. Vincent National Wildlife Refuge	NWR	FL
Ten Thousand Islands National Wildlife Refuge	NWR	FL
Texas Point National Wildlife Refuge	NWR	TX
Weeks Bay National Estuarine Research Reserve	NERR	AL
West Indian Manatee Critical Habitat	CH	FL
Whooping Crane Critical Habitat	CH	TX

Source: DOC/NOAA and DOI 2006, Wilderness.net 2006

Notes: CH – Critical Habitat
NERR – National Estuarine Research Reserve
NMS – National Marine Sanctuary
NP – National Park
NS – National Seashore
NWR – National Wildlife Refuge
W – Wilderness

Table E-3. Protected and Sensitive Habitats on the U.S. Pacific Coast

Protected and Sensitive Habitat	Type	State
Admiralty Island National Monument	NM	AK
Alaska Maritime National Wildlife Refuge	NWR	AK
Alaska Peninsula National Wildlife Refuge	NWR	AK
Aleutian Islands Wilderness	W	AK
Aniakchak National Monument and Preserve	NM	AK
Bandon Marsh National Wildlife Refuge	NWR	OR
Becharof National Wildlife Refuge	NWR	AK
Becharof Wilderness	W	AK
Bogoslof Wilderness	W	AK
California Coastal Chinook Salmon ESU Critical Habitat	CH	CA
California Coastal National Monument	NM	CA
Cape Krusenstern National Monument	NM	AK
Cape Meares National Wildlife Refuge	NWR	OR
Castle Rock National Wildlife Refuge	NWR	CA
Central California Coast Coho Salmon ESU Critical Habitat	CH	CA
Central California Steelhead DPS Critical Habitat	CH	CA
Central Valley Spring-run Chinook Salmon ESU Critical Habitat	CH	CA
Channel Islands National Marine Sanctuary	NMS	CA
Chuck River Wilderness	W	AK
Chugach National Forest	NF	AK
Coastal California Gnatcatcher Critical Habitat	CH	CA
Columbia River Chum Salmon ESU Critical Habitat	CH	OR/WA
Copalis National Wildlife Refuge	NWR	WA
Cordell Bank National Marine Sanctuary	NMS	CA
Coronation Island Wilderness	W	AK
D.E. San Francisco Bay National Wildlife Refuge	NWR	CA
Dungeness National Wildlife Refuge	NWR	WA
Elkhorn Slough National Estuarine Research Reserve	NERR	CA
Ellicott Slough National Wildlife Refuge	NWR	CA
Farallon Wilderness	W	CA
Flattery Rocks National Wildlife Refuge	NWR	WA
Forrester Island Wilderness	W	AK
Glacier Bay National Park	NP	AK
Glacier Bay Wilderness	W	AK

Table E-3. Protected and Sensitive Habitats on the U.S. Pacific Coast (continued)

Protected and Sensitive Habitat	Type	State
Grays Harbor National Wildlife Refuge	NWR	WA
Guadalupe-Nipomo Dunes National Wildlife Refuge	NWR	CA
Gulf of the Farallones National Marine Sanctuary	NMS	CA
Hazy Island Wilderness	W	AK
Hood Canal Summer-run Chum Salmon ESU Critical Habitat	CH	WA
Humboldt Bay National Wildlife Refuge	NWR	CA
Izembeck National Wildlife Refuge	NWR	AK
Izembeck Wilderness	W	AK
Kachemak Bay National Estuarine Research Reserve	NERR	AK
Katmai National Park and Reserve	NP	AK
Katmai Wilderness	W	AK
Kenai Fjords National Park	NP	AK
Kenai National Wildlife Refuge	NWR	AK
Kenai Wilderness	W	AK
Kootzoonoo Wilderness	W	AK
Kuiu Wilderness	W	AK
Lewis and Clark National Wildlife Refuge	NWR	OR
Los Padres National Forest	NF	CA
Lower Columbia River Chinook Salmon ESU Critical Habitat	CH	OR/WA
Marbled Murrelet Critical Habitat	CH	AK
Marin Islands National Wildlife Refuge	NWR	CA
Maurille Island Wilderness	W	AK
Misty Fjords National Monument	NM	AK
Mollie Beattie Wilderness	W	AK
Monterey National Marine Sanctuary	NMS	CA
Nestucca Bay National Wildlife Refuge	NWR	OR
Nisqually National Wildlife Refuge	NWR	WA
Northern California Steelhead DPS Critical Habitat	CH	CA
North Pacific Right Whale Critical Habitat	CH	AK
Nunivak Wilderness	W	AK
Olympic Coast National Marine Sanctuary	NMS	WA
Olympic National Forest	NF	WA
Olympic Wilderness	W	WA
Oregon Coast Coho Salmon ESU	CH	OR

Table E-3. Protected and Sensitive Habitats on the U.S. Pacific Coast (continued)

Protected and Sensitive Habitat	Type	State
Oregon Islands National Wildlife Refuge	NWR	OR
Oregon Islands Wilderness	W	OR
Padilla Bay National Estuarine Research Reserve	NERR	WA
Petersburg Creek-Duncan Salt Chuck Wilderness	W	AK
Point Reyes National Seashore	NS	CA
Protection Island National Wildlife Refuge	NWR	WA
Puget Sound Chinook Salmon ESU Critical Habitat	CH	WA
Quillayute Needles National Wildlife Refuge	NWR	WA
Russell Fjord Wilderness	W	AK
Sacramento River Winter-run Chinook Salmon ESU Critical Habitat	CH	CA
Salinas River National Wildlife Refuge	NWR	CA
San Diego National Wildlife Refuge	NWR	CA
San Francisco Bay National Estuarine Research Reserve	NERR	CA
San Juan Islands National Wildlife Refuge	NWR	WA
San Pablo Bay National Wildlife Refuge	NWR	CA
Seal Beach National Wildlife Refuge	NWR	CA
Semidi Wilderness	W	AK
Siletz Bay National Wildlife Refuge	NWR	OR
Simeonof Islands Wilderness	W	AK
Sinuslaw National Forest	NF	OR
South Baranof Wilderness	W	AK
South Etolin Wilderness	W	AK
South Prince of Wales Wilderness	W	AK
South Slough National Estuarine Research Reserve	NERR	OR
South-Central California Coast Steelhead ESU Critical Habitat	CH	CA
Southern California Steelhead ESU Critical Habitat	CH	CA
Southern Oregon/Northern California Coasts Coho Salmon ESU Critical Habitat	CH	CA/OR
Southern Resident Killer Whale DPS Critical Habitat	CH	WA
Spectacled Eider Critical Habitat	CH	AK
Steller Sea Lion Conservation Area	Conservation Area	AK
Steller Sea Lion Critical Habitat	CH	CA/OR/AK

Table E-3. Protected and Sensitive Habitats on the U.S. Pacific Coast (continued)

Protected and Sensitive Habitat	Type	State
Steller's Eider Critical Habitat	CH	AK
Stikine-LeConte Wilderness	W	AK
Sweetwater Marsh National Wildlife Refuge	NWR	CA
Three Arch Rocks National Wildlife Refuge	NWR	OR
Tidewater Goby Critical Habitat	CH	CA
Tijuana River National Estuarine Research Reserve	NERR	CA
Tijuana Slough National Wildlife Refuge	NWR	CA
Tebenkof Bay Wilderness	W	AK
Togiak National Wildlife Refuge	NWR	AK
Tongass National Forest	NF	AK
Tracy Arm-Fords Terror Wilderness	W	AK
Unimak Wilderness	W	AK
Warren Island Wilderness	W	AK
Washington Islands Wilderness	W	WA
West Chichagof-Yakobi Wilderness	W	AK
Western Snowy Plover Critical Habitat	CH	CA-WA
Willapa National Wildlife Refuge	NWR	WA
Wrangell-St. Elias Wilderness	W	AK

Source: DOC/NOAA and DOI 2006, 50 CFR 226.204, 226.205, 226.210, and 226.212, Wilderness.net 2006

Notes: CH – Critical Habitat
DPS – Distinct Population Segment
ESU – Evolutionary Significant Unit
NERR – National Estuarine Research Reserve
NF – National Forest
NM – National Monument
NMS – National Marine Sanctuary
NP – National Park
NS – National Seashore
W – Wilderness

Table E-4. Protected and Sensitive Habitats in the Pacific Islands

Protected and Sensitive Habitat	Type	State/Territory
Bird Island Marine Sanctuary	Marine Sanctuary	CNMI
Hawaiian Monk Seal Critical Habitat	CH	HI
Fagatele Bay National Marine Sanctuary	NMS	AS
Guam National Wildlife Refuge	NWR	GU
Hawaiian Islands National Wildlife Refuge	NWR	HI
Forbidden Island Marine Sanctuary	Marine Sanctuary	CNMI
Kilauea Point National Wildlife Refuge	NWR	HI
Midway Atoll National Wildlife Refuge	NWR	HI
National Park of American Samoa	NP	AS
Northwestern Hawaiian Islands Marine National Monument	NM	HI
Hawaii Volcanoes Wilderness	W	HI
Hawaiian Islands Humpback Whale National Marine Sanctuary	NMS	HI

Source: DOC/NOAA and DOI 2006, Wilderness.net 2006

Notes: AS– American Samoa
CH – Critical Habitat
CNMI– Commonwealth of the Northern Mariana Islands
GU – Guam
NM – National Monument
NMS – National Marine Sanctuary
NP – National Park
NWR – National Wildlife Refuge
W – Wilderness

Table E-5. Protected Invertebrates and Plants Inhabiting the Action Area

Common Name	Scientific Name	Federal Status under ESA	Action Area Occurrence
Black abalone	*Haliotis cracherodii*	E	CA
White abalone	*Haliotis sorenseni*	E	CA
Elkhorn coral	*Acropora palmate*	T	FL, PR, VI
Staghorn coral	*Acropora cervicornis*	T	FL, PR, VI
Johnson's seagrass	*Halophila johnsonii*	T/CH	FL

Source: NMFS 2006, USFWS 2009, 74 FR 1937
Notes: CH – Critical Habitat
E – Federally listed as endangered
PR – Puerto Rico
T – Federally listed as threatened
VI – U.S. Virgin Islands

Table E-6. Sea Turtles Inhabiting the Action Area

Common Name	Scientific Name	Federal Status under ESA	Action Area Occurrence
Green	*Chelonia mydas*	T*/CH	Entire
Hawksbill	*Eretmochelys imbricate*	E/CH	South Atlantic Coast, Gulf of Mexico, Pacific Area Islands
Kemp's ridley	*Lepidochelys kempii*	E	Atlantic Coast
Leatherback	*Dermochelvs coriacea schlegelii*	E/CH	Entire
Loggerhead	*Caretta caretta gigas*	T	Entire
Olive ridley	*Lepidochelys olivacea*	T	South Atlantic Coast, Pacific Coast (rare in OR, WA, AK), Pacific Islands

Source: USFWS 2009
Notes: CH ─ Critical habitat in a ROI
E ─ Federally listed as endangered
T ─ Federally listed as threatened
* ─ Florida nesting population listed as endangered

Table E-7. Protected Fisheries Resources on the U.S. Atlantic Coast

Common Name	Scientific Name	Federal Status under ESA	Occurrence
Atlantic salmon (Gulf of Maine DPS)	*Salmo salar*	E	ME
Smalltooth sawfish	*Pristis pectinata*	E	NC-FL
Shortnose sturgeon	*Acipenser brevirostrum*	E	Entire Atlantic Coast

Source: USFWS 2009
Notes: DPS – Distinct Population Segment
E – Federally listed as endangered

Table E-8. Protected Fisheries Resources in the Gulf of Mexico

Common Name	Scientific Name	Federal Status under ESA	Occurrence
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	T/CH	FL-LA
Smalltooth sawfish	*Pristis pectinata*	E	Entire Gulf of Mexico

Source: USFWS 2009
Notes: CH – Critical Habitat
E – Federally listed as endangered
T – Federally listed as threatened

Table E-9. Protected Fisheries Resources on the U.S. Pacific Coast

Common Name	Scientific Name	Federal Status under ESA
Chinook salmon	*Oncorhynchus tshawytscha*	E/T/CH
Chinook salmon ESUs:	California Coastal ESU	T/CH
	Central Valley spring-run ESU	T/CH
	Lower Columbia River ESU	T/CH
	Puget Sound ESU	T/CH
	Sacramento River winter-run ESU	E/CH
Chum salmon	*Oncorhynchus keta*	E/T/CH
Chum salmon ESUs:	Hood Canal summer-run ESU	T/CH
	Columbia River ESU	T/CH
Coho salmon	*Oncorhynchus kisutch*	E/T/CH
Coho salmon ESUs:	Oregon Coast ESU	T/CH
	Southern Oregon/Northern California Coasts ESU	T/CH
	Central California Coast ESU	E/CH
Green sturgeon (Southern DPS)	*Acipenser medirostris*	T
Sockeye salmon	*Oncorhynchus nerka*	E/T
Steelhead	*Oncorhynchus mykiss*	E/T/CN/CH
Steelhead ESUs:	Puget Sound	T
	Northern California ESU	T/CH
	Central California ESU	T/CH
	South-Central California Coast ESU	T/CH
	Southern California ESU	E/CH
Tidewater goby	*Eucyclogobius newberryi*	E/CH
Black abalone	*Haliostis cracherodii*	E

Table E-9. Protected Fisheries Resources on the U.S. Pacific Coast (continued)

Common Name	Scientific Name	Federal Status under ESA
White abalone	*Haliostis sorenseni*	E

Source: 50 CFR 226.204, 226.205, 226.210, and 226.212, 72 FR 26722, 73 FR 7816

Notes: CH – Critical habitat
CN – Candidate species
DPS – Distinct Population Segment
E – Federally listed as endangered
ESU – Evolutionary Significant Unit
T – Federally listed as threatened

Table E-10. Protected Birds of the U.S. Atlantic Coast

Common Name	Scientific Name	Federal Status under ESA	Distribution	Migration Pattern
Bald eagle	*Haliaeetus leucocephalus*	T/AD	Locally throughout most of North America, including coasts	Occurs year-round in many coastal areas. Breeds in spring, and some individuals migrate south during winter, while many remain in the northeast year-round.
Piping plover	*Charadrius melodus*	T/CH	Atlantic coast, Great Lakes, Northern Great Plains, Gulf coast, and Caribbean. Critical habitat for wintering populations from North Carolina south to Florida.	Breeds on sandy beaches in isolated colonies on the northeast coast and Great Lakes region from March to September, where they spend the summer. Winters along southeastern coast.
Roseate tern	*Sterna dougallii dougallii*	E	Atlantic coast and Caribbean	Breeds on islands and protected sand spits. Occurs on northeast coast during spring and summer and migrates south as far as the Caribbean during fall and winter.
Whooping crane	*Grus Americana*	NEP	Virginia to Florida	Winters in the Gulf coast of Texas October to April, when they migrate north to Canada.
Wood stork	*Mycteria americana*	E	South Carolina to Florida	Breeds in Alabama, Florida, Georgia, and South Carolina.
Yellow-shouldered blackbird	*Agelains xanthomus*	E/CH	Critical habitat areas in southwest Puerto Rico and Isla Mona	Resident species in Puerto Rico and Isla Mona. Nesting season April to October.

Source: USFWS 2009

Notes: AD – Proposed Delisting
CH – Critical Habitat in the ROI
E – Federally listed as endangered
NEP – Non-essential population
T – Federally listed as threatened

Table E-11. Protected Birds of the Gulf of Mexico

Common Name	Scientific Name	Federal Status under ESA	Distribution	Migration Pattern
Bald eagle	*Haliaeetus leucocephalus*	T/AD	Locally throughout most of North America, including coasts	Winters along central and southeast coast and Texas coast with year-round populations in Florida and Gulf coasts east of Texas.
Brown pelican	*Pelecanus occidentalis*	E	Texas to Mississippi	Year-round resident in the southeast.
Piping plover	*Charadrius melodus*	T/CH	Atlantic coast, Great Lakes, Northern Great Plains, Gulf of Mexico. Critical habitat for wintering populations entire Gulf Coast.	Winters on the southeast and Gulf coasts and the Caribbean October to March. Breeding: Atlantic coast, Great Lakes, and Northern Great Plains.
Whooping crane	*Grus Americana*	E/CH	Critical habitat is on Texas coast	Winters in the Gulf coast of Texas October to April, when they migrate north to Canada.
Wood stork	*Mycteria americana*	E	Alabama (Mississippi Valley)	Breeds in Alabama, Florida, Georgia, and South Carolina.

Source: USFWS 2009

Notes: AD – Proposed Delisting
CH – Critical Habitat in the ROI
E – Federally listed as endangered
T – Federally listed as threatened

Table E-12. Protected Birds of the U.S. Pacific Coast

Common Name	Scientific Name	Federal Status under ESA	Distribution	Migration Pattern
Bald eagle	*Haliaeetus leucocephalus*	T/AD	Locally throughout most of North America, including coasts	Year-round resident and breeds in most Pacific continental coastal areas. Some migration occurs from northern California and Oregon to southern California coast, where small population spends the summer.
Brown pelican	*Pelecanus occidentalis*	E	Pacific coast	Breeds in southern California March to April and is found from southern Mexico to central California and occasionally from northern California to Washington.
California Condor	*Gymnogyps californianus*	E	Condors reintroduced into mountains of Los Angeles, vicinity of Big Sur, and Arizona	On coast of California.
California clapper rail	*Rallus longirostris obsoletus*	E	San Francisco Bay area, California	Year-round resident on central and southern California coast.
California least tern	*Sterna antillarum browni*	E	Central and southern coast of California	Breeds and spends spring and summer on southern and central California coasts. Migrates to Central America and south in fall for the winter.
Coastal California Gnatcatcher	*Poliioptila californica californica*	T/CH	Southern California coast. Critical habitat in Southern California.	Non-migratory inhabiting coastal sage scrub from Los Angeles county south to Baja California, Mexico.
Light-footed clapper rail	*Rallus longirostris levipes*	E	Southern California coast	Year-round resident on central and southern California coast.

Table E-12. Protected Birds of the U.S. Pacific Coast (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution	Migration Pattern
Marbled murrelet	*Brachyrampus marmoratus marmoratus*	T/CH	Alaska coast south to California coast. Critical habitat in Alaska.	Breeds from northern Washington to San Francisco coast. Winters along entire Pacific coast. Summers from Kenai Peninsula, Barren Islands, and Aleutian Islands south along the coast of North America.
San Clemente loggerhead shrike	*Lanius ludovicianus mearnsi*	E	San Clemente Island, California	Year-round resident on San Clemente Island.
San Clemente sage sparrow	*Amphispiza belli clementeae*	T	San Clemente Island, California	Year-round resident on San Clemente Island.
Short-tailed albatross	*Phoebastria albatrus*	E	Open Pacific Ocean from Alaska to California	Found most commonly in summer and fall. Breeds in Japan, Midway, and Hawaii and migrates north for summer and south for winter.
Spectacled eider	*Somateria fisheri*	T/CH	Coast of Alaska	Breeds on the coast of Alaska on the Bering Sea and the Arctic Ocean. Migrates south for the winter but winter range is unknown.
Steller's eider	*Polysticta stelleri*	T/CH	Alaska Coast, accidental south to California. Critical habitat in Alaska.	Accidental in summer in Pacific waters. Breeds on eastern Arctic coast and migrates to Aleutian Islands and western coast of Alaska.
Western snowy plover	*Charadrius alexandrinus nivosus*	T/CH	Washington to California. Critical habitat in California, Oregon, and Washington.	Summers along Pacific coast and migrates south to Mexico and South America during winter.

Source: USFWS 2009

Notes: AD – Proposed Delisting
CH – Critical Habitat in the ROI
E – Federally listed as endangered
T – Federally listed as threatened

Table E-13. Protected Birds of the Pacific Islands

Common Name	Scientific Name	Federal Status under ESA	Distribution	Migration Pattern
Guam bridled white-eye	*Zosterops conspicillatus conspicillatus*	E	Guam	Year-round resident, habitat includes beach strand.
Hawaiian Coot	*Fulica americana alai*	E	Hawaii coasts	Year-round resident Hawaiian Islands.
Hawaiian dark-rumped petrel	*Pterodroma phaeopygia sandwichensis*	E	Pacific Ocean around Hawaii	Found on the Hawaiian Islands from May to mid-November during breeding; central Pacific from mid-November through April.
Hawaiian duck	*Anas wyvilliana*	E	Pearl Harbor, Hawaii	Year-round resident on selected Hawaiian Islands.
Hawaiian stilt	*Himantopus mexicanus knudseni*	E	Hawaii coasts	Year-round resident Hawaiian Islands.
Laysan duck	*Anas laysanensis*	E	Laysan, Hawaii	Year-round resident Laysan Atoll, Hawaii.
Laysan finch	*Telespyza cantans*	E	Laysan, Pearl, and Hermes atolls, Hawaii	Year-round resident Laysan, Pearl, and Hermes atolls, Hawaii.
Mariana crow	*Corvus kubaryii*	E	Guam	Year-round resident, habitat includes beach strand.
Newell's Townsend's shearwater	*Puffinus auricularis newelli*	E	Pacific Ocean around Hawaii	Found on the island of Kauai April through September during breeding. On the open ocean from October to April.
Nihoa finch	*Telespyza ultima*	E	Nihoa Island, Hawaii	Year-round resident Nihoa Island, Hawaii.
Short-tailed albatross	*Phoebastria albatrus*	E	Open Pacific Ocean from Alaska to California	Most common in summer and fall. Breeds in Midway and Hawaii.

Source: USFWS 2009

Notes: E – Federally listed as endangered

Table E-14. Marine Mammals Common in the NMFS Northeast Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Phocids (true or earless seals)			
Bearded seal	*Erignathus barbatus*	*	Unusual
Gray seal	*Halichoens griseus*	*	Year-round resident
Harbor seal	*Phoca vitulina*	*	Year-round resident
Harp seal	*Phoca groenlandica*	*	More common in winter
Hooded seal	*Cystophora cristata*	*	More common in winter
Ringed seal	*Phoca hispida*	*	More common in winter
Mysticetes (baleen whales)			
Blue whale	*Balaenoptera musculus*	E	Population highest in spring/summer due to northward migration from subtropics
Bryde's whale	*Balaenoptera edeni*	*	Located in southern part of ROI
Fin whale	*Balaenoptera physalus*	E	Year-round resident, peak from April to October, visits coastal waters in many areas
Minke whale	*Balaenoptera. acutorostrata*	*	Abundant from April to November; frequent coastal regions, bays, offshore banks
Humpback whale	*Megaptera novaeangliae*	E	Migratory population, with peak abundance mainly during summer but also in autumn; coastal distribution in the summer. Breeds in the Caribbean within 8–16 km of shore
North Atlantic right whale	*Eubalaena glacialis*	E/CH	Population highest in spring/summer
Sei whale	*Balaenoptera borealis*	E	Range from ME to VA
Odontocetes (toothed whales and dolphins)			
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	*	Common inshore spring through autumn, uncommon from DE to VA
Atlantic spotted dolphin	*Stenella frontalis*	*	Occur in southern part of ROI, generally pelagic
Blainville's beaked whale	*Mesoplodon densirostris*	*	Pelagic habitat
Clymene dolphin	*Stenella clymene*	*	Occur in southern ROI, pelagic
Cuvier's beaked whale	*Ziphius cavirostris*	*	Common in summer

Table E-14. Marine Mammals Common in the NMFS Northeast Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Dwarf sperm whale	*Kogia sima*	*	Occur from DE to VA
False killer whale	*Pseudorca crassidens*	*	Occur from DE to VA
Gervais' beaked whale	*Mesoplodon europaeus*	*	Oceanic habitat
Killer whale	*Orcinus orca*	*	Occasional visitor
Long-finned pilot whale	*Globicephala melas*	*	Pelagic, moves inshore late summer and fall
Northern bottlenose whale	*Hyperoodon ampullatus*	*	Occasional, seen in fall and winter
Pantropical spotted dolphin	*Stenella attenuata*	*	Uncommon
Pygmy sperm whale	*Kogia breviceps*	*	Rare north of Cape Cod, MA
Risso's dolphin	*Grampus griseus*	*	Uncommon north of Cape Cod, MA
Rough-toothed dolphin	*Steno bredanensis*	*	Pelagic habitat
Short-finned pilot whale	*Globicephala macrorhynchus*	*	Generally pelagic, occurs in southern ROI (DE to VA) in the summer
Sowerby's beaked whale	*Mesoplodon bidens*	*	Pelagic habitat
Sperm whale	*Physeter macrocephalus*	E	Mainly in deep waters, migrates to shallower waters from ME to NC
Spinner dolphin	*Stenella longirostris*	*	Occurs in southern ROI (DE to VA)
Striped dolphin	*Stenella coeruleoalba*	*	Common, pelagic habitat
True's beaked whale	*Mesoplodon mirus*	*	Pelagic habitat
Beluga whale	*Delphinapterus leucas*	*	Occasional strays, seen in winter
Short-beaked common dolphin	*Delphinus delphis*	*	Generally pelagic, common
Bottlenose dolphin	*Tursiops truncatus*	*	Seen in summer offshore, uncommon
White-beaked dolphin	*Lagenorhynchus albirostris*	*	Occur from November to June

Table E-14. Marine Mammals Common in the NMFS Northeast Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Harbor porpoise	*Phocoena phocoena*	*	Common in inshore areas from April to October; strandings reported in Florida; sometimes enters bays and river mouths

Source: Geraci and Lounsbury 2005

Notes: CH – Critical Habitat in the ROI
E – Federally listed as endangered
T –Federally listed as threatened
* – only protected under MMPA

Table E-15. Marine Mammals Common in the NMFS Southeast Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Phocids (true or earless seals)			
Harbor seal	*Phoca vitulina*	*	Occasional
Mysticetes (baleen whales)			
Blue whale	*Balaenoptera musculus*	E	Population highest in spring/summer due to northward migration from subtropics
Bryde's whale	*Balaenoptera edeni*	*	Common
Fin whale	*Balaenoptera physalus*	E	Year-round resident, visits coastal waters in many areas
Minke whale	*Balaenoptera acutorostrata*	*	Uncommon in Gulf of Mexico, occur in other waters of the ROI; frequent coastal regions, bays, offshore banks
Humpback whale	*Megaptera novaeangliae*	E	Migratory population moves along the southeastern U.S. on the way to its wintering grounds, occur January through May
North Atlantic right whale	*Eubalaena glacialis*	E/CH	Wintering and calving grounds are along Georgia and Florida, occur December through March, nearshore
Sei whale	*Balaenoptera borealis*	E	Southern portion of range during spring/summer
Odontocetes (toothed whales and dolphins)			
Atlantic spotted dolphin	*Stenella frontalis*	*	Generally pelagic
Blainville's beaked whale	*Mesoplodon densirostris*	*	Pelagic
Bottlenose dolphin	*Tursiops truncatus*	*	Both coastal and offshore variety are common in this ROI, frequents bays and estuaries
Clymene dolphin	*Stenella clymene*	*	Pelagic
Cuvier's beaked whale	*Ziphius cavirostris*	*	Pelagic
Dwarf sperm whale	*Kogia sima*	*	Pelagic
Gervais' beaked whale	*Mesoplodon europaeus*	*	Oceanic

Table E-15. Marine Mammals Common in the NMFS Southeast Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Harbor porpoise	*Phocoena phocoena*	*	Rare in southeast Atlantic, not in Gulf of Mexico/Caribbean
False killer whale	*Pseudorca crassidens*	*	Pelagic
Fraser's dolphin	*Lagenodelphis hosei*	*	Rare in southeast Atlantic and Gulf of Mexico, occurs in Caribbean, pelagic
Killer whale	*Orcinus orca*	*	Uncommon
Long-finned pilot whale	*Glodicephala melas*	*	Northern part of southeast Atlantic, rare, pelagic
Melon-headed whale	*Peponocephala electra*	*	Rare in southeast Atlantic, occur in Gulf of Mexico, pelagic
Pantropical spotted dolphin	*Stenella attenuata*	*	Offshore and coastal groups
Pygmy killer whale	*Feresa attenuata*	*	Pelagic
Pygmy sperm whale	*Kogia breviceps*	*	Pelagic
Risso's dolphin	*Grampus griseus*	*	Pelagic
Rough-toothed dolphin	*Steno bredanensis*	*	Pelagic
Short-finned pilot whale	*Globicephala macrorhynchus*	*	Pelagic
Sperm whale	*Physeter macrocephalus*	E	Generally pelagic
Spinner dolphin	*Stenella longirostris*	*	Common, pelagic and coastal, daytime in shallow bays
Striped dolphin	*Stenella coeruleoalba*	*	Pelagic
True's beaked whale	*Mesoplodon mirus*	*	Pelagic
Short-beaked common dolphin	*Delphinus delphis*	*	Pelagic
Trichechids (manatees)			
West Indian manatee	*Trichechus manatus*	E/CH	Resident in rivers and coastal waters of peninsular Florida and southern Georgia; previous records in Carolinas and Texas

Source: Geraci and Lounsbury 2005

Notes: CH – Critical Habitat in the ROI

E – Federally listed as endangered

* – only protected under MMPA

Table E-16. Marine Mammals Common in the NMFS Southwest Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Otarrids (eared seals or sea lions)			
California sea lion	*Zalophus californianus*	*	Year-round resident
Guadalupe fur seal	*Arctocephalus townsendi*	T	Breeds off Baja California
Northern elephant seal	*Mirounga angustirostris*	*	Year-round resident
Northern fur seal	*Callorhinus ursinus*	*	Year-round resident
Steller sea lion	*Eumetopias jubatas*	T/CH	Visitor to area from southern breeding grounds, coastal to pelagic
Phocids (true or earless seals)			
Harbor seal	*Phoca vitulina*	*	Year-round resident
Mysticetes			
Blue whale	*Balaenoptera musculus*	E	Population highest in spring due to northward migration from subtropics
Bryde's whale	*Balaenoptera edeni*	*	Rare in southern California
Fin whale	*Balaenoptera physalus*	E	Common in summer, visits coastal waters in many areas, migratory
Gray whale	*Eschrichtius robustus*	*	Migration population, with peak abundance in winter and spring
Humpback whale	*Megaptera novaeangliae*	E	Migratory population, with peak abundance mainly during summer but also in autumn
Minke whale	*Balaenoptera acutorostrata*	*	Year-round resident, frequent coastal regions, bays, offshore banks
North Pacific right whale	*Eubalaena japonica*	E	Only two sightings in southern California
Sei whale	*Balaenoptera borealis*	E	Seen in summer/fall during migration, pelagic
Odontocetes (toothed whales and dolphins)			
Baird's beaked whale	*Berardius bairdii*	*	Peak June-October, pelagic
Blainville's beaked whale	*Mesoplodon densirostris*	*	Pelagic
Bottlenose dolphin	*Tursiops truncatus*	*	Year-round resident; frequents bays and estuaries in southern regions

Table E-16. Marine Mammals Common in the NMFS Southwest Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Cuvier's beaked whale	*Ziphius cavirostris*	*	Pelagic
Dall's porpoise	*Phocoenoides dalli*	*	Year-round resident, nearshore in deep water, pelagic
Dwarf sperm whale	*Kogia sima*	*	Rare further north, pelagic
Ginkgo-toothed beaked whale	*Mesoplodon ginkgodens*	*	Rare, pelagic
False killer whale	*Pseudorca crassidens*	*	Occasional, pelagic
Harbor porpoise	*Phocoena phocoena*	*	Coastal in bays, estuaries, and rivers; frequent offshore banks
Hubb's beaked whale	*Mesoplodon carlhubbsi*	*	Pelagic
Killer whale	*Orcinus orca*	*	Incidental accounts of transients in area, most likely from northern latitudes; common inshore visitors
Long-beaked common dolphin	*Delphinus capensis*	*	Occur in southern California, prefer shallow, warm waters
Northern right whale dolphin	*Lissodelphis borealis*	*	Inshore winter through spring, pelagic
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	*	Year-round resident, peak winter through spring, pelagic
Perrin's beaked whale	*Mesoplodon perrini*	*	Pelagic
Pygmy sperm whale	*Kogia breviceps*	*	Pelagic
Risso's dolphin	*Grampus griseus*	*	Year-round resident, pelagic
Rough-toothed dolphin	*Steno bredanensis*	*	Uncommon, pelagic
Short-beaked common dolphin	*Delphinus delphis*	*	Year-round resident, pelagic
Short-finned pilot whale	*Globicephala macrorhynchus*	*	Small year-round population, peak late winter/early spring
Sperm whale	*Physeter macrocephalus*	E	Peak from November-April, generally pelagic
Stejneger's beaked whale	*Mesoplodon stejnegeri*	*	Pelagic
Striped dolphin	*Stenella coeruleoalba*	*	Pelagic

Table E-16. Marine Mammals Common in the NMFS Southwest Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Southern sea otter	*Enhydra lutris nereis*	T	Year-round resident

Source: Geraci and Lounsbury 2005

Notes: CH – Critical Habitat in the ROI

E – Federally listed as endangered

T – Federally listed as threatened

* – only protected under MMPA

Table E-17. Marine Mammals Common in the NMFS Northwest Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Otariids (eared seals or sea lions)			
Northern elephant seal	*Mirounga angustirostris*	*	Year-round resident
California sea lion	*Zalophus californianus*	*	Year-round resident
Steller sea lion	*Eumetopias jubatus*	T/CH	Visitor to area from southern breeding grounds, coastal to pelagic
Northern fur seal	*Callorhinus ursinus*	*	Year-round resident
Phocids (true or earless seals)			
Harbor seal	*Phoca vitulina*	*	Year-round resident
Mysticetes (baleen whales)			
Blue whale	*Balaenoptera musculus*	E	Occur spring-fall; pelagic but may frequent coastal waters and shallow banks
Gray whale	*Eschrichtius robustus*	*	Found March-May, October-December, few in summer
Fin whale	*Balaenoptera physalus*	E	Occur in summer, generally pelagic, visits coastal waters in many areas, migratory
Humpback whale	*Megaptera novaeangliae*	E	Migratory population, with peak abundance mainly during summer but also in autumn
Minke whale	*Balaenoptera acutorostrata*	*	Year-round resident; frequents coastal regions, bays, and offshore banks
North Pacific right whale	*Eubalaena japonica*	E	Uncommon
Sei whale	*Balaenoptera borealis*	E	Seen in summer and fall
Odontocetes (toothed whales and dolphins)			
Baird's beaked whale	*Berardius bairdii*	*	Occur April-October, pelagic
Cuvier's beaked whale	*Ziphius cavirostris*	*	Pelagic
False killer whale	*Pseudorca crassidens*	*	Occasional, pelagic
Hubb's beaked whale	*Mesoplodon carlhubbsi*	*	Pelagic

Table E-17. Marine Mammals Common in the NMFS Northwest Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Killer whale	*Orcinus orca*	*/E	Southern Resident population listed as endangered. Inshore year-round.
Stejneger's beaked whale	*Mesoplodon stejnegeri*	*	Pelagic
Sperm whale	*Physeter macrocephalus*	E	Seen spring-fall, generally pelagic
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	*	Year-round resident, generally pelagic, nearshore in deep water
Pygmy sperm whale	*Kogia breviceps*	*	Pelagic
Northern right whale dolphin	*Lissodelphis borealis*	*	Uncommon
Risso's dolphin	*Grampus griseus*	*	Occur spring-fall, pelagic
Short-finned pilot whale	*Globicephala macrorhynchus*	*	Uncommon
Short-beaked common dolphin	*Delphinus delphis*	*	Rare, pelagic
Striped dolphin	*Stenella coeruleoalba*	*	Rare, pelagic
Dall's porpoise	*Phocoenoides dalli*	*	Year-round resident, pelagic; nearshore in deep water
Harbor porpoise	*Phocoena phocoena*	*	Coastal in bays, estuaries, and rivers; frequent offshore banks

Source: Geraci and Lounsbury 2005

Notes: CH – Critical Habitat in the ROI

E – Federally listed as endangered

T – Federally listed as threatened

* – only protected under MMPA

Table E-18. Marine Mammals Common in the NMFS Alaska Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Otariids (eared seals or sea lions)			
Bearded seal	*Erignathus barbatus*	*	Occur along continental shelf of Beaufort, Chukchi, and Bering Seas
Northern fur seal	*Callorhinus ursinus*	*	Found in Pribilof Islands and San Miguel Island, breeding areas, occur summer-fall
Steller sea lion	*Eumetopias jubatus*	T/E/CH	Distributed around North Pacific rim, northward to Bering Sea and along eastern shore of Kamchatka Peninsula, Gulf of Alaska, and Aleutian Islands
Phocids (true or earless seals)			
Harbor seal	*Phoca vitulina*	*	Year-round resident, northern extent is Bristol Bay/Kuskokwim Bay area
Northern elephant seal	*Mirounga angustirostris*	*	Males feed near eastern Aleutian Islands, and in Gulf of Alaska
Ribbon seal	*Histriophoca fasciata*	*	Found in Bering and Chukchi seas; winter-spring, offshore along ice front; summer range unknown; breeds along ice front
Ringed seal	*Phoca hispida*	*	Found in southern Bering Sea
Spotted seal	*Phoca largha*	*	Occur along continental shelf of Beaufort, Chukchi, and Bering Seas
Odobenids (walrus)			
Walrus	*Odobenus rosmarus divergens*	*	Found in shallow water areas, close to ice or land; geographic range mainly in Bering and Chukchi Seas ice pack.
Mysticetes (baleen whales)			
Blue whale	*Balaenoptera musculus*	E	Occur from the Gulf of Alaska to the Aleutian Islands, pelagic, may frequent coastal waters and shallow banks
Bowhead whale	*Balaena mysticetus*	E	Occur in the coastal and offshore regions, mostly along ice fronts and leads, migratory
Fin whale	*B. physalus*	E	Common in summer, generally pelagic, visits coastal waters in many areas, migratory
Gray whale	*Eschrichtius robustus*	*	Migrate along the Alaskan coast in winter and early spring; inhabit the eastern Alaskan waters during summer; occur in both the Bering and Chukchi seas

Table E-18. Marine Mammals Common in the NMFS Alaska Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Humpback whale	*Megaptera novaeangliae*	E	Common in summer, coastal in many areas, migratory
Minke whale	*B. acutorostrata*	*	Common in summer, frequent coastal regions, bays, and offshore banks
North Pacific right whale	*Eubalaena japonica*	E	Occur in Gulf of Alaska and Bering Sea
Sei whale	*Balaenoptera borealis*	E	Occur in southern Alaska during summer and fall, pelagic
Odontocetes (toothed whales and dolphins)			
Baird's beaked whale	*Berardius bairdii*	*	Occur in southern part of Alaska during winter, pelagic
Beluga whale	*Delphinapterus leucas*	E (Cook Inlet Stock only)	Coastal in bays, estuaries, and rivers; migratory along leads; winter offshore in pack ice
Cuvier's beaked whale	*Ziphius cavirostris*	*	Occur in the Aleutian islands, pelagic
Killer whale	*Orcinus orca*	*	Common, inhabit coastal waters throughout SE Alaska, Gulf of Alaska, and Aleutian Islands
Dall's porpoise	*Phocoenoides dalii*	*	Occur south of the Bering Strait, pelagic, nearshore in deep water, found frequently in inside waters of SE Alaska
Harbor porpoise	*Phocoena phocoena*	*	Occur year-round in SE Alaska; coastal in bays, estuaries, and rivers; frequent offshore banks
Narwhal	*Monodon monoceros*	*	Rare, usually associated with pack ice and deep water
Pacific White-sided dolphin	*Lagenorynchus obliquidens*	*	Common in Aleutian Islands in summer, pelagic, nearshore in deep water
Stejneger's beaked whale	*Mesoplodon stejnegeri*	*	Pelagic
Sperm whale	*Physeter macrocephalus*	E	Common in summer, mostly males, generally pelagic
Mustelids (otters)			
Northern sea otter	*Enhydra lutris keyoni*	T (southwest DPS)	Lives in shallow water areas along the shores of the North Pacific

Table E-18. Marine Mammals Common in the NMFS Alaska Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Polar bear	*Ursus maritimus*	T	Rear round resident of the Arctic Circle

Source: Geraci and Lounsbury 2005, USFWS 2009

Notes: CH – Critical Habitat in the ROI
E – Federally listed as endangered
T – Federally listed as threatened
* – only protected under MMPA

Table E-19. Marine Mammals Common in the NMFS Pacific Islands Region

Common Name	Scientific Name	Federal Status under ESA	Distribution
Phocids (true or earless seals)			
Hawaiian Monk seal	*Monachus schauinslandi*	E/CH	Most common northwest of the main seven-island chain
Mysticetes (baleen whales)			
Blue whale	*Balaenoptera musculus*	E	Population thought to occur in deeper offshore waters
Bryde's whale	*Balaenoptera edensi*	*	Occurs throughout the main seven island chain January through April
Fin whale	*Balaenoptera physalus*	E	Occurs in winter
Humpback whale	*Megaptera novaeangliae*	E	Occurs throughout the main seven island chain January through April
Minke whale	*Balaenoptera acutorostrata*	*	Occurs near Leeward Island
North Pacific right whale	*Eubalaena japonica*	*	Rare, most likely stray individuals from more northern populations
Sei whale	*Balaenoptera borealis*	E	In eastern North Pacific, population is migratory transient from coast of Mexico to Gulf of Alaska
Odontocetes (toothed whales and dolphins)			
Blainville's beaked whale	*Mesoplodon densirostris*	*	Pelagic
Bottlenose dolphin	*Tursiops truncatus*	*	Common along the coastlines
Cuvier's beaked whale	*Ziphius cavirostris*	*	Rare
Dwarf sperm whale	*Kogia sima*	*	Pelagic
False killer whale	*Pseudorca crassidens*	*	Occasionally seen between the main Hawaiian islands, pelagic
Fin whale	*Balaenoptera physalus*	E	Common in winter, visits coastal waters in many areas, migratory
Fraser's dolphin	*Lagenodelphis hosei*	*	Pelagic
Killer whale	*Orcinus orca*	*	Rare
Melon-headed whale	*Peponocephala electra*	*	Occasionally seen between the main Hawaiian islands, pelagic
Pantropical spotted dolphin	*Stenella attenuata*	*	Common along the coastlines
Pygmy killer whale	*Feresa attenuata*	*	Occasionally seen between the main Hawaiian islands, pelagic

Table E-19. Marine Mammals Common in the NMFS Pacific Islands Region (continued)

Common Name	Scientific Name	Federal Status under ESA	Distribution
Pygmy sperm whale	*Kogia breviceps*	*	Pelagic
Rough-toothed dolphin	*Steno bredanensis*	*	Pelagic
Short-finned pilot whale	*Globicephala macrorhynchus*	*	Occasionally between the main Hawaiian islands, pelagic
Sperm whale	*Physeter macrocephalus*	E	In deeper waters off Hawaii, year-round resident
Striped dolphin	*Stenella coeruleoalba*	*	Pelagic
Spinner dolphin	*Stenella longirostris*	*	Pelagic and coastal, daytime in shallow bays

Source: Geraci and Lounsbury 2005

Notes: CH – Critical Habitat in the ROI

E – Federally listed as endangered

* – only protected under MMPA

APPENDIX F

NATIONAL MARINE MAMMAL STRANDING NETWORK AND DISENTANGLEMENT NETWORK MEMBERS

Marine Mammal Stranding Network

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Northeast Region			
Allied Whale, College of the Atlantic	Bar Harbor, ME	SA	N/A
Maine Department of Marine Resources	Boothbay Harbor, ME	109(h)	N/A
University of New England	Biddeford, ME	SA	Pinnipeds, Small Cetaceans
The Whale Center of New England	Gloucester, MA	Designee of NEAQ	N/A
New England Aquarium (NEAQ)	Boston, MA	SA	Pinnipeds, Small Cetaceans
The National Marine Life Center, Inc.	Buzzards Bay, MA	Designee of NEAQ	Pinnipeds
International Fund for Animal Welfare (IFAW)- Cape Cod Stranding Network	Buzzards Bay, MA	SA	N/A
Cape Cod National Seashore	Wellfleet, MA	109(h)	N/A
Mystic Aquarium	Mystic, CT	SA	Pinnipeds, Small Cetaceans
Riverhead Foundation for Marine Research	Riverhead, NY	SA	Pinnipeds, Small Cetaceans
Marine Mammal Stranding Center	Brigantine, NJ	SA	Pinnipeds
MERR Institute, Inc.	Nassau, DE	Designee of Delaware DNREC	N/A
Maryland Department of Natural Resources, Cooperative Oxford Laboratory	Oxford, MD	109(h)	N/A
National Aquarium in Baltimore	Baltimore, MD	SA	Pinnipeds, Small Cetaceans
Smithsonian Institute, National Museum of Natural History	Washington, D.C.	SA	N/A
Virginia Aquarium and Marine Science Center	Virginia Beach, VA	SA	Pinnipeds
Virginia Institute of Marine Science, College of William and Mary	Gloucester Point, VA	SA	N/A
NMFS Southeast Region			
Duke University Marine Laboratory	Beaufort, NC	Designee of UNCW	N/A
NMFS, SEFSC Beaufort Laboratory	Beaufort, NC	109(h)	N/A
NC State College of Veterinary Medicine, Center for Marine Science and Technologies	Morehead City, NC	Designee of UNCW	N/A
University of North Carolina at Wilmington (UNCW), Biological Sciences	Wilmington, NC	SA	N/A

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Southeast Region (continued)			
North Carolina Aquarium at Fort Fisher	Fort Fisher, NC	109(h)	N/A
Coastal Carolina University	Conway, SC	SA	N/A
National Ocean Service (NOS) Charleston Laboratory	Charleston, SC	109(h)	N/A
South Carolina Wildlife and Marine Resources Division	Charleston, SC	109(h)	N/A
Georgia Department of Natural Resources, Non-Game Endangered Wildlife Program	Brunswick, GA	109(h)and SA	N/A
Clearwater Marine Aquarium	Clearwater, FL	SA	Small Cetaceans
Dynamac Corporation	Kennedy Space Center, FL	SA	N/A
FWC Apalachicola National Reserve	Eastpoint, FL	109(h)	N/A
Gulf Islands National Seashore	Gulf Breeze, FL	109(h)	N/A
Gulf World Marine Park	Panama City Beach, FL	SA	Small Cetaceans
Harbor Branch Oceanographic Institute, Inc.	Fort Pierce, FL	SA	N/A
Hubbs-SeaWorld Research Institute	Orlando, FL	SA	N/A
Marine Animal Rescue Society	Miami, FL	SA	Small Cetaceans
Marine Mammal Conservancy, Inc.	Key Largo, FL	SA	Small Cetaceans
Marine Mammal Stranding Network-Southwest Region	Cape Coral, FL	SA	N/A
Mote Marine Laboratory	Sarasota, FL	SA	Small Cetaceans
NMFS, SEFSC Miami Laboratory	Miami, FL	109(h)	N/A
NMFS, SEFSC Panama City Laboratory	Panama City, FL	109(h)	N/A
SeaWorld Orlando	Orlando, FL	SA	Pinnipeds
The Florida Aquarium	Tampa, FL	SA	N/A
Emerald Coast Wildlife Refuge, Inc	Destin, FL	SA	N/A
Northwest Florida Aquatic Preserves Office, FDEP	Milton, FL	109(h)	N/A
Marterra Foundation, Inc.	Mobile, AL	SA	N/A
Gulf Islands National Seashore	Ocean Springs, MS	109(h)	N/A
Institute for Marine Mammal Studies	Gulfport, MS	SA	Small Cetaceans
Mississippi Department of Marine Resources	Biloxi, MS	109(h)	N/A
NMFS, SEFSC Pascagoula Laboratory	Pascagoula, MS	109(h)	N/A
Louisiana Marine Mammal Stranding Network- Audubon Aquarium of the Americas	New Orleans, LA	SA	Small Cetaceans
Louisiana Department of Wildlife and Fisheries	Lake Charles, LA	109(h)	N/A
Aransas National Wildlife Refuge	Austwell, TX	109(h)	N/A
NMFS, SEFSC Galveston Laboratory	Galveston, TX	109(h)	N/A
Texas Marine Mammal Stranding Network (TMMSN)	Galveston, TX Corpus Christi, TX	SA	Small Cetaceans

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Southeast Region (continued)			
Texas State Aquarium	Corpus Christi, TX	Designee of TMMSN	Small Cetaceans
Texas Parks and Wildlife	Austin, TX	109(h)	N/A
Virgin Islands Division of Fish and Wildlife	Frederiksted, VI	109(h)	N/A
Puerto Rico Department of Natural and Environmental Resources (PRDNER)	Santurce, PR	109(h)/SA	N/A
Mayaguez Zoo	Mayaguez, PR	Designee of PRDNER	Pinnipeds
NMFS Southwest Region			
Northcoast Marine Mammal Center	Crescent City, CA	SA	Pinnipeds, Small Cetaceans
The Marine Mammal Center	Sausalito, CA	SA	Pinnipeds, Small Cetaceans
Long Marine Laboratory, University of California at Santa Cruz	Santa Cruz, CA	SA	Small Cetaceans
Long Beach Animal Control	Long Beach, CA	109(h)	N/A
Santa Barbara Marine Mammal Center	Santa Barbara, CA	SA	Pinnipeds, Small Cetaceans
Santa Barbara Museum of Natural History	Santa Barbara, CA	SA	N/A
Fort MacArthur Marine Mammal Care Center	San Pedro, CA	SA	Pinnipeds, Small Cetaceans
Pacific Marine Mammal Center	Laguna Beach, CA	SA	Pinnipeds, Small Cetaceans
SeaWorld San Diego	San Diego, CA	SA	Pinnipeds, Small Cetaceans
Los Angeles County Museum of Natural History	Los Angeles, CA	SA	N/A
Moss Landing Marine Laboratories	Moss Landing, CA	SA	N/A
NMFS Southwest Fisheries Science Center	La Jolla, CA	109(h)	N/A
California Academy of Sciences, Department of Ornithology & Mammalogy	San Francisco, CA	SA	N/A
Humboldt State University, Vertebrate Museum	Arcata, CA	SA	N/A
California Wildlife Center	Malibu, CA	109(h)	N/A
Marine Animal Rescue	Topanga, CA	109(h)	N/A
Channel Islands Marine and Wildlife Institute	Goleta, CA	SA	Pinnipeds, Small Cetaceans
Los Angeles County Lifeguards	Los Angeles County, CA	109(h)	N/A
Wildrescue	Malibu, CA	109(h)	N/A
NMFS Northwest Region			
Cascadia Research Collective	Olympia, WA	Contingency Plan	N/A
Central Puget Sound Marine Mammal Stranding Network	Whidbey Island, WA	SA	N/A
Dungeness National Wildlife Refuge	Port Angeles, WA	109(h)	N/A

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Northwest Region (continued)			
Edmonds Animal Control	Edmonds, WA	109(h)	N/A
Makah Tribe	Neah Bay, WA	Contingency Plan/Designee (NMFS, NWR)	N/A
NMFS, Northwest Regional Office	Seattle, WA	109(h)	N/A
NMFS, Northwest Fisheries Science Center	Seattle, WA	109(h)	N/A
NMFS, National Marine Mammal Laboratory	Seattle, WA	109(h)	N/A
Olympic Coast National Marine Sanctuary	Port Angeles, WA	109(h)	N/A
Olympic Coast National Park	Port Angeles, WA	109(h)	N/A
Point Defiance Zoo and Aquarium	Tacoma, WA	Contingency Plan	Inactive
East Jefferson County Marine Mammal Stranding Network	Port Townsend, WA	SA	N/A
Progressive Animal Welfare Society	Lynwood, WA	Contingency Plan	Pinnipeds
Killer Whale Tales	Seattle, WA	Designee (NMFS, NWR)	N/A
Seattle Animal Control	Seattle, WA	109(h)	N/A
Seattle Parks and Recreation	Seattle, WA	109(h)	N/A
San Juan County Marine Mammal Stranding Network	Friday Harbor, WA	Contingency Plan	N/A
The Whale Museum	Friday Harbor, WA	SA	N/A
Washington Department of Fish and Wildlife	Olympia, WA	109(h)	N/A
Whatcom County Marine Mammal Stranding Network	Bellingham, WA	Designee (NMFS, NWR)	N/A
Wolf Hollow Wildlife Rehabilitation Center	Friday Harbor, WA	Contingency Plan	Pinnipeds
Wolftown Rehabilitation	Vashon Island, WA	Designee (NMFS, NWR)	N/A
Free Flight Wildlife Rehabilitation Center	Bandon, OR	Designee (NMFS, NWR)	Pinnipeds
Oregon State Police	Statewide	109(h)	N/A
Oregon Coast Aquarium	Newport, OR	Designee (NMFS, NWR)	Inactive
Oregon Department of Fish and Wildlife	Salem, OR	109(h)	N/A
Oregon Institute of Marine Biology	Charleston, OR	SA	N/A
Oregon State University	Newport, OR	SA	N/A
Portland State University	Portland, OR	SA	N/A

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Alaska Region			
Alaska SeaLife Center	Seward, AK	SA	Pinnipeds, Small Cetaceans
Aleut Community of St. Paul Island Tribal Government	St. Paul Island, AK	SA	N/A
Alaska Sea Otter and Stellar Sea Lion Commission	Anchorage, AK	SA	N/A
Alaska Whale Foundation	Petersburg, AK	SA	N/A
University of Alaska Fairbanks-Museum of the North	Fairbanks, AK	SA	N/A
Andy Aderman, Togiak National Wildlife Refuge	Dillingham, AK	109(h)	N/A
Kimberly Beckman, Alaska Department of Fish and Game	Fairbanks, AK	109(h)	N/A
Jamie King, Alaska Department of Fish and Game	Haines, AK	109(h)	N/A
Reid Brewer, University of Alaska, Fairbanks/Sea Grant	Dutch Harbor, AK	Affiliate with Kate Wynne's SA	N/A
Dr. Kathy Burek	Eagle River, AK	Affiliate w/ASLC's SA	N/A
Gary Frietag, Southern Southeast Regional Aquaculture Association	Ketchikan, AK	SA	N/A
Chris Gabriele, National Park Service, Glacier Bay National Park	Glacier Bay, AK	109(h)/SA	N/A
Eileen Henniger, Yakutat Tribe	Yakutat, AK	109(h)	N/A
Lauri Jemison, Alaska Department of Fish and Game	Juneau, AK	109(h)	N/A
North Gulf Oceanic Society	Homer, AK	SA	N/A
Lori Quakenbush, Alaska Department of Fish and Game	Fairbanks, AK	109(h)	N/A
Gay Sheffield, Alaska Department of Fish and Game	Nome, AK	109(h)	N/A
Jan Straley, University of Alaska Southeast, Sitka Campus	Sitka, AK	SA	N/A
Dr. Rachel Dziuba, Bridge Veterinary Services	Juneau, AK	SA	N/A
Jamie Womble, National Park Service, Glacier Bay National Park	Juneau, AK Glacier Bay, AK	109(h)	N/A
Kate Wynne, University of Alaska, Fairbanks/Sea Grant	Kodiak, AK	SA	N/A
NMFS Pacific Islands Region			
American Samoa Department of Marine and Wildlife Resources	Pago Pago, AS	SA/109(h)	N/A
Guam Department of Agriculture	Hagatana, GU	SA/109(h)	N/A
Hawaii Pacific University (HPU)	Honolulu, HI	SA	N/A

Organization/Individual	Location	Authority	Rehabilitation (NMFS Species)
NMFS Pacific Islands Region (continued)			
Hawaiian Islands Humpback Whale National Marine Sanctuary	Kihei, HI	109(h)	N/A
Maui Marine Mammal Response Program	Kihei, HI	TBD	N/A
Hawaii State Division of Aquatic Resources	Honolulu, HI	109(h)	N/A
Northern Mariana College	Saipan, MP	SA/109(h)	N/A
University of Hawaii, Hilo	Hilo, HI	Designee of HPU	N/A
NMFS Pacific Islands Fisheries Science Center	Honolulu, HI	109(h)	Pinnipeds

Marine Mammal Disentanglement Network

Individual	Organization	Location	Responder Level
NMFS Northeast Region			
Charles Mayo	Provincetown Center for Coastal Studies (PCCS)	Provincetown, MA	5
Scott Landry	PCCS	Provincetown, MA	5
David Morin	NMFS, Northeast Regional Office, Protected Resources Division	Gloucester, MA	5
Chris Slay	New England Aquarium (NEAQ)	Boston, MA	5
Jamison Smith	NMFS, Northeast Regional Office, Protected Resources Division	Gloucester, MA	4
Mackie Greene	Campobello Whale Rescue Team	Campobello Island, New Brunswick, Canada	4
Brian Sharp	PCCS	Provincetown, MA	4
Sean Todd	Allied Whale, College of the Atlantic	Bar Harbor, ME	3
Michael Neelon	N/A	ME	3
Tom Fernald	N/A	ME	3
Jooke Robbins	PCCS	Provincetown, MA	3
Moira Brown	NEAQ	Boston, MA	3
Lisa Conger	NEAQ	Boston, MA	3
Amy Knowlton	NEAQ	Boston, MA	3
Monica Zani	NEAQ	Boston, MA	3
Scott Kraus	NEAQ	Boston, MA	3
Phil Hamilton	NEAQ	Boston, MA	3
Steve Brown	International Fund for Animal Welfare (IFAW)	Onboard IFAW's Song of the Whale	3
Timothy Cole	NMFS, Northeast Fisheries Science Center	Woods Hole, MA	3
Fred Wenzel	NMFS, Northeast Fisheries Science Center	Woods Hole, MA	3
Lisa Sette	PCCS	Provincetown, MA	3
Glenn Salvador	NMFS, Northeast Regional Office	Belle Haven, VA	3
Mark Swingle	Virginia Aquarium and Marine Science Center	Virginia Beach, VA	3
Susan Barco	Virginia Aquarium and Marine Science Center	Virginia Beach, VA	3
Jeff Thompson	Virginia Aquarium and Marine Science Center	Virginia Beach, VA	3
NMFS Southeast Region			
Clay George	Georgia Department of Natural Resources (GADNR)	Brunswick, GA	4
Mark Dodd	GADNR	Brunswick, GA	4
William McLellan	Biological Sciences and Center for Marine Science, University of North Carolina, Wilmington	Wilmington, NC	3
Andrew Read	Duke University Marine Laboratory	Beaufort, NC	3
Andrew Westgate	Duke University Marine Laboratory	Beaufort, NC	3

Individual	Organization	Location	Responder Level
NMFS Southeast Region (continued)			
Keith Rittmaster	North Carolina Maritime Museum	Beaufort, NC	3
Adam MacKinnon	GADNR	Brunswick, GA	3
Brad Winn	GADNR	Brunswick, GA	3
Kate Sparks	GADNR	Brunswick, GA	3
Tom Pitchford	Florida Fish and Wildlife Conservation Commission (FWC)	Jacksonville, FL	3
Andy Garrett	FWC	Jacksonville, FL	3
Barb Zoodsma	NMFS, Southeast Regional Office, Protected Resources Division	Fernandina Beach, FL	3
Anthony Martinez	NMFS, Southeast Fisheries Science Center	Miami, FL	3
Alicia Windham-Reid	U.S. Geological Survey	Gainesville, FL	3
Bill Foster	N/A	NC	3
John Pieno	N/A	NC	3
Lou Browning	N/A	NC	3
NMFS Alaska Region			
Kate Wynne	University of Alaska Fairbanks /Sea Grant	Kodiak, AK	4
Chris Gabriele	Glacier Bay National Park	Tenakee Springs, AK	4
Jan Straley	University of Alaska Southeast	Sitka, AK	4
Fred Sharpe	Alaska Whale Foundation	Petersburg, AK	4
Pieter Folkens	Alaska Whale Foundation	Petersburg, AK	3
Sean Hanser	Alaska Whale Foundation	Petersburg, AK	3
Sara Graef	Alaska Whale Foundation	Petersburg, AK	3
Bree Witteveen	University of Alaska Fairbanks /Sea Grant	Kodiak, AK	3
Steve Lewis	N/A	Tenakee Springs, AK	3
Dan Vos	N/A	Anchorage, AK	3
Bob Foy	University of Alaska Fairbanks	Kodiak, AK	3
Mark Witteveen	Alaska Department of Fish and Game	Kodiak, AK	3
Jim Wisher	NMFS Office of Law Enforcement	Homer, AK	3
Tim Lebling	Alaska Sea Life Center	Seward, AK	3
Janet Neilson	Glacier Bay National Park		3
Don Holmes	Petersburg Marine Mammal Center	Petersburg, AK	3
Barry Bracken	Petersburg Marine Mammal Center	Petersburg, AK	3
Dennis Thaute	NMFS Office of Law Enforcement	Homer, AK	3
Aleria Jensen	NMFS Alaska Regional Office, Protected Resources Division	Juneau, AK	3
Kaja Brix	NMFS Alaska Regional Office, Protected Resources Division	Juneau, AK	3
NMFS Pacific Islands Region			
Edward Lyman	NOS, Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS)	Kihei, Maui, HI	5
David Mattila	NOS, HIHWNMS	Kihei, Maui, HI	5
Joe Arcenaux	NOAA, Pacific Islands Regional Office	Oahu, HI	3

Individual	Organization	Location	Responder Level
NMFS Pacific Islands Region (continued)			
Bart Bottoms	Veterinarian	HI	3
Brent Carman	Hawaii Department of Land and Natural Resources (DLNR)	Hawaii, HI	3
Marie Chapla-Hill	NOAA, Pacific Islands Fisheries Science Center	Oahu, HI	3
Mark Deakos	Hawaii Marine Mammal Research	Maui, HI	3
Skippy Hau	Hawaii DLNR	Maui, HI	3
Alistair Hebard	NOS, HIHWNMS	Kihei, Maui, HI	3
Ben LaCour	NOS, HIHWNMS	Kihei, Maui, HI	3
Greg Levine	N/A	Oahu, HI	3
Allan Ligon	NOS, HIHWNMS	Maui, HI	3
Charles Littnan	NOAA, Pacific Islands Fisheries Science Center	Oahu, HI	3
John Mitchell	Hawaii DLNR	Oahu, HI	3
David Nichols	Hawaii DLNR	Oahu, HI	3
Adam Pack	University of Hawaii, Hilo	Hawaii, HI	3
Rod Quigley	MOC	HI	3
Susan Richards	Hawaiian Marine Mammal Consortium	Hawaii, HI	3
David Schofield	NMFS, Pacific Islands Regional Office	Oahu, HI	3
Russell Sparks	Hawaii DLNR	Maui, HI	3
Kosta Stamoulis	Hawaii DLNR	Maui, HI	3
Grant Thompson	KIRC	HI	3
Jason Turner	University of Hawaii, Hilo	Hawaii, HI	3
Vaughan Tyndzik	Hawaii DLNR	Kauai, HI	3
Justin Viezebicke	NOS, HIHWNMS	Hawaii, HI	3
Jeff Walters	Hawaii DLNR	Oahu, HI	3
Paul Wong	NOS, HIHWNMS	Oahu, HI	3
Suzanne Yin	Hawaiian Marine Mammal Consortium	Hawaii, HI	3
Chad Yoshinago	NOAA, Pacific Islands Fisheries Science Center	Oahu, HI	3
NMFS Southwest Region			
*The NMFS Southwest Region Disentanglement Network is currently in development, and Responder Levels have not been designated. Below are the current Disentanglement Team Leads.			
David Casper	Long Marine Laboratory, University of California, Santa Cruz	Santa Cruz, CA	N/A
Pieter Folkens	Alaska Whale Foundation	Benecia, CA	N/A
Dean Gomersall	Pacific Marine Mammal Center	Laguna Beach, CA	N/A
Jim Harvey	Moss Landing Marine Laboratories	Moss Landing, CA	N/A
Peter Howorth	SBMMC Santa Barbara Marine Mammal Center	Santa Barbara, CA	N/A
Peter Wallerstein	Marine Animal Rescue	Topanga, CA	N/A
Keith Yip	SeaWorld San Diego	San Diego, CA	N/A
NMFS Northwest Region			
*The NMFS Northwest Region Disentanglement Network is currently in development, and Responder Levels have not been designated.			

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Final Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program

February 2009

Volume III: Appendices G-N

National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

APPENDIX G

NMFS PERMIT NO. 932-1489-10

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUN 20 2008

Teri Rowles, D.V.M., Ph.D.
National Coordinator, MMHSRP
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Dr. Rowles:

Enclosed is an amendment to Permit No. 932-1489-09, for enhancement and research activities on marine mammals. The amendment has been assigned Permit No. 932-1489-10 and the changes to specific Terms and Conditions are reflected in bold font in the attached permit. This permit amendment is effective upon your signature and valid through June 30, 2009 or until the new permit (application File No. 932-1905) is issued, whichever comes first. Please note that this permit amendment replaces all previous versions of the permit.

Both an original and a "file copy" of the signature page are enclosed with your amended permit. Please sign and date both signature pages where indicated, keeping the original with the permit for your records. You must return the "file copy" signature page, with your dated signature, to this office as proof of your acceptance of the permit. Please return the signature page marked "file copy" to the Chief, Permits Division (F/PR1), 1315 East-West Highway, Silver Spring, MD 20910. You may also submit the "file copy" of the signature page by facsimile to 301-427-2521 and confirm it by mail.

As the Responsible Party of this amended permit, you are ultimately responsible for all activities of any individual operating under its authority. Therefore, you should read all sections of the amended permit carefully before signing it and before conducting any activities pursuant to the amended permit. If you have any problems or questions, please contact Amy Sloan or Carrie Hubard at 301-713-2289 before signing the amended permit.

Sincerely,

P. Michael Payne
Chief, Permits, Conservation
and Education Division
Office of Protected Resources

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

NMFS Permit No. **932-1489-10**
Expiration Date: **June 30, 2009**

SCIENTIFIC RESEARCH and ENHANCEMENT PERMIT TO TAKE MARINE MAMMALS

Authorization

The Marine Mammal Health and Stranding Response Program (MMHSRP), Office of Protected Resources, National Marine Fisheries Service (NMFS) [Responsible Party and Principal Investigator (PI): Dr. Teri Rowles], is hereby authorized to take marine mammals in the manner specified below for the purpose of scientific research and enhancement, subject to the provisions of the Marine Mammal Protection Act of 1972 (MMPA; 16 U.S.C. 1361 *et seq.*), the Regulations Governing the Taking and Importing of Marine Mammals (50 CFR part 216), the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*), the Regulations Governing the Taking, Importing, and Exporting of Endangered and Threatened Fish and Wildlife (50 CFR parts 222-226), the Fur Seal Act of 1966, as amended (FSA; 16 U.S.C. 1151 *et seq.*), and the Terms and Conditions hereinafter set out. **This permit, as amended, supersedes all previous versions.**

Abstract

The purposes of the authorized activities, as stated in the application, are to: (1) collect, receive, preserve, label, and transport marine mammal cadavers, hard parts, tissue, and fluid samples for physical, chemical, or biological analyses, import, and export; (2) take stranded or distressed marine mammals and endangered or threatened species; (3) salvage specimens from dead marine mammals and endangered or threatened species; (4) conduct aerial surveys to locate imperiled marine mammals or survey the extent of disease outbreaks or die-offs; (5) harass marine mammals on land incidental to other MMHSRP activities authorized by this permit; and (6) develop and maintain cell lines from species under NMFS jurisdiction.

A. Number and Kind(s) of Marine Mammals and Location(s) [50 CFR 217.36(a)(i)]

1. PROJECT I - SPECIMEN COLLECTION: MARINE MAMMAL AND ENDANGERED OR THREATENED SPECIES

a. At any time of the year, the Permit Holder, PI, and Co-investigators (CIs) [hereinafter "Researchers"] may, subject to the conditions herein, collect, receive, analyze, archive, and import/export (worldwide), unlimited numbers and kinds of specimens, including cell lines, from the following marine mammal and endangered or threatened species:

1) Order Cetacea; and
2) Order Pinnipedia (except walrus).

b. The specimens authorized in A.1.a. may be taken from any of the following sources:

1) On-going live animal capture/release programs as authorized under Part A.2.

2) Live animal capture/release as part of a disease, emergency response or die-off investigation;

3) Live animals stranded or in rehabilitation (specimens may include biopsies);

4) Captive animals when sampling is beyond the scope of normal husbandry;

5) Directly taken in fisheries for such animals where such taking is legal and humane;

6) Killed during subsistence harvests by native communities;

7) Killed incidental to commercial fishing operations;

8) Killed incidental to other human activities (e.g., ship strikes, blasting, etc.);

9) Found dead on the beach or at sea;

10) Found dead as part of NOAA investigations (e.g., hazmat spills, oil spills, harmful algal blooms, etc.);

11) Found on the beach or on land within 1/4 mile of the ocean (bones, teeth or ivory of any dead animal);

12) Soft parts sloughed, excreted, or discharged; or

13) Specimens from other permitted research and authorized activities.

c. Researchers may receive/possess samples taken from species of the Order Sirenia, polar bear (*Ursus maritimus*), sea otter (*Enhydra lutris*), and marine otter (*Lontra felina*).

2. PROJECT II - ENHANCEMENT ACTIVITIES: MARINE MAMMALS AND ENDANGERED OR THREATENED SPECIES

a. Researchers may "take", as defined in the MMPA and ESA[1], live marine mammals that are stranded; entangled; disentangled; trapped out of habitat; in peril (e.g., in vicinity of an oil spill); injured; part of a population that is experiencing or has experienced a die-off, unusual mortality event, or repeat morbidity/mortality event; extra-limital; and nuisance marine mammals and endangered or threatened species by the following activities:

1) Capture/release or if capture is not necessary, use means available (as approved by the Permit Holder/PI or a CI) to lure trapped or nuisance animals out to sea or deter them away from an area of imminent danger;

2) Treat distressed conditions, including temporary captivity in an adequate treatment or rehabilitation facility;

3) Disentangle from gear, ropes or other material which may be adversely affecting the animal;

4) Transport for rehabilitation or return to wild;

5) Attach tags to and/or biopsy; conduct auditory brainstem response and auditory evoked potential procedures; or

6) Euthanize animals for humane or medical reasons (see B.2.b.).

b. Researchers may harass marine mammals during aerial surveys to locate imperiled marine mammals or to survey the extent of a disease outbreak or die-off.

c. Researchers may harass marine mammals on land incidental to MMHSRP activities authorized by this permit.

[1]As defined in the MMPA and promulgating regulations, "take" means to harass, hunt, collect, capture, or kill, or to attempt to harass, hunt, collect capture, or kill any marine mammal; as defined in the ESA, "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect, or attempt to engage in such conduct.

3. PROJECT III - IMPORT/EXPORT OF LIVE MARINE MAMMALS [MMPA §109(h)]

a. At any time of the year, Researchers may import/export (worldwide), non-listed marine mammals, for medical treatment, from the following species:

1) Order Cetacea (except endangered or threatened species); and

2) Order Pinnipedia (except walrus and endangered species).

B. Research/Enhancement Conditions [50 CFR 216.36(b)]

1. PROJECT I - SPECIMEN COLLECTION: MARINE MAMMALS AND ENDANGERED OR THREATENED SPECIES

a. The Working Group on Unusual Marine Mammal Mortality Events (WGUMMME) will provide advice on any live animal investigative activities.

b. Only experienced and trained personnel will perform any live animal investigative activities.

c. Samples in A.1.c. may be acquired and possessed only if the samples were taken under authority of a U.S. Fish and Wildlife Service permit or authorization and samples were taken in a humane manner.

2. PROJECT II - ENHANCEMENT ACTIVITIES: MARINE MAMMALS AND ENDANGERED OR THREATENED SPECIES

a. Tagging

1) Prior to release, Researchers may tag marine mammals and threatened or endangered species undergoing rehabilitation;

2) Animals entangled in rope or other debris may be tagged and monitored; and

3) Only experienced personnel can apply and deploy tags by acceptable means.

b. Euthanasia

1) For ESA-listed species, the NMFS National Stranding Coordinator(s) must be consulted and provide approval (verbal or written), in advance, of euthanasia for humane or medical purposes; and

2) For both MMPA and ESA-listed species, euthanasia must only be performed by an attending, experienced, and licensed veterinarian or other qualified individual according to applicable laws governing state veterinary practices.

3. PROJECT III - IMPORT/EXPORT OF LIVE MARINE MAMMALS (MMPA §109(h))

a. Researchers may only import or export non-listed marine mammals for medical treatment, rehabilitation or return to wild (including the return of extra-limital animals).

b. The Convention on International Trade in Endangered Species (CITES) shall apply to imports and exports authorized in this Project.

4. PROJECTS I, II and III

a. The following individuals may participate in the conduct of the activities authorized herein: Teri Rowles, Ph.D., D.V.M. (Responsible Party/PI) and Janet Whaley, D.V.M. (CI). Dr. Rowles or Dr. Whaley may designate additional individuals to participate as CIs in the conduct of the research and enhancement activities authorized herein. Each additional CI must receive a letter from Dr. Rowles or Dr. Whaley confirming his/her status and detailing specific roles and responsibilities, attached to a copy of this permit. Designation of CIs is at the sole discretion of the Permit Holder/PI and may be rescinded at any time.

b. The Permit Holder/PI, or an identified CI with approval of the Permit Holder/PI, may designate members of the National Stranding or Disentanglement Network that hold Stranding Agreements, other network participants, and/or other federal, state or local agencies or their employees, and other qualified individuals as agents of the Permit Holder/PI authorized under this permit to conduct activities authorized herein.

c. Researchers may conduct activities by the means and for the purposes described in the application, as limited by the Terms and Conditions of this

permit, and as otherwise authorized by the Permit Holder/PI or identified CIs.

d. For marine mammal and endangered species stranding response activities (including capture/release activities), the Permit Holder/PI and/or CIs must:

1) Notify the Permits, Conservation and Education Division, Office of Protected Resources (hereinafter "Permits Division"), prior to any capture/release activities;

2) Only perform capture/release activities as advised by the WGUMMME for any live animal investigative activities (B.1.a.);

3) Only perform capture/release activities in conjunction with researchers and managers for that stock or species;

4) Process animals in small groups;

5) Minimize handling time;

6) Exercise caution when approaching all animals, particularly female/pup or female/calf pairs;

7) Monitor all biopsy or tagging sites for possible infection;

8) Keep animals cool and wet during triage and/or transport (when appropriate);

9) Use standardized, humane methods for sterilization and sample collection; and

10) Use scientifically reviewed and acceptable tagging and biopsy sampling techniques that are not considered controversial. In no instance will Researchers attempt to biopsy a cetacean anywhere on the front half of the animal.

e. For large whale disentanglements, Researchers must:

1) Approach the whales gradually to minimize or avoid any sort of startle response;

2) Use caution when approaching mothers and calves; and

3) For the safety of the Researchers and whales, only use individuals that have been sufficiently trained, to the satisfaction of the Permit Holder/PI, to disentangle animals.

f. Researchers must perform all activities and collect all samples in a humane manner.

g. Researchers must not kill any animal for the express purpose of providing specimens to be obtained and/or imported/exported under this permit.

h. Researchers must assign a permanent catalogue number, including any prior identification numbers, to all individuals or samples.

5. IMPORT/EXPORT REQUIREMENTS

a. Researchers must not import specimens into the United States from marine mammals:

1) Taken illegally in the country of origin or taken in a directed fishery, unless such taking is legal and humane;

2) Taken in any high seas driftnet fishery after December 31, 1992;

3) Taken during any commercial whaling operation or any scientific whaling operation which does not meet the criteria established by the International Whaling Commission at the time of taking; or

4) Deliberately killed for the purposes of fulfilling this permit.

b. Researchers must comply with the requirements of the CITES for import and export [50 CFR part 23].

c. Marine mammals and marine mammal parts imported under the authority of this permit must be taken, imported or exported in a humane manner, and in compliance with the Acts and any applicable foreign law. Importation of marine mammals and marine mammal parts is subject to the provisions of 50 CFR parts 14 and 216.

d. All specimens imported into the United States must be accompanied by documentation giving a description of each animal from which specimen materials were taken including, if possible:

1) Identification, age, size, sex, reproductive condition;

2) Date and location of collection;

3) Circumstances causing the death; and

4) The date and port of entry of each location.

e. Any marine mammal part imported under the authority of this scientific research permit must not have been obtained as the result of a lethal taking that would be inconsistent with the Acts, unless specifically authorized in writing by the Office Director.

f. The Permit Holder/PI must maintain records of the types, species, and numbers of specimens imported or exported, the importing or exporting country for each shipment, and circumstances surrounding the specimen acquisition (i.e., stranding, subsistence harvest, etc.).

g. All specimen materials obtained under this authority shall be maintained according to accepted curatorial standards.

h. Designated Ports of Entry: The USFWS Customs ports of entry (see Attachment A) are designated for the importation or exportation of wildlife and are referred to hereafter as "designated ports" (50 CFR 14.12). Please notify the USFWS wildlife inspectors at these ports at least 48 hours prior to import or export.

To use a port of entry other than the designated ports listed in Attachment A, Researchers must obtain a Designated Port Exception Permit from the USFWS as required in 50 CFR 14.31 and 14.32. Additional information may be obtained from the USFWS website. http://permits.fws.gov/.

6. DISPOSITION OF PARTS

a. After completion of initial research goals, Researchers must deposit any remaining samples or specimens into a *bona fide* scientific collection that meets the minimum standards of collection, curation, and data cataloging as established by the scientific community.

b. Researchers may dispose of carcasses, skeletal material, and soft parts from marine mammals and endangered species, as deemed appropriate and as limited by the MMPA, ESA, and FSA.

7. Transfer of Specimens (50 CFR 216.37): Marine mammal and endangered species parts taken or imported under authority of this permit may be transferred by the Permit Holder/PI or CI(s) provided:

   a. Marine mammal parts, including cell lines, are not bought or sold.

   b. Specimens are transferred for research [including analysis, diagnostics and archival in a laboratory], maintenance in a scientific collection, or for education[2] purposes.

   c. Recipients of marine mammal parts adhere to the Terms and Conditions of this permit, regulations at 50 CFR 216.37, and any additional conditions required by the Permit Holder/PI.

   d. Recipients of cell lines are designated as CIs under this permit or are holders of a special exception permit for scientific research and/or enhancement activities that includes development or research on cell lines, of the same species of marine mammal and/or endangered species.

8. The authority of this permit will extend from the date of issuance through **June 30, 2009**. The Terms and Conditions of the permit will remain in effect as long as the Researchers maintain the authority and responsibility of the marine mammal specimens collected, received, or imported hereunder. Attached is section 216.37 of the Regulations Governing the Taking and Importing of Marine Mammals that contains additional conditions applicable to maintaining marine mammal parts. These regulations are made a part hereof.

C. Notifications/Coordination [50 CFR 216.36]

1. The Permit Holder/PI or CIs must notify the appropriate NMFS Assistant Regional Administrator for Protected Resources (see Attachment C) regarding events occurring in that Region. This notification must include (when possible) a description of the proposed activity, location, dates, and duration of activities.

2. If the events occur within the boundaries of a National Marine Sanctuary, the Permit Holder/PI or CIs must notify the Sanctuary Manager at the appropriate Sanctuary Office listed in Attachment C. When possible, this notification must include specific dates, locations, and participants involved in the activities.

[2]In the case of transfers for educational purposes the recipient must be a museum or educational institution or equivalent that will ensure that the part is available to the public as part of an educational program.

3. To the maximum extent practical, the Permit Holder must coordinate permitted activities with activities of other Permit Holders conducting the same or similar activities on the same species, in the same locations, or at the same times of year to avoid unnecessary disturbance of animals. The appropriate Regional Office may be contacted (see Attachment C) for information about coordinating with other Permit Holders.

D. Reporting Conditions [50 CFR 216.38]

1. ANNUAL REPORT

Each year the permit is valid, the Permit Holder/PI must submit an annual report of research by March 31 of each year. The report shall cover research conducted during the previous year ending December 31 and describe the specific activities that have been conducted. For each marine mammal part taken, imported, exported or otherwise affected pursuant to permitted activities, the annual report must include the following:

a. Carcasses/parts:

1) A description of the part and its assigned identification number;

2) Source, collector, country of origin, and authorizing government agency (for imported samples) for each sample reported;

3) A summary of the research analysis conducted on the samples; and

4) A description of the disposition of any marine mammal parts, including an identification of the part as required §216.37(a)(4) and the manner of disposition.

b. Live animal activities:

A description of the species, numbers of animals, locations of activities, and types of activities for:

1) Live captures;

2) Stranding response/disentanglement of marine mammals and endangered/threatened species;

3) Specimen collections;

4) Euthanasia (including reason for euthanasia, drugs used, etc.); and

5) Incidental harassment during aerial surveys and land activities.

Please also describe the animals' reactions to any of the above activities.

2. FINAL REPORT

Upon completion of the research, the Permit Holder/PI must submit a final report within 180 days of the last annual report. A final report should include information requested in 1 above, and:

a. A summary of research objectives and results of research as it relates to the objectives; and

b. An indication as to when and where the research results will be published

3. Researchers must submit all reports and any papers or manuscripts published as a result of the research authorized herein, to the Director, Office of Protected Resources, NMFS, 1315 East-West Hwy., Silver Spring, Maryland 20910.

E. Photography/Filming Restrictions [50 CFR 216.36]

1. Researchers working under this permit must obtain prior approval by the Permits Division for the following:

a. Non-research related (i.e., commercial) use of photographs, video and/or film that were taken to achieve the research objectives; and

b. All activities not essential to achieving the research objectives (e.g., still photography, videotaping, motion picture film making). Such activities must not influence the conduct of research in any way.

2. Researchers are hereby notified that failure to obtain NMFS approval prior to conducting or facilitating such activities will be considered a violation of the permit. The Permit Holder/PI and Researchers must agree, upon request by NMFS, to make space available on the vessel or aircraft for a NMFS observer during any trips where activities identified in E.1.b. may be conducted.

3. Any commercial/documentary film approved for use must include a credit, acknowledgment, or caption indicating that the research was conducted under a permit issued by NMFS under the authority of the MMPA and/or the ESA.

F. General Conditions [50 CFR 216.35 and 216.36]

1. The Permit Holder/PI is ultimately responsible for all activities of any individual who is operating under the authority of the permit.

   Co-investigators (CIs): The PI may designate additional CIs, provided that a copy of the letter designating the individual to conduct the activities authorized herein, and a copy of the individual's curriculum vitae is provided to the Permits Division by facsimile on the day of designation and confirmed by mail. The PI must ensure that the letter designating the individual(s) contains specific restrictions and a copy of the permit is attached to the designation letter.

2. Research Assistants are individuals who work under the direct supervision of the PI or CI(s) and who are authorized, for example, to record data, serve as safety observers and boat tenders, or handle and process samples.

   a. Restrictions: Underwater observations and/or photography and operation of vessels may only be performed by personnel with documented experience (e.g., professional and/or experienced photographers/videographers or licensed and/or experienced boat operators).

   b. Photographer/videographer: A professional and/or experienced videographer/photographer under the direct, on-site supervision of the Researchers may conduct activities requiring underwater observations and/or photography. The Permit Holder/PI or CI(s) must be present at all times when activities are being conducted.

3. Individuals conducting activities authorized under the permit must possess qualifications commensurate with his/her duties and responsibilities, or must work under the direct supervision of the PI or CI.

4. Persons who require state, Federal, or foreign licenses to conduct activities authorized under the permit must be duly licensed when undertaking such activities.

5. The Permit Holder cannot transfer or assign the permit to any other person. If the Permit Holder requests authorization to add a person to this permit, the Permit Holder cannot require compensation from the individual, in exchange for this request.

6. The Permit Holder and all other persons operating under the authority of this permit must possess a copy of the permit when engaged in a permitted activity, when a marine mammal is in transit incidental to such activity, and whenever marine mammals or marine mammal parts are in the possession of such persons. A duplicate copy of this permit must be attached to the container, package, enclosure,

or other means of containment, in which the marine mammals or marine mammal parts are placed for purposes of storage, transit, supervision, or care.

Activities conducted by the United States Coast Guard personnel authorized as Co-Investigators, LANTAREA will keep a copy of the permit on file for reference landside at each of the following in Districts 1, 5, 7, and 8: General Counsel offices, OPCON, each Station/Group/Activities office; and at the Offices of Law Enforcement. LANTAREA will also advise vessels 87' and greater to keep a copy of the permit on board.

7. Inspection: Upon request by NMFS personnel or agents designated by the Director, Office of Protected Resources, the Permit Holder must make available for inspection, any records collected under authority of this permit.

8. Permit Amendments: The Director, Office of Protected Resources, NMFS, may amend the provisions of this permit upon reasonable notice.

9. No remuneration, either financial or in-kind, may be offered for the taking of animals from the wild. This does not preclude the payment of legitimate collection and transportation expenses (e.g., hiring staff, freight costs). It does, however, apply to paying bounties or incentive pay for the removal of animals from the wild.

11. Any falsification of information pertaining to the permitted activities, including information provided to NOAA personnel, will be considered a violation of the permit.

12. The Permit Holder/PI, in signing this permit, has accepted and will comply with the provisions of this permit, applicable Regulations (50 CFR parts 216 and 222-226), and the MMPA, ESA, and FSA.

G. Penalties and Permit Sanctions (50 CFR 216.40)

1. Any person who violates any provision of this permit is subject to civil and criminal penalties, permit sanctions, and forfeiture as authorized under the MMPA, ESA and 15 CFR part 904 [Civil Procedures] and 50 CFR part 11.

2. All permits are subject to suspension, revocation, modification, and denial in accordance with the provisions of subpart D [Permit Sanctions and Denials] of 15 CFR part 904 and 50 CFR part 13.

JUN 20 2008

James H. Lecky
Director
Office of Protected Resources
National Marine Fisheries Service

Date

June 23, 2008

Teri Rowles, Ph.D., D.V.M.
Responsible Party/Principal Investigator
Marine Mammal Health and Stranding
Response Program
Office of Protected Resources
National Marine Fisheries Service

Date

Attachment A: U.S. Fish and Wildlife Service Wildlife Inspectors, Division of Law Enforcement

DESIGNATED PORTS	
Anchorage P.O. Box 190045 Anchorage, Alaska, USA 99519 Phone: (907) 271-6198 Fax: (907) 271-6199	Los Angeles 370 Amapola Ave. #114 Torrance, California 90501 Phone: (310)328-6307 Fax: (310)328-6399
Atlanta P.O. Box 45287 Atlanta, Georgia 30320 Phone: (404)763-7959 Fax: (404)763-7560	Miami 10426 N.W. 31st Terrace Miami, Florida 33172 Phone: (305)526-2610 Fax: (305)526-2695
Baltimore 40 S. Gay Street, #223 Baltimore, Maryland 21202 Phone: (410)865-2127 Fax: (410)865-2129	New Orleans 2424 Edenborn, Room 100 Metairie, Louisiana 70001 Phone: (504)219-8870 Fax: (504)219-8868
Boston 70 Everett Avenue, Suite 315 Chelsea , Massachusetts 02150 Phone: (617)892-6616 Fax: (617)889-1980	New York 70 E. Sunrise Hwy. #419 Valley Stream, New York 11580 Phone: (516)825-3950 Fax: (516)825-1929 - Inspectors Fax: (516)825-3597 - Special Agents
Chicago Wildlife Inspection Program P.O. Box 66726 Chicago, Illinois 60666-0726 Phone: (773)894-2910 Fax: (773)894-2916	Newark 1210 Corbin St. SeaLand Bldg., 2nd Fl. Elizabeth, New Jersey 07201 Phone: (973)645-6171 Fax: (973)645-6533
Dallas/Ft. Worth 1717 West 23rd, Suite 104 DFW Airport, Texas 75261 Phone: (972)574-3254 Fax: (972)574-4669	Portland 7000 NE Airport Way, Rm. C2732 Portland, Oregon 97238 Phone: (503)231-6135 Fax: (503)231-6133

Honolulu 3375 Koapaka St., #F275 Honolulu, Hawaii 96819 Phone: (808)861-8525 Fax: (808)861-8515	San Francisco 1633 Old Bayshore Hwy., Ste. 248 Burlingame, California 94010 Phone: (650)876-9078 Fax: (650)876-9701
Seattle 2580 South 156th Street Seattle, Washington 98158 Phone: (206)764-3463 Fax: (206)764-3485	
U.S. Fish and Wildlife Service, Division of Law Enforcement NON-DESIGNATED PORTS[3]	
Blaine 9925 Pacific Highway Blaine, Washington 98230 Phone: (360)332-5388 Fax: (360)332-3010	Great Falls 2800 Terminal Dr. Suite #105 Great Falls, Montana, USA 59404 Phone: (406) 453-5790 Fax: (406) 453-3657
Brownsville 1500 E. Elizabeth St. #239 Brownsville, Texas 78520 Phone: (956)504-2035 Fax: (956)504-2289	Nogales 9 N. Grand Avenue #2229 A Nogales, Arizona 85621 Phone: (520)287-4633 Fax: (520)287-3877
Buffalo 405 N. French Road #120 B Amherst, New York 14228 Phone: (716)691-3635 Fax: (716)691-3990	Laredo Convent & Zaragoza Bridge #1, 200.9 Laredo, Texas 78040 Phone: (956)726-2234 Fax: (956)726-3718
Detroit Bldg. 830 2599 World Gateway Place Detroit Metro Airport, Michigan, USA 48242 Phone: (734) 247-6800 Fax: (734) 247-6805	Puerto Rico 651 FED. Dr. Suite 372-12 Guaynabo, PR 00965 Phone: (787) 749-4338 Fax: (787) 749-4340

[3]The USFWS Law Enforcement Division MUST authorize ALL non-designated port usage. If you prefer to use a non-designated port, please contact the appropriate Law Enforcement Office.

Dunsieth RR1, Box 115 Dunseith, North Dakota, USA 58329 Phone: (701) 263-4462 Fax: (701) 263-4463	San Diego 185 West F Street, Room 440 San Diego, California 92101 Phone: (619)557-5794 Fax: (619)557-2997
El Paso Bota, 3600 E. Paisano, #142A El Paso, Texas 79905 Phone: (915) 872-4765 Fax: (915)532-4776	Tampa 9549 Koger Blvd. #111 St. Petersburg, Florida 33702 Phone: (727)570-5398 Fax: (727)570-5450
Guam 415 Chalan San Antonio Road Baltej Pavillion, Suite 209 Tamuning, Guam 96913-3620 Phone: (671) 647-6064 Fax: (671) 647-6068	St. Paul/Minneapolis HHH Terminal 7100 34th Avenue S. Minneapolis, Minnesota 55450 Phone: (612)726-6302 Fax: (612)726-6303

Attachment B: 50 CFR §216.37 Marine mammal parts

With respect to marine mammal parts acquired by take or import authorized under a permit issued under this subpart:

(a) Marine mammal parts are transferrable if:

(1) The person transferring the part receives no remuneration of any kind for the marine mammal part;

(2) The person receiving the marine mammal part is:

(i) An employee of NMFS, the U.S. Fish and Wildlife Service, or any other governmental agency with conservation and management responsibilities, who receives the part in the course of their official duties;

(ii) A holder of a special exception permit which authorizes the take, import, or other activity involving the possession of a marine mammal part of the same species as the subject part; or

(iii) In the case of marine mammal parts from a species that is not depleted, endangered or threatened, a person who is authorized under section 112(c) of the MMPA and subpart C of this part to take or import marine mammals or marine mammal parts;

(iv) Any other person specifically authorized by the Regional Director, consistent with the requirements of paragraphs (a)(1) and (a)(3) through (6) of this section.

(3) The marine mammal part is transferred for the purpose of scientific research, maintenance in a properly curated, professionally accredited scientific collection, or education, provided that, for transfers for educational purposes, the recipient is a museum, educational institution or equivalent that will ensure that the part is available to the public as part of an educational program;

(4) A unique number assigned by the permit holder is marked on or affixed to the marine mammal part or container;

(5) The person receiving the marine mammal part agrees that, as a condition of receipt, subsequent transfers may only occur subject to the provisions of paragraph (a) of this section; and

(6) Within 30 days after the transfer, the person transferring the marine mammal part notifies the Regional Director of the transfer, including a description of the part, the person to whom the part was transferred, the purpose of the transfer, certification that the recipient has agreed to comply with the requirements of paragraph (a) of this section for subsequent transfers, and, if applicable, the recipient's permit number.

(b) Marine mammal parts may be loaned to another person for a purpose described in paragraph (a)(3) of this section and without the agreement and notification required under paragraphs (a)(5) and (6) of this section, if:

(1) A record of the loan is maintained; and

(2) The loan is for not more than one year. Loans for a period greater than 12 months, including loan extensions or renewals, require notification of the Regional Director under paragraph (a)(6).

(c) Unless other disposition is specified in the permit, a holder of a special exception permit may retain marine mammal parts not destroyed or otherwise disposed of during or after a scientific research or enhancement activity, if such marine mammal parts are:

(1) Maintained as part of a properly curated, professionally accredited collection; or

(2) Made available for purposes of scientific research or enhancement at the request of the Office Director.

(d) Marine mammal parts may be exported and subsequently reimported by a permit holder or subsequent authorized recipient, for the purpose of scientific research, maintenance in a properly curated, professionally accredited scientific collection, or education, provided that:

(1) The permit holder or other person receives no remuneration for the marine mammal part;

(2) A unique number assigned by the permit holder is marked on or affixed to the marine mammal specimen or container;

(3) The marine mammal part is exported or reimported in compliance with all applicable domestic and foreign laws;

(4) If exported or reimported for educational purposes, the recipient is a museum, educational institution, or equivalent that will ensure that the part is available to the public as part of an educational program; and

(5) Special reports are submitted within 30 days after both export and reimport as required by the Office Director under §216.38.

Attachment C: Relevant Addresses

NMFS Regional Offices

Assistant Regional Administrator for Protected Resources, Northwest Region, NMFS, 7600 Sand Point Way NE, BIN C15700, Bldg. 1, Seattle, WA 98115-0700; phone (206) 526-6150; fax (206) 526-6426.

Assistant Regional Administrator for Protected Resources, Alaska Region, NMFS, P.O. Box 21668, Juneau, AK 99802-1668; phone (907) 586-7235; fax (907) 586-7012.

Assistant Regional Administrator for Protected Resources, Southwest Region, NMFS, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802-4213; phone (562) 980-4020; fax (562) 980-4027.

Assistant Regional Administrator for Protected Resources, Pacific Islands Regional Office, NMFS, 1601 Kapiolani Blvd., Suite 1110, Honolulu, HI 96814-4700; phone (808) 973-2935; fax (808) 973-2941.

Assistant Regional Administrator for Protected Resources, Northeast Region, NMFS, One Blackburn Drive, Gloucester, MA 01930-2298; phone (978) 281-9346; fax (978) 281-9371.

Assistant Regional Administrator for Protected Resources, Southeast Region, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701; phone (727) 824-5312; fax (727) 824-5309.

NOS National Marine Sanctuaries

Channel Islands National Marine Sanctuary, 113 Harbor Way, Santa Barbara, CA 93109; phone (805) 966-7107.

Cordell Bank National Marine Sanctuary, Fort Mason, Building #201, San Francisco, CA 94123; phone (415) 561-6622.

Fagatele Bay National Marine Sanctuary, P.O. Box 4318, Pago Pago, AS 96799; phone (011-684) 633-7354.

Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, FL 33050; phone (305) 743-2437.

Florida Keys National Marine Sanctuary (Lower Region), 216 Ann Street, Key West, FL 33040; phone (305) 292-0311.

Florida Keys National Marine Sanctuary (Upper Region), P.O. Box 1083, Key Largo, FL 33037; phone (305) 852-7717.

Flower Garden Banks National Marine Sanctuary, 216 W. 26th Street, Suite 104, Bryan, TX 77803; phone (409) 779-2705.

Gray's Reef National Marine Sanctuary, 10 Ocean Science Circle, Savannah, GA 31411; phone (912) 598-2345.

Gulf of the Farallones and Cordell Bank National Marine Sanctuaries, Fort Mason, Building 201, San Francisco, CA 94123; phone (415) 561-6622.

Hawaiian Islands Humpback Whale National Marine Sanctuary, 726 South Kihei Road, Kihei, HI 96753; phone (808) 879-2818.

Monitor National Marine Sanctuary, The Mariners' Museum, 100 Museum Drive, Newport News, VA 23606-3759; phone (757) 599-3122.

Monterey Bay National Marine Sanctuary, 299 Foam Street, Suite D, Monterey, CA 93940; phone (408) 647-4258.

Olympic Coast National Marine Sanctuary, 138 W. 1st Street, Port Angeles, WA 98362; phone (360) 457-6622.

Stellwagen Bank National Marine Sanctuary, 14 Union Street, Plymouth, MA 02360; phone (508) 747-1691.

US Fish and Wildlife Service

Sirenia (other than Florida manatee) - Office of Management Authority, 4401 N. Fairfax Drive, Arlington, VA 22203; phone (800) 358-2104.

Florida manatee - Field Supervisor, Jacksonville Field Office, 6620 South Point Drive South, Suite 310, Jacksonville, FL 32216-0312; phone (904) 232-2580; fax (904) 232-2404.

Southern sea otter - Field Supervisor, Ventura Field Office, 2493 Portola Road, Suite B, Ventura, CA 93003; phone (805) 644-1766; fax (805) 644-3958.

Northern sea otter, walrus, polar bear - Marine Mammals Management, 1101 E. Tudor Road, Anchorage, AK 99503-6199; phone (907) 786-3800; fax (907) 786-3816.

APPENDIX H

GENERAL DESCRIPTIONS OF RESEARCH METHODOLOGIES UNDER THE ESA/MMPA PERMIT

Many public comments on the draft PEIS were specific to the methodologies addressed in this Appendix. In several areas, revisions were included below. For more specifics on how public comments were addressed, please refer to Appendix N of this PEIS.

1. Current ESA/MMPA Permit Activities

The activities described in this Section are those that may be conducted under the current ESA/MMPA permit issued to the Marine Mammal Health and Stranding Response Program. Many of the activities are only applicable to the scientific research conducted by Co-Investigators under the permit. Some activities are also applicable to the emergency response of ESA-listed species, which is covered under the ESA/MMPA permit. This section does not include information on basic stranding response activities.

1.1.1 Close Approach

Animals may be taken through close approaches by aircraft for disentanglement, photo-identification, behavioral observation, hazing (during emergency response), and incidental harassment. Animals may be taken through close approaches by vessel for disentanglement, photo-identification, behavioral observation, capture, tagging, marking, biopsy sampling, skin scrapes, swabs, collection of sloughed skin and feces, breath sampling, blood sampling, administration of drugs, video recording, hazing (during emergency response), and incidental harassment. More than one vessel may be involved in close approaches and vessels may approach an animal more than once, in order to complete research tasks. Incidental harassment of non-target animals may occur during close approaches by aircraft or vessel. During emergency response and research activities, close approaches may occur for any age class, sex, and species (including ESA-listed species).

1.1.2 Aerial Surveys

Aerial surveys are used to: locate imperiled marine mammals (ESA-listed and non-listed species); monitor behavior or disease in a given population or individual; survey the extent of disease outbreaks or die-offs; and locate carcasses. During emergency response and research activities, aerial surveys may occur for any age class, sex, and species (including ESA-listed species).

The aircraft type used during emergency response activities depends upon the aircraft available at the time of the response and the logistics of the activity. Aircraft type includes helicopters and fixed-wing aircraft. The frequency of surveys is dependent on the circumstances of the involved stranded or entangled animals, the disease, or the occurrence of an Unusual Mortality Event (UME). Aerial

surveys are flown along predetermined transect lines at a set altitude and air speed while observers scan the water for signs of marine mammals.

The speed and altitude of the aircraft depends on the aircraft and the response or research situation. For large cetaceans, surveys would be flown at an altitude of 230-300 m (750-1,000 ft) at approximately 110 knots (203 km/hr). For right whales, surveys would be flown at 100 knots (185 km/hr). For smaller cetaceans, surveys would be flown at an altitude of approximately of 230 m (750 ft). Large survey aircraft would be flown at 110 knots (203 km/hr) and small aircraft would be flown at 97 knots (179 km/hr). When an animal or group of animals is sighted, the survey aircraft descends and circles over the animal or animals to obtain photographs and assess the animal, if necessary.

A minimum altitude of 153 m (500 ft) would be used for pinniped surveys. The typical altitude would be between 182-244 m (600-800 ft) at 80 to 100 knots (148-185 km/hr). For Steller sea lion surveys during the breeding season, an altitude of at least 214 m (700 ft) would be used to collect photographs. In the non-breading season, surveys would be flown between 150-200 m (492-655 ft) at a speed of 100-150 knots (185-278 km/hr). All aerial surveys will be flown according to the NOAA Aviation Safety Policy (NOAA Administrative Order 209-124), with trained observers and pilots.

1.1.3 Vessel Surveys

Vessel surveys of both ESA-listed and non-listed marine mammals may be conducted to: collect data on animal abundance; assess animals; locate animals for research activities; and collect research samples. The vessels themselves may be used as a platform for conducting animal sampling. Vessel surveys may be used to monitor animals subsequent to capture-release sampling for assessment, photo-identification, and tracking.

For small cetaceans, inshore monitoring surveys are conducted using small (5-7 m) outboard motor powered boats. Animals are located by having crew members visually search waters as the boat proceeds along a specified route at slow speeds (8-16 km/hr). Animals outfitted with Very High Frequency (VHF) radio tags are located by listening for the appropriate frequency and, after detecting a signal, maneuvering the boat towards the animal using a combination of signal strength and directional bearings. Frequencies and remote sensors may also be monitored. Once a group of animals is located, the boat approaches the group so that crew members can assess their physical and medical condition. Photographs of the dorsal fins of individual animals are taken for later identification and matching to existing dorsal fin catalogs. When an animal is located that has been recently caught for a health evaluation, an attempt is made to photograph the dorsal fin and body to

confirm identification, health, position, and behavior. A photograph of the dorsal fin would also be used to assess wound healing from tag attachment. The area behind and below the posterior aspect of the dorsal fin may also be photographed to assess biopsy wound healing. A telephoto lens would be used for photographs, so vessels would not need to be too close to animals.

Multiple approaches may be required to obtain appropriate quality photographs, particularly if there are multiple individuals within a group. Close approach is terminated and the boat moves away from the group if animals begin to display behavior that indicates undue stress (e.g., significant avoidance behavior such as chuffing [forced exhalation], tail slapping, or erratic surfacing).

1.1.4 Hazing

Hazing of ESA-listed marine mammals may occur if an animal is in the vicinity of an oil or hazardous material spill, harmful algal bloom, sonar, or other harmful situations. Animals may also be hazed to deter a potential mass stranding. For all marine mammals, including threatened and endangered species, hazing is authorized under the MMHSRP's MMPA/ESA permit. Hazing methods include, but are not limited to, the use of acoustic deterrent devices, acoustic harassment devices, visual deterrents, vessels, physical barriers, and capture and relocation. The correct use of deterrents incorporates the element of surprise, while minimizing the potential for habituation.

Acoustic deterrents that may be used to deter cetaceans include, but are not limited to: pingers, bubble curtains, Oikomi pipes, acoustic harassment devices (e.g., Airmar devices), seal bombs, airguns, mid-frequency sonar, low-frequency sonar, predator calls, and aircraft. Pingers, which are typically used in the commercial fishing industry, produce high-frequency pulses of sound to deter animals. The standard pinger emits a signal of 10 kHz (with harmonics to at least 60 kHz) with a source level of 132 dB re µPa at 1 m, which is within the hearing range of most cetaceans (Reeves *et al.* 1996). Bubble curtains may be used as a barrier from other acoustics. Oikomi pipes are banged together by personnel on boats. They have been effective in herding cetaceans, but may not be as effective in keeping animals out of a large area.

Airmar devices have a source level of 195 dB re µPa and their peak energy is at 10 kHz with higher harmonics. These devices may be moved at low speeds on small boats or may be hull mounted on boats to allow faster movement. They may be able deter animals 3 km away. A line of directional Airmar devices could be deployed at the sight of a spill of near cetaceans to move them away. The received levels needed to cause deterrence without acoustic trauma are unknown.

Seal bombs are explosive devices that are weighted with sand to sink and explode at 2-3 m underwater, producing a flash of light and an acoustic signal of less than 2 kHz and a source level of approximately 190 dB. The noise and light would potentially startle marine mammals, but not cause any injuries (Petras 2003). Airguns are generally a towed array that is deployed behind a ship. Their peak energy is dependent on size, and may range from 10 Hz to 1 kHz. Airguns produce broadband pulses with energy at frequencies ranging over 100 kHz. The higher frequencies are less intense and attenuate faster. Harbor porpoise have been seen moving away from airguns 70 km away.

Mid-frequency sonar may be used to deter cetaceans. It has caused deterrence in killer whales in Haro Strait during the 2003 USS Shoup transit episode. The sonar had a source level of approximately 235 dB (exact level is classified) and the frequency ranged from 2.6-3.3 kHz over 1-2 second signals emitted every 28 seconds (USN 2004). Mid-frequency sonar could be effective over 25 km, which would be important for deterring animals during a large oil spill. Low-frequency sonar may also be used, but may too low for some cetaceans to hear.

Predator calls (typically killer whale calls) may be played to deter potential prey. However, in most situations, predator calls have proven ineffective in changing prey behavior. Aircraft, such as helicopters, generate a fair amount of noise and wave movement at close range and could produce a startle or avoidance response. This may be effective initially, but animals would likely habituate quickly. Aircraft could also be used to deploy seal bombs, if necessary. Vessels may be used to herd animals back out to open water or away from a hazardous situation. Booms or line on the water may be used to displace small odontocetes from stranding. Fire hoses may be used at close range as a physical deterrent, although their effectiveness is not known.

Pinniped acoustic deterrents include seal bombs, Airmar devices, predator calls, bells, firecrackers, and starter pistols. Visual deterrents for pinnipeds include flags, streamers, and flashing lights. Exclusion devices for pinnipeds may include nets or fencing.

1.1.5 Capture and Restraint

Capture of marine mammals may be necessary during research and enhancement activities to collect specimens; perform an examination; evaluate wound, disease, entanglement, or injury; or attach tags and/or scientific instruments. Capture of non-ESA listed marine mammals would be necessary during research activities. During emergency response, these activities may occur for any age class, sex, and species (including ESA-listed species). For research activities, capture, restraint, and handling would occur on all animals except for young of the year.

Capture methods include, but are not limited to, nets, traps, behavioral conditioning, and anesthesia/chemical immobilization. These procedures would be performed or directly supervised by qualified personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Capture and restraint methods for pinnipeds and cetaceans are discussed below.

1.1.5.1 Pinniped Capture and Restraint

Capture and restraint of pinnipeds occurs during health assessment studies, emergency response, and disentanglement activities. Pinnipeds may be captured on land or in water by various methods, depending on the targeted age classes. On land, pups (>5 days to 2 months old) and juveniles (>2 months to 3 years old) may be captured by hand. Juveniles and adults (>3 years old) may be captured using circle, hoop, dip, stretcher, and throw nets. Net guns and pole nooses may be used for capture of pinnipeds. An injectable immobilizing agent, administered remotely by a dart, may also be used to subdue older animals. Herding boards may be used to maneuver animals into cages. For water captures of pinnipeds, dip nets, large nets, modified gill nets, floating or water nets, and platform traps may be used. Purse seine nets may be used offshore of haul-out sites to capture animals when they stampede into the water (Jeffries et al. 1993). Animals become entangled by the net as it is pulled ashore. Once removed from the net, animals are placed head first into individual hoop nets. Pups may be restrained by hand, in a hoop net, or with the inhalation of a gas anesthesia (administered through a mask over their nose). Older animals may be restrained using gas anesthesia (administered through an endotracheal tube), a fabric restraining wrap, a restraining net, or through sedation (either intramuscular (IM) or intravenous (IV)).

An animal would not be manually restrained for more than 30 minutes. Procedures would be conducted as quickly as possible to reduce stress on the animal. Vital signs, including respiration, heart rate, and temperature, would be continuously monitored and recorded at the start of handling and every 5 minutes thereafter.

1.1.5.2 Cetacean Capture and Restraint

Capture and restraint of cetaceans occurs during health assessment studies, emergency response, and disentanglement activities. Typical methods currently used during health assessment studies and for emergency response are described below. However, these methods may vary depending on the species and location. All capture and restraint protocols would be approved by NMFS PR1 before their use. For health assessment studies of small cetaceans, small schools of animals are approached

for identification (see description under vessel surveys). If the school contains animals desired for capture, the school is followed until it is in waters that facilitate safe captures (waters outside of boating channels, equal to or less than 1.5 m deep, where currents are minimal). Typically no more than three animals are captured at one time. The animals are encircled with a 600 m long by 4 m deep seine net, deployed at high speed from an 8 m long commercial fishing motor boat. Small (5-7 m) outboard-powered vessels are used to help contain the animals until the net circle is complete. These boats make small, high-speed circles, creating acoustic barriers.

Once the net is completed, about 15-25 handlers are deployed around the outside of the corral to correct net overlays and aid any animals that may become entangled in the net. The remaining 10-20 or more team members prepare for sampling and data collection and begin the process of isolating the first individual. Isolation is accomplished by pinching the net corral into several smaller corrals. Handlers are usually able to put their arms around the selected animal as it bobs in place or swims slowly around the restricted enclosure. However, a few animals may strike the net and become entangled. After animals are restrained by handlers, an initial evaluation is performed by a trained veterinarian. Once cleared by the veterinarian, the animal is transported to the processing boat via a navy mat and/or a sling. A sling is also used to place an animal back in the water for release.

In some cases, cetaceans may need to be captured in deep waters. A break-away hoop-net is used to capture individuals as they ride at the bow of the boat. When they surface to breathe, the hoop is placed over their head and they move through the hoop, releasing the net. The additional drag of the net slows the animals substantially, but the design allows the animal to still use its flukes to reach the surface to breathe. The net is attached to a tether and large float, and the animal is retrieved, maneuvered into a sling and brought onboard the capture boat.

For emergency response, small cetaceans in shallow water may be caught using a net deployed from a boat with methods similar to those described above. In rivers and canals, responders may use their bodies to herd an animal and then hand catch it. In deep water, hoop net may be used to capture animals.

1.1.6 Transport

Vehicles, boats, or aircraft are used to transport marine mammals to rehabilitation facilities or release sites. Cetaceans may be transported on stretchers, foam pads, or air mattresses. For short-term transport, closed-cell foam pads are preferred because they are rigid and do not absorb water. Open cell foam is typically used for long-term transport of cetaceans because it can contour to the animal's

form. Boxes may be constructed to transport the animal upright in a stretcher. Cetaceans must be protected from exhaust fumes, sun, heat, cold, and wind, as transport often occurs on the flatbed of a truck. Animals are kept moist and cool, to avoid overheating (Geraci and Lounsbury 2005).

Small pinnipeds are typically transported in plastic kennel cages. Cages are large enough for animals to turn around, stretch out, and raise their heads. Cages should prevent animal contact with waste and allow proper air circulation. As with cetaceans, pinnipeds traveling by vehicle must be protected from the sun, heat, cold, wind, and exhaust fumes. Pinnipeds may overheat during transit and wetting the animal helps to prevent hyperthermia (Geraci and Lounsbury 2005). Large pinnipeds may need to be sedated during transport. Sedation of large pinnipeds would be performed or directly supervised by qualified personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of sedatives.

Transport procedures for marine mammals under U.S. jurisdiction follow the Animal and Plant Health Inspection Service's "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Ch 1, Subpart E). The "Live Animal Regulations" published by the International Air Transport Association (IATA), and accepted by the Convention on International Trade in Endangered Species of Wild Fauna and Flora, are followed for the air transport of animals under foreign jurisdiction (IATA 2006). Both sets of standards have specifications for containers, food and water requirements, methods of handling, and care during transit.

1.1.7 Tagging/Attachment of Scientific Instruments

Tagging of ESA-listed marine mammals may be used to monitor an animal's movements after immediate release (from a stranding site), release after rehabilitation, or release after research activities. Tagging of non-listed marine mammals may occur as part of a research project or for monitoring rehabilitated animals post-release when such tag devices are considered intrusive or experimental. Other tags or scientific instruments may be used to obtain data on dive depth, dive time, water temperature, light levels, and animal and other underwater sounds. During emergency response activities, tags or scientific instruments may be attached to any age class, sex, and species (including ESA-listed species). During research activities tags will not be attached to large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no tagging will occur on calves less than one year of age.

A variety tags (including scientific instruments) may be attached to or implanted in an animal. The type of tag and method of attachment depends on the species being tagged and the research or

question being addressed. Types of tags that are used include, but are not limited to: roto-tags (cattle tags), button tags, very high frequency (VHF) radio tags, satellite tags, Passive Integrated Transponder (PIT) tags, D-tags, code division multiple access (CDMA) tags, pill (e.g., stomach temperature telemeters), time-depth recorders (TDRs), life history transmitters (LHX tags), and crittercams (video cameras). Tag attachment methods vary with tag type, species, and circumstances. Attachment methods for cetaceans include, but are not limited to: bolt, buoy, punch, harness, suction cup, implant, or ingestion. Pinniped attachment methods include, but are not limited to: glue, bolt, punch, harness, suction cup, surgical implant, or ingestion. Specific tags and methods of attachment will be evaluated for each situation.

1.1.7.1 Tagging of Cetaceans

Tags are generally attached to free-swimming cetaceans by crossbow, compound bow, rifles, spear guns, slingshot (or throwing device), pole or jab spears. Tags will only be applied by experienced marine mammal biologists. Prior to deployment, tag type and attachment method will be approved by NMFS PR1. Attachments are temporary and occur via a suction cup device or implant. Scientific instruments attached to suction cups include, but are not limited to D-tags, TDRs, VHF tags, satellite tags, and crittercams. Large, slow moving whales may be tagged via suction cups using a pole delivery system, cantilevered on the bow of a boat. Bow-riding animals may be tagged using a hand held pole. Crossbows are the preferred method for tagging fast-moving toothed whales. Tags are attached on the dorsal surface of the animal behind the blowhole, closer to the dorsal fin. Tag placement ensures that the tag will not cover or obstruct the whale's blowhole, even if the cup migrates after placement (movement would be toward the tail).

Implantable tags may be attached in free-swimming cetaceans by mounting the instrument on an arrow tip or other device designed to penetrate the skin of the animal. Tags would typically be attached by crossbow and may include, but not limited to satellite tags, VHF tags, and TDRs. Buoys are used to attach VHF or satellite tags to gear on entangled whales. Buoys may also be attached to increase drag in an attempt to slow a whale for disentanglement.

For animals in hand, tags may be attached for longer deployments. Roto-tags may be attached to cetaceans with a plastic pin to the trailing edge of the dorsal fin. Button tags are plastic disks attached with a bolt through the dorsal fin. VHF tags (roto-radio tags) may also be bolted through the trailing edge of the dorsal fin. The bolts on each type of tag are held in place by magnesium nuts that will corrode in seawater and allow the tag to be released.

Satellite or VHF tags can be mounted on a molded plastic or fabric saddle that would be bolted through the dorsal fin (Geraci and Lounsbury 2005) or dorsal ridge. Plastic saddles would be padded with foam on the inside to reduce skin irritation. Saddles will be attached to the dorsal fin with two or three Delrin pins secured with magnesium nuts. The nuts would corrode in seawater, allowing the package to be released within a few days or weeks. The saddle will be raised off the surface of the dorsal fin by inserting foam washers on the pins between the skin and saddle. Two washers would be used to provided approximately 6 mm of separation

Dorsal ridge "spider tags" may be used on beluga whales (NMFS Permit No. 782-1719) (Litzky *et al.* 2001). Up to four holes are bored in the region of the anterior terminus of the dorsal ridge using a coring device (trochar) with a diameter of no more than 1 cm. Each insertion and exit point for the trochars would be prepared by cleaning with an antiseptic wipe, or equivalent. Rods of nylon or other non-reactive material, not greater than 1 cm in diameter and 50 cm in length, would then be pushed through the holes and attached to the wire cables or fabric flange or straps of the satellite tags or through bolt holes in the tag. The wire cables would be tightened to hold the tag against the back of the animal to minimize tag movement and drag, but would not be put under significant tension to avoid pressure necrosis around the pin insertion points. The other attachment systems would be manipulated to achieve the best possible fit depending on their design. Excess rod would then be cut off. All equipment would be sterilized in cold sterile solution, alcohol, or equivalent, and kept in air- and water-tight containers prior to use. Trochars and rods would be coated with antiseptic gel prior to insertion and each trochar would only be used for one hole before it is cleaned, sharpened, and re-sterilized. Where more than one instrument is to be attached, the number of pins would be limited to four.

1.1.7.2 Tagging of Pinnipeds

A fast drying epoxy adhesive is used to glue scientific instruments to pinnipeds. Instruments may be attached to the dorsal surface, head, or flippers and will release when the animal molts. Roto-tags can be attached to flippers using a single plastic pin. Tags can also be surgically implanted into the body cavity or muscle of pinnipeds. Implanted tags include PIT and LHX tags.

A PIT tag is a glass-encapsulated microchip, which is programmed with a unique identification code. When scanned with an appropriate device, the microchip transmits the code to the scanner, enabling the used to determine the exact identity of the tagged animal. PIT tags are biologically inert and are designed for SQ injection using a syringe or similar injecting device. The technology is well

established for use in fish and is being used successfully on sea otters (Thomas et al. 1987), manatees (Wright et al. 1998), and southern elephant seals (Galimberti et al. 2000). PIT tags are also commonly used to identify domestic animals. PIT tags may be injected just below the blubber in the lumbar area, approximately 5 inches lateral to the dorsal midline and approximately 5 inches anterior to the base of the tail. Tags may also be injected at alternative sites on a pinniped's posterior, but only after veterinary consultation. The injection area would be cleansed with Betadine (or equivalent) and alcohol prior to PIT tag injection. PIT tags are currently being used in Hawaiian monk seals (NMFS Permit No. 848-1695).

LHX tags are implantable, satellite-linked life history transmitters used to measure mortality events in pinnipeds. The tag allows continuous monitoring from up to five built-in sensors, including pressure, motion, light levels, temperature, and conductivity. The tag is surgically implanted into the abdominal cavity while the animal is anesthetized. An incision of 7-8 cm long through the abdominal wall, including abdominal muscles and peritoneal layers, is required to insert the tag. The incision is closed using absorbable sutures and may be further secured with surgical glue or dissolvable staples. When the animal dies, the tag is released from the body and floats to the surface or falls out onshore. Data from the tag is transmitted via the ARGOS system to a NOAA satellite. The battery life of an LHX tag is well over five years. LHX tags are being evaluated under current NMFS PR1 research permits (Permit No.1034-1685 [California sea lions] and No. 881-1890 [Steller sea lions]).

1.1.8 Marking

Marking methods for marine mammals during emergency response and research activities include, but are not limited to: bleach, crayon, zinc oxide, paint ball, notching, and freeze branding. Hot branding will not be used as a marking method. Crayons, zinc oxide, and paint balls can be used on cetaceans and pinnipeds for temporary, short-term marking. Bleach or dye (human hair dye) markings can be used on pinnipeds. The marks are temporary, with the length of time dependent on molting. Notching can be used to permanently mark cetaceans by cutting a piece from the trailing edge of the dorsal fin. Notching in pinnipeds removes a piece of skin from the hind flipper of phocids (true or earless seals) and the foreflipper of otariids (sea lions and fur seals).

Cetaceans can be marked using freeze branding, typically on both sides of the dorsal fin and/or just below the dorsal fin. Freeze branding is used during health assessment studies to mark all animals for post-release monitoring. Freeze branding uses liquid nitrogen to destroy the pigment producing cells in skin. Each brand (typically 2" numerals) is supercooled in liquid nitrogen and applied to the dorsal

fin for 15-20 seconds. After the brand is removed, the area is wetted to return the skin temperature to normal. During health assessments, each animal is photographed and videotaped to record the locations of freeze brands. Brands will eventually re-pigment, but may remain readable for five years or more. Freeze brands provide long-term markings that may be important during subsequent observations for distinguishing between two animals with similar fin shapes of natural markings.

Freeze branding may be used to produce two types of marks on pinnipeds. Short contact by the branding iron destroys pigment producing cells, leaving an unpigmented brand. Longer contact with the brand destroys these cells and the hair, leaving a bald brand (Merrick *et al.* 1996). Hot branding of pinnipeds will not be conducted during permit activities.

1.1.9 Disentanglement

Disentanglement efforts are conducted for many marine mammals. For large whales, disentanglement efforts may include vessel and aerial surveys for the affected animal and incidental harassment of non-entangled animals during these searches. Close approaches may occur to assess the extent of the entanglement and the health of the animal. The animal may be either physically or chemically restrained. Physical restraint of the animal may be used to slow down an animal, provide control, and maintain large whales at the surface. Physical restraint is accomplished by attaching control lines, floats, buoys, and/or sea anchors to the entangling gear with a grappling hook or by attaching new gear to the animal to hold it. The drag from small boats may also slow down an animal. Remote sedation may also be used to restrain the animal. Animals may be tagged with telemetry buoys to monitor their location. Responders use control lines to pull themselves up to the whale. Cutting of lines and possibly flesh (when the line is embedded) may occur during disentanglement. Biopsy sampling may occur, either through the use of a remote dart (described below under biopsy sampling) or the collection of tissues from the removed fishing gear. If the injuries from an entanglement appear to be life-threatening, the animal may be euthanized. NMFS and marine mammal experts would be consulted before deciding to euthanize a large whale. Euthanasia techniques are discussed later in this application. A necropsy would be performed and the carcass would be properly disposed.

Disentanglement efforts for small cetaceans may include capture with incidental disturbance of non-entangled animals, restraint, surgery, rehabilitation, administration of chemical agents (sedatives and/or antibiotics), and release. Response to entangled small cetaceans typically requires in-water capture of free-swimming animals. Some animals may have impaired locomotion if the gear is heavy

or anchored. Capture methods for small cetaceans are described above. If the injuries from an entanglement appear to be life-threatening, the animal is not likely to make a recovery on its own, or if the animal is afflicted with a potentially treatable illness or infection, it may be placed in rehabilitation. If rehabilitation space is not available, the animal would be euthanized. A necropsy would be performed and the carcass would be properly disposed.

An entangled pinniped would be selected for capture if: 1) the entanglement or injury impedes feeding, swimming, or ambulation; 2) the gear is unlikely to fall off on its own; 3) the animal is likely to "grow" into the gear, causing constriction; 4) the gear is cutting into the flesh or likely to cut into the flesh into the future; 5) the injury appears life-threatening or infected, or likely to become infected; or 6) the benefits of capturing and disentangling or collecting the animal for rehabilitation outweigh the risks to the animal and the herd. Entangled pinnipeds are typically captured on land when they are hauled out. Capture methods for pinnipeds are described above.

Disentanglement of pinnipeds may be achieved by simply cutting off the gear. A variety of instruments, including shielded knives, bandage scissors, wire cutters, and dog nail clippers may be used to safely accomplish this task. For emergency situations (e.g., entangled animals anchored in the water) or if the situations allows, long-handled, shielded knives can be used to cut off netting from a distance. The attending veterinarian (or other qualified individual) will determine which instrument(s) is appropriate for the situation. Once the gear is removed, it is photographed, measured, and retained for submission to NMFS. The wound (if any) is cleaned thoroughly by flushing with copious amounts of an appropriate disinfectant and treated with a topical antiseptic cream. An animal may be freed of gear and immediately released, or brought into a rehabilitation facility for a period of time prior to release. Every disentangled animal (except those that are not restrained) are tagged with: a roto-tag on the rear flipper; a head tag glued to the fur or marked; and/or paint stick markings for post release monitoring. Satellite tags maybe considered for healthy animals, weighing 75 lbs or more, if supplies and experienced personnel are available. Methods for tagging are described above.

If the pinniped will be immediately released after disentanglement, the following data will be collected (as feasible): straight length; sex; weight estimate; photographs of the animal, wound (if any), and gear; general locations; and GPS coordinates. Alert animals would be released from the original capture site unless conditions dictate otherwise. Animals would not be released near high drop-offs, heavy boat traffic, heavily human populated beaches, or obvious hazards. The attending veterinarian (or qualified individual) will direct the removal of restraint devices and withdrawal of the animal for a safe release. Crowder boards would be placed between the animal and the water, to

prevent the animal from fleeing into the water before the capture net has been removed. Once the animal has completely freed itself from the capture net, the crowder boards would be opened to allow access to the water. The animal would retreat to the water at is own pace.

An animal may be placed into rehabilitation if the injuries appear to be life-threatening, it is not likely to make a recovery on its own, or if it is afflicted with a potentially treatable illness or infection. Transport methods are described above. If rehabilitation space is not available, the animal would be euthanized. A necropsy would be performed and the carcass would be properly disposed.

1.1.10 Sample Collection and Analysis

Specimen samples would be taken from ESA-listed species during both research and enhancement (i.e., stranding/entanglement response) and from non-listed species during intrusive research [the Order Cetacea and the Order Pinnipedia (except walrus)]. Specimen materials may include, but are not necessarily limited to: earplugs, teeth, bone, tympanic bullae, ear ossicles, baleen, eyes, muscle, skin, blubber, internal organs and tissues, reproductive organs, mammary glands, milk or colostrums, serum or plasma, urine, tears, blood or blood cells, cells for culture, bile, fetuses, internal and external parasites, stomach and/ or intestines and their contents, feces, air exhalate, flippers, fins, flukes, head and skull, and whole carcasses. Specimens may be acquired opportunistically with ongoing studies or prospective design plans; therefore specific numbers and kinds of specimens cannot be predetermined. Because all specimens will be acquired opportunistically, the MMHSRP will have minimal control over the age, size, sex, or reproductive condition of any animals that are sampled. During research activities, samples would not be collected from young of the year animals. Specific methods for biopsies, blood, breath, ultrasound, and other sampling are described below under the corresponding section.

Marine mammal specimens collected for analysis or archiving would be legally obtained from the following sources:

1. On-going live animal capture/release research programs authorized by this permit or under separate permit of other researchers;

2. Live animal capture/release as part of a stranding response, disease, emergency response, or die-off investigation of ESA-listed marine mammals in the U.S., and any marine mammal species abroad;

3. Live ESA-listed animals stranded or in rehabilitation in the U.S. [and from any marine mammal species abroad stranded or in rehabilitation];

4. Captive animals (public display, research, or rehabilitating), when sampling is beyond the scope of normal husbandry or normal rehabilitation practices (i.e., intrusive research on ESA-listed or non-listed species);

5. Captive public display or research animals during normal husbandry or other permitted research;

6. ESA-listed marine mammals found dead on the beach or at sea in the U.S.; and any marine mammal species found dead on the beach or at sea in a foreign country/waters.

7. Animals directly taken in fisheries in countries where taking of such animals is legal;

8. Animals killed during subsistence harvests by native communities;

9. Animals killed incidental to recreational and commercial fishing operations;

10. Animals killed incidental to other human activities;

11. ESA-listed marine mammals found dead as part of NOAA investigations in the U.S. (*e.g.* harmful algal blooms, oil spills, etc.);

12. Soft parts sloughed, excreted, or discharged by live animals (including blowhole exudate);

13. Live animals during disease surveillance;

14. Bones, teeth, or ivory of ESA-listed species found on the beach or on land within ¼ mile of the ocean;

15. Confiscated animals (*e.g.*, as part of enforcement action); or

16. Animals legally taken in other permitted research activities in the U.S. or abroad.

Specimen and data collection from marine mammal carcasses may follow the necropsy protocols for pinnipeds (Dierauf 1994), right whales (and other large cetaceans) (McLellan *et al.* 2004), killer whales (Raverty and Gaydos 2004), small cetaceans (HSWRI 2005) and all marine mammals (Pugliares *et al.* 2007). These include how samples would be stored, transported, and analyzed. During live animal response or research, specimen and data collection protocols would depend on the samples being collected and the intended analyses. All sample analyses occur at various diagnostic laboratories in the U.S. and abroad.

1.1.11 Biopsy Sampling

Biopsy sampling would be conducted to collect skin, blubber, muscle, or other tissue (see below for details) samples. Sampling may occur on free ranging animals and captured animals during research activities. Only skin and blubber biopsies would be collected remotely during research activities. Skin and blubber biopsy sampling from a vessel may be conducted using crossbows, compound crossbows, dart guns, or pole spears. The depth of the biopsy tip penetration would vary depending on the species being sampled, the need, and the depth of their blubber layer. For small cetaceans, such as bottlenose dolphins, the biopsy tip used to collect blubber for contaminant analysis penetrates to a depth of approximately 1.0-2.5 cm. Shorter tips may be used when only epidermal sampling is required. A crossbow would be used to collect a sample from animals within approximately 5 to 30 m of the bow of the vessel.

Remote biopsy darts may be used to collect skin and blubber biopsy samples from free-swimming cetaceans. This standard technique involves using a blank charge in a modified .22 caliber rifle to propel a dart with small cutting head 3-6 m into the side of a dolphin, below the dorsal fin. A stopper prevents the dart from penetrating to a depth greater than the thickness of the blubber and aids in the removal of the sample form the animal. The floating dart is retrieved, and the approximately 1 cm diameter by 1.5 – 2 cm long sample is processed for archiving and analysis. A video camera mounted on the sampling rifle allows evaluation of the response of the dolphin to the darting.

Pole spears would be used to collect skin and blubber biopsy samples from small, bow-riding cetaceans. The biopsy tip is attached to the pole spear (approximately 5.5 m in length), which is tethered to a vessel. The pole spear is lowered to within 0.5 m of the target, which allows a specific area of the animal to be targeted with a high degree of accuracy.

Blubber biopsies may be taken during health assessment studies. An elliptical wedge biopsy is obtained from each animal. For small cetaceans, the sampling site is located on the left side of the animal, just below the posterior insertion of the dorsal fin. Local anesthetic (typically Lidocaine) is injected in an L-block at the biopsy site. A veterinarian then uses a clean scalpel to obtain a sample that is approximately 5 cm long and 3 cm wide, through nearly the full depth of blubber (approximately 1.5-2.0 cm). A cotton plug soaked with ferric subsulfate is inserted into the site once the sample is removed in order to stop bleeding. The sample is then partitioned into separate containers for each project. Skin obtained with the blubber biopsy is used for genetic analyses. Skin scrapings, biopsy samples, or needle aspirates will be collected for clinical diagnoses from sites of

suspected lesion. These samples are processed by various diagnostic laboratories and a subsample is sent to the National Marine Mammal Tissue Bank.

Biopsy sampling may also occur on animals in rehabilitation for diagnostic purposes. Skin and blubber may be collected as described above for capture animals. Biopsy sampling for diagnostic purposes would also include surgical procedures. Samples may be taken from muscle, lymph nodes, masses, abscesses, liver, kidneys, and other organs. Surgical procedures would be performed by experienced marine mammal veterinarians.

Small muscle biopsies may be collected from pinnipeds. The procedure has been performed on a number of different pinniped species without adverse effects or complications (Kanatous *et al*. 1999; Ponganis et al. 1993). Prior to sampling, a local anesthetic will be injected subcutaneously and intramuscularly at the sampling site to minimize pain. The sampling site will be cleaned with a Betadine scrub and a small incision will be made with a scalpel blade. All biopsies will be taken using appropriately sized sterile biopsy punches at the incision. The punch will be pushed through the blubber and into the muscle layer and the biopsy (~50 mg) is then withdrawn and pressure is applied to the wound. The biopsy site will be irrigated with Betadine. Sutures are not needed for the wound.

1.1.12 Blood Sampling

Blood sampling in cetaceans may be collected from the dorsal fin, caudal peduncle, pectoral flipper, or flukes. Sampling at any of these sites would be done using an 18- gauge 4-cm needle, with a scaled down needle bore for calves, Dall's porpoise, and harbor porpoise. Blood sampling of small cetaceans during health assessments may occur in the water prior to coming aboard the vessel, or once aboard the vessel. Typically, the blood sample is drawn from a blood vessel on the ventral side of the fluke, using an 18-20 gauge ¾" catheter. Approximately 200-350 cubic centimeters (cc) of blood are removed from each individual. The samples are placed in a variety of Vacutainers and other containers specific to the analyses, and are stored in a cooler until they are transported to a laboratory. Some samples may be processed on deck with a portable centrifuge system. Samples are separated and prepared for: standard chemistry, hematology, and hormonal analysis; contaminant analyses; immune function studies; aliquots for culturing for assessment of pathogens; and other preparations as necessary.

Blood samples in both phocids and otariids may be collected through the bilaterally divided extradural vein, which overlies the spinal cord. Otariids may also be sampled using the caudal gluteal

vein. Sampling would be done with a 20-gauge, 4-cm needle for small animals and an 18-gauge, 4-cm needle for larger animals. Phocids may also be sampled by inserting a needle into the metatarsal region of the hind flipper (Geraci and Lounsbury 2005).

1.1.13 Breath Sampling

Breath sampling may be conducted on both ESA-listed and non-listed cetaceans to assess their nutritional status and health for research purposes only. Breath sampling will not be used as a diagnostic tool at this time. A specially designed vacuum cylinder would be used to collect breath samples. The system has previously been used on several cetacean species and elephants. Samples would be collected from free ranging cetaceans by positioning a funnel at the end of a pole (which is connected to the vacuum cylinder via plastic tubing) over the blowhole of the surfacing animal. The cylinder valve would be manually opened during exhalation. An algal culture plate inside the funnel would be used for bacterial cultures of the breath. The culture plate would be sealed and transported to a laboratory for analysis. The equipment typically would not touch the animal, although in some instances there may be brief (less than 10 seconds) contact. An individual animal may be approached up to three times to obtain a sample, if it is exhibiting avoidance behaviors. If an animal exhibits rapid evasion during approaches, the animal will not be pursued. Samples may also be collected during health assessments, emergency response activities, or on any live captured animal. Sampling is being conducted to determine if it may be an appropriate diagnostic tool. Samples will be taken from targeted populations at specific times to compare with visual assessments and/or biopsies. The samples will then be examined using gas chromatography-mass spectrometry for volatile compounds to evaluate respiratory disease, nutritional status, and physical condition.

1.1.14 Ultrasound Sampling

Ultrasound sampling may be conducted on all free ranging animals, animals captured during emergency response, or any species during research studies. Ultrasound may be used to evaluate blubber thickness, wounds, lesions, the presence of lesions, pregnancy, reproductive organs, and blood vessels. Ultrasound may also be used to evaluate cardiac function, other internal organs, and the presence of fat or gas emboli. B-mode, 2-D, and 3-D imaging may be used on marine mammals. Any standard diagnostic ultrasound unit with a “scroll” or “zoom” capability (to visualize deeper structures) would be used to examine marine mammals (Brook *et al.*2001). Transducer type will depend on the area of interest and the size of the patient. Chapter 26 of the *CRC Handbook of Marine Mammal Medicine* will be used as a reference for equipment and methods of ultrasonography for marine mammals (Brook *et al.* 2001). External and internal (transvaginal and transrectal) ultrasound

procedures may be conducted. During transvaginal and transrectal ultrasounds, a well lubricated transducer probe is inserted into the appropriate orifice to the minimum depth required to visualize the structures being observed. The length and diameter of the probe will be determined by the species and individual anatomy. Sedation may be necessary for the comfort of the animal. The level of sedation/restraint is at the discretion of the attending veterinarian. Cetacean ultrasounds will be conducted, as often as possible, while the animal is in water.

For example, during health assessment studies of bottlenose dolphins, a diagnostic ultrasound is used to examine the condition of the internal organ and to measure testis length and diameter to assess male maturity. Females are also examined by a veterinarian during the initial evaluation for pregnancy and the presence of developing follicles. The ultrasound operates at a frequency of about 2.5-5.0 MHz, well above the dolphin's hearing. The examinations are recorded on video and audio tape, and thermal prints are made of features of interest. In addition, digital video thermography is used to measure skin temperature.

1.1.15 Tooth Extraction

The age determination of animals is conducted using the deposition of growth layer groups in teeth. A tooth is extracted from the animal by a veterinarian trained in this procedure. Tooth extraction typically occurs during cetacean health assessment studies. The tissue surrounding the tooth (usually #15 in the lower left jaw of cetaceans) is infiltrated with Lidocaine without epinephrine (or equivalent local anesthetic), applied through a standard, high-pressure, 30 gauge needle dental injection system. Once the area is anesthetized, the tooth is elevated and extracted using dental extraction tools. A cotton plug soaked in Betadine, or equivalent, solution is inserted into the alveolus (pit where the tooth was) as a local antibiotic and to stop bleeding. This plug is removed prior to release. This procedure is modified from that described by Ridgway et al. (1975), wherein the entire mandible was anesthetized. The revised procedure has been used in captivity and in live capture and release sampling for many years. Extracted teeth are sent to a laboratory for age determination.

Tooth extraction in pinnipeds requires capture, restraint, and sedation. In pinnipeds, the post-canine or incisor teeth may be extracted. The tooth and gums are cleaned with an antiseptic solution before, during, and after the tooth is extracted. A scalpel is used to loosen attachments and the tooth is extracted with a dental elevator. Extraction methods would be similar to those described by Arnbom et al. (1992).

1.1.16 Urine Sampling

Urine analyses are diagnostically useful to evaluate the urinary system (kidneys, ureters, bladder, and urethra). Important diagnoses can be made by determining the color, pH, turbidity, chemical constituents, presence or absence of blood, and by identifying any bacteria or yeast present in the urine. These diagnoses would likely be missed without such an examination. Samples may be collected using urinary catheterization. A veterinarian experienced with cetaceans or pinnipeds and a qualified veterinary technician would perform the catheterization procedure. For small cetaceans, the animal would be lying on its side on the foam-covered deck of the boat serving as the veterinary laboratory during health assessment studies. Wearing sterile surgical gloves, the assistant gently retracts the folds of the genital slit to allow visualization of the urethral orifice. The veterinarian (wearing sterile gloves) carefully inserts a sterile urinary catheter, lubricated with sterile lubricating gel, into the bladder via the urethra. A 50 ml collection tube without additive is used to aseptically collect the urine as it flows from the catheter. The catheter is removed after the urine is collected. Pinnipeds would be restrained and sedated before the catheter is inserted. The respiration, heart rate, and temperature of the animal would be monitored during the procedure. The animal would be monitored after the procedure until it is released. Urine may also be collected opportunistically, by holding an open sterile container in the urine stream.

1.1.17 Blowhole Sampling

Microbiological samples may be collected from the blowhole of a cetacean. A sterile swab is inserted into the blowhole during a breath, gently swabbed along the wall of the blowhole, and removed during the next breath. Samples are sent to a laboratory for culturing and species identification.

1.1.18 Fecal Sampling

Fecal samples are obtained either from a small catheter inserted about 10 cm into the colon or from a sterile swab of the rectum. The samples are sent to a diagnostic laboratory for culturing and species identification. Cetacean feces may also be collected in the water column either from a vessel or a diver in the water. Pinniped feces may be collected directly from haul-out or rookery sites. Samples are sent to a laboratory for culturing and species identification.

1.1.19 Milk Sampling

Milk samples are collected to measure the levels of lipophilic organic contaminants and to determine composition. All adult females are checked for lactation and milk samples are collected from all

lactating females. A “breast-pump” apparatus is used to obtain the sample. Milk is expressed with gentle manual pressure exerted on the mammary gland while suction is provided by a 60 cc syringe attached by tubing to another 12 cc syringe placed over the nipple. Samples of up to 30-50 ml may be collected.

1.1.20 Sperm Sampling

A potential impact of environmental contaminants on animal health is the reduction of reproductive capabilities. This may be measured indirectly in males through ultrasonic examination, measurement of testes, and measurement of testosterone concentrations. Collection and examination of sperm samples would be a more direct measurement of male reproductive function. If possible, ejaculate samples would be collected through manual manipulation of the penis. Samples are examined for sperm count, motility, and condition.

1.1.21 Colonic Temperature

Colonic temperature is collected to understand vascular cooling and reproductive status (Rommel *et al.*1992, 1994). Temperature measurements are obtained with a linear array of thermal probes interfaced to a laptop computer. The probes are typically housed in a 3 mm OD flexible plastic tube. The probe is sterilized, lubricated, and then inserted into the colon through the anus to a depth of 0.25-0.40 m, depending on the size of the animal. Temperature is continuously monitored.

1.1.22 Gastric Sampling

Gastric samples may be obtained using a standard stomach tube to evaluate health and evidence of toxin exposure.

1.1.23 Hair, Nails, and Vibrissae Sampling

A vibrissa may be pulled from anesthetized pinnipeds (age limit greater than 2 months). Vibrissae are pulled by gripping with forceps or fingers and pulling forcefully and rapidly in one smooth motion. Nails will be also be clipped close to the base of the nail bed without causing bleeding. Hair samples will be collected with scissors at the base of the hair without removing the follicle.

1.1.24 Administration of Drugs and Euthanasia

Drugs may be administered for sedation/chemical restraint during stranding response and disentanglement activities. These procedures would be performed or directly supervised by qualified

personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives. Anesthetics and analgesics may be used during research before performing biopsies, tooth extractions, and other procedures. Antibiotics, antifungals, and other medicines may be administered during response and rehabilitation of ESA-listed species. Chapter 31 of the *CRC Handbook of Marine Mammal Medicine* will be used as a reference for potential drugs and doses for marine mammal species (Stoskopf *et al.* 2001). Drugs may be administered orally or through injection, intubation, or inhalation. Orally administered medications are typically hidden in fish but may also be given via stomach tube.

Subcutaneous (SQ), IV, IM, intraperitoneal (IP), and intranasal injections may be used to deliver drugs. All of these methods would require some level of animal restraint. SQ injections are made in the interface between the blubber layer and the skeletal muscle layer. Animals must be maintained in a certain position for prolonged periods of time. The most common site for SQ injections in pinnipeds is the craniodorsal thorax between the scapulae. SQ injections would not be used in cetaceans.

In general, IV injections are complicated and rarely used in marine mammals. In cetaceans, medications may be injected in the fluke vessel if the volume is low and the medicine is not harmful if delivered perivascularly. An indwelling catheter may be used if repeated administration or slow infusion occurs (McBain 2001).

IM drug injections require longer needles because of the thickness of skin and blubber. Caution is taken to avoid accidental injection into the blubber, which may cause sterile abscess formation or poor absorption (Gulland *et al.* 2001). Injection into the blubber also has different drug-partitioning properties than muscle. This may result in the failure to activate a systemic distribution of highly lipid soluble medications (Stoskopf *et al.* 2001). Injection sites for phocids are the muscles surrounding the pelvis, femur, and tibia. These sites, as well as the large muscles overlying the scapulae, are appropriate for otariids (Gulland *et al.* 2001). IM injections in cetaceans may be made off the midline, slightly anterior to, parallel to, or just posterior to the dorsal fin. Caution is taken to avoid the thoracic cavity if the injection is anterior to the dorsal fin (McBain 2001). Multiple injection sites may be used and the volume per site should be reasonable depending on the animal.

IP injections deliver medications into the abdominal cavity. Non-irritating drugs may be delivered by this method. During injection, caution must be taken to avoid damaging major organs. A

contaminated needle or puncturing the gastrointestinal tract could introduce bacteria into the abdominal cavity (Gulland *et al.* 2001). Intranasal methods may be used to deliver drugs to cetaceans, via the blowhole (Dunn 2006).

Euthanasia of an ESA-listed animal may be conducted if: an animal had an irreversibly poor condition and rehabilitation would not be possible; rescue would be impossible; or no rehabilitation facility is available. Euthanasia may occur at a rehabilitation facility when an animal is deemed unreleasable and cannot be placed in permanent captivity. Humane euthanasia procedures would only be carried out by an attending, experienced, and licensed veterinarian or other qualified individual. Sedation may precede the administration of euthanasia drugs. Pinnipeds are typically euthanized using a lethal injection of barbiturates or other agent normally used to euthanize domestic species. Smaller cetaceans can be euthanized by injecting barbiturates or other lethal agent into a vein of the flippers, dorsal fin, flukes, or caudal peduncle. It may also be injected directly into the heart of abdominal cavity using an in-dwelling catheter. A small cetacean may be sedated before injection occurred. For large cetaceans, a method is currently being developed to sedate the animal via IM injection and then deliver euthanasia agents via IV. Large cetaceans may be euthanized by lethal injection directly into the heart. Injection into a vein of the flippers or flukes would likely be unsuccessful. Large whales may also be euthanized via intranasal method (injection into the blowhole) (Dunn 2006). Large whales may be euthanized by using ballistics (shooting) or by exsanguination (Geraci and Lounsbury 2005)

1.1.25 Auditory Brainstem Response /Auditory Evoked Potential

Auditory Brainstem Response (ABR) and Auditory Evoked Potential (AEP) procedures may be conducted as a method to evaluate the hearing abilities of individual animals or species. Procedures may be conducted on stranded animals, animals in rehabilitation, or on animals captured during research studies. The ABR technique involves repeatedly playing a test sound stimulus while simultaneously recording the neural evoked potential from surface electrodes.

1.1.25.1 Pinniped Testing Procedures

Pinniped audiometric testing may be conducted while individuals undergo scheduled sedation and/or anesthesia for necessary medical procedures during rehabilitation. SQ electrodes are used for obtaining electrophysiological recordings from pinnipeds and are harmless to the animals. The SQ electrodes are sterile 27 gauge x 10 mm needles that are place subcutaneously beneath the skin on the animals' head. One or two electrodes record AEPs and the other is a reference or ground electrode,

which subtracts the biological noise produced by the animal to enhance the recorded evoked potential responses.

Testing would be conducted under the supervision of the rehabilitation facility's attending veterinarian. Individuals are not tested more than once and testing sessions do not last longer than 60 minutes, except in cases where the individual requires euthanasia upon completion of the anesthetic procedure. Testing time has no impact on animal health or recovery from anesthesia in these individuals. Therefore, in situations where animals require euthanasia upon completion of anesthesia, testing may be allowed to continue for longer intervals at the discretion of the attending veterinarian. This protocol maximizes the amount of information that can be obtained from each subject, improves the quality of the data, and precludes any potential residual impact on anesthetic recovery on the individuals tested. Cases in which animals require euthanasia following anesthesia will be given highest priority in screening for potential study candidates.

1.1.25.2 Odontocete Testing Procedures

Procedures on odontocetes are non-invasive and can be conducted in short time frames. An animal may be resting at the surface or may be physically restrained (held by researchers) during the procedure. ABR signals are collected through suction cup electrodes. Standard EEG gel is used on the electrodes to establish an electrical connection between the electrode and the skin. Sounds may be presented through a jawphone attached to the lower jaw via suction cup. Sounds may also be presented in the water and the animals hear naturally through their lower jaws and other sound paths to the ear. A reference electrode is attached near the dorsal fin and a recording electrode is attached about 5 cm behind the blowhole. The electrodes are on the surface of the skin and are connected to an amplifier via long wires that exceed the length of the tank. The suction cups can easily be removed if there is any difficulty with the procedure. Evoked potentials are recorded from the electrodes. Frequencies used for testing range from 1 to 160 kHz (the range of frequencies that many odontocetes hear) and the maximum sound pressure level is less than 160 decibels re μPa.

Procedures would only be conducted on odontocetes. AEP procedures would not be conducted on mysticetes as there is no documentation on methodology that is likely to be successful in applying audiometric procedures on mysticetes. AEP experiments with animals of this size are inherently difficult for a number of reasons and mysticete anatomy presents additional challenges. All AEP procedures performed on stranded and rehabilitating odontocetes and pinnipeds will follow NMFS PR1 policies and protocols. Testing would not delay treatment, movement, or release of a stranded

animal nor would it interfere with rehabilitation activities. Testing would be stopped if an animal exhibited any adverse reaction, including abnormal respiration and locomotion, vocalization, vomiting, or other signs of distress.

1.1.26 Import and Export of Marine Mammals or Marine Mammal Parts

Exportation privileges are necessary for the MMHSRP to provide specimens to the international scientific community for analyses or as control/standard reference materials and to export animals for release. Importation privileges are necessary for the MMHSRP to acquire legally obtained specimens from outside the U.S. for archival in the National Marine Mammal Tissue Bank or for real time analyses. Importation privileges are also necessary to import live animals for treatment. An unlimited number and kinds of marine mammal specimens, including cell lines, would be imported or exported (worldwide) at any time during the year. Imported and exported specimens would include those taken from the Order Cetacea, Order Pinnipedia (including walrus), Order Sirenia, polar bear, sea otter, and marine otter; this includes threatened and endangered species. Specimen materials may include, but are not necessarily limited to: earplugs, teeth, bone, tympanic bullae, ear ossicles, baleen, eyes, muscle, skin, blubber, internal organs and tissues, reproductive organs, mammary glands, milk or colostrums, serum or plasma, urine, tears, blood or blood cells, cells for culture, bile, fetuses, internal and external parasites, stomach/intestines and their contents, feces, flippers, fins, flukes, head and skull, and whole carcasses. Specimens would be acquired opportunistically; therefore specific numbers and kinds of specimens, the countries of exportation, and the countries of origin cannot be predetermined.

Most specimens would be acquired opportunistically, and the MMHSRP will have minimal control over the age, size, sex, or reproductive condition of any animals that are sampled. However, in cases of prospective or retrospective analyses for a given health related study, these conditions would be provided to NMFS PR1 before activities occur. Imported specimens would be legally obtained from:

- Animals directly taken in fisheries for such animals in countries and situations where such taking is legal and humane;
- Animals killed during subsistence harvest by native communities;
- Animals killed incidental to commercial fishing operations;
- Animals stranded live;
- Animals found dead on the beach or at sea;

- Captive animals, when sampling is beyond the scope of normal husbandry practices or when sampling is taken during normal husbandry practices; and
- Live animals in a permitted, live capture study.

An unlimited number and kinds of marine mammal specimens, including cell lines, would be imported and/or exported (worldwide) at any time during the year. Specimens would be taken from the Order Cetacea and the Order Pinnipedia (except walrus), including threatened and endangered species. Specimen materials may include, but are not limited to: earplugs; teeth; bone; tympanic bullae; ear ossicles; baleen; eyes; muscle; skin; blubber; internal organs and tissues; reproductive organs; mammary glands; milk or colostrums; serum or plasma; urine; tears; blood or blood cells; cells for culture; bile; fetuses; internal and external parasites; stomach and/or intestines and their contents; feces; flippers; fins; flukes; head and skull; and whole carcasses. Specimens are acquired opportunistically; therefore specific numbers and kinds of specimens, the countries of exportation, and the countries of origin cannot be predetermined.

All marine mammals under NMFS jurisdiction, including ESA-listed species, may be imported or exported for medical treatment. Transport methods would be the same as those described in Section 1.1.5.

2. New ESA/MMPA Permit Activities

This Section describes scientific research and enhancement activities that may potentially be conducted under the new ESA/MMPA permit.

2.1.1 Blood Sampling

Currently, no procedures exist to remotely collect blood from free-swimming animals. However, if blood sampling procedures are developed and approved within the timeframe of the permit (five years), the MMHSRP would use these to conduct research. All protocols (including species) would be provided to NMFS PR1 for approval prior to any research activity.

2.1.2 Health Assessment Studies

In addition to the current health assessment studies on bottlenose dolphins, future studies would be conducted on other cetacean species. New tagging, tracking, and telemetry packages would also be used. All species and methods would be provided to NMFS PR1 for approval before any activities occurred.

2.1.3 Acoustics

The use of AEP procedures on any mysticete would not occur under the current ESA/MMPA permit. However, if a successful methodology for applying audiometric procedures on mysticetes is developed within the timeframe of the permit (five years), the MMHSRP would likely use these to conduct research. All protocols (including species) would be provided to NMFS PR1 for approval prior to any research activity.

Passive acoustic recording would involve the used of a hydrophone (underwater microphone). A hydrophone would be placed in the water directly off of a vessel or in a pool, and sounds would be recorded and taped via an apparatus on the vessel or on the pool deck. The purpose of passive acoustic recording is to record the vocalizations of a group of animals and/or the background noise in an area around the group of animals. Passive acoustic recording also indirectly provides background information on noise and vocalizations.

Active acoustic playbacks would be used to expose cetaceans and pinnipeds to playbacks of pre-recorded songs, social sounds, and feeding calls of that species. Playbacks may be used during capture and release activities and during rehabilitation. Sounds and songs would be projected from an underwater speaker hung over the side of a small vessel or in a pool. Sounds or songs would be

projected from the speaker at a volume and quality as close to a real sound/song as possible. The playback system would be calibrated so precise levels of sound can be projected. The physiological and/or physical response of the animals to the sounds and songs would be measured, often through behavioral observation and photographs/video recording of the subject animal(s). Playbacks would be used to determine if an animal can hear and assess how they are responding to sounds. This information would be used to determine the releasability of a rehabilitated animal.

2.1.4 Cognitive Assessment of Sea Lions in Rehabilitation Suffering from Domoic Acid Intoxication.

This study is designed to increase the extent of clinical assessment of California sea lions exposed to domoic acid. Standard veterinary clinical procedures have been used to evaluate the health and prognosis for survival of these cases, including hematology, serum biochemistry, MRI, EEG, and satellite tagging to monitor released animals. Work to date on sea lions (Goldstein et al. 2008) and parallel studies in laboratory animals suggest that there may be additional impacts on sea lion health due to changes in behavior and cognitive function. In an effort to qualify and quantify the cognitive effects of domoic acid exposure on California sea lions, subjects will be assessed will in rehabilitation using behavioral methods. Performance will be evaluated on simple tasks designed to reveal aspects of cognitive function, including auditory habituation, behavioral flexibility, spatial memory, and object recognition. Both passive (observational) and active (food reward) approaches will be used. Direct human contact will be minimized and should not exceed that typically experienced in a rehabilitation setting.

The California sea lion subjects to be assessed will be selected by the veterinary staff at The Marine Mammal Center (TMMC) (Sausalito, CA) from the pool of animals undergoing rehabilitation. Subjects will include prescreened animals identified as domoic acid exposed (by fecal samples, EEG, MRI, and basic neurological assessment) and an equal number of prescreened controls with no apparent neurological deficits (e.g., trauma and malnutrition cases). A maximum of 50 exposed sea lions and 50 controls will be evaluated, but the actual number of subjects will depend on animal availability during the course of the study. Animals of all ages will be examined, based on the availability of stranded animals. Assays will be conducted at TMMC or at the Long Marine Laboratory's (Santa Cruz, CA) marine mammal holding facilities. Each subject will be evaluated during a period not to exceed 30 days. Medical care, feeding schedules, and activity levels for subjects will be similar to those provided for animals in standard rehabilitation settings. Upon completion of their participation, subjects will be assessed for release, continued care, or euthanasia

by the TMMC veterinary staff according to their standard operating procedures. Decisions on the disposition of each animal will be based on medical condition and the ability to survive in the wild, according to the NMFS release guidelines for marine mammals in rehabilitation.

3. References

Arnbom *et al.* 1992 — Arnbom, T.A., N.J. Lunn, I.L. Boyd, and T. Barton. 1992. Aging Live Antarctic Fur Seals and Southern Elephant Seals. *Marine Mammal Science* 8(1): 37-43.

Dierauf 1994 — Dierauf, L.A. 1994. Pinniped forensic, necropsy and tissue collection guide. NOAA Technical Memorandum NMFS-OPR-94-3. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Silver Spring, MD.

Dunn 2006 — Dunn, J.L. 2006. Multiple-agent euthanasia of a juvenile fin whale, *Balaenoptera physalus*. *Marine Mammal Science* 22(4): 1004-1007.

Galimberti *et al.* 2000 — Galimberti, F. and S. Sanvito. 2000. Marking of southern elephant seals with passive integrated transponders. *Marine Mammal Science* 16(2): 500-504.

Geraci and Lounsbury 2005 — Geraci, J.R. and V.J. Lounsbury. 2005. Marine Mammals Ashore: A Field Guide for Strandings, Second Edition. National Aquarium in Baltimore, Baltimore, MD.

Gulland *et al.* 2001 — Gulland, F.M.D., M. Haulena, and L.E. Dierauf. Seals and Sea Lions. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

HSWRI 2006 — Hubbs-SeaWorld Research Institute (HSWRI). 2006. Workshop to Evaluate the Potential for Use of *Morbillivirus* Vaccination in Hawaiian Monk Seals. Final Report. San Diego, CA.

IATA 2006 — International Air Transport Association (IATA). 2006. *Live Animal Regulations.* 33rd Edition. International Air Transport Association, Montreal, Quebec, Canada.

Jeffries *et al.* 1993 — Jeffries, S.J., R.F. Brown, and J.T. Harvey. 1993. Techniques for capturing, handling and marking harbour seals. *Aquatic Mammals* 19.1: 21-25.

Kanatous *et al.* 1999 — Kanatous, S. B., L. V. DiMichele, D. F. Cowan, and R. W. Davis. 1999. High aerobic capacities in the skeletal muscles of pinnipeds: adaptations to diving hypoxia. *Journal of Applied Physiology* 86:1247-1256.

Litzky *et al.* 2001 — Litzky, L.K., R.C. Hobbs, and B.A. Mahoney. 2001. Field report for tagging study of beluga whales in Cook Inlet, Alaska, September 2000. In: Marine Mammal Protection Act and Endangered Species Act Implementation Program 2000. Alaska Fisheries Science Center Processed Report 2001-06. A.L. Lopez and R.P. Angliss, eds. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Fisheries Science Center, Seattle, WA.

McBain 2001 — McBain, J.F. 2001. Cetacean Medicine. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

McLellan *et al.* 2004 — McLellan, W.A, S.A. Rommel, M. Moore, and D. A. Pabst. 2004. Right whale necropsy protocol. Final Report to NMFS for Contract No. 40AANF112525.

Merrick *et al.* 1996 — Merrick, R.L., T.R. Loughlin, and D.G. Calkins. 1996. Hot-Branding: A Technique for Long-term Marking of Pinnipeds. NOAA Technical Memorandum NMFS-AFSC-68. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Fisheries Science Center, Seattle, WA.

Petras 2003 — Petras, E. 2003. A Review of Marine Mammal Deterrents and Their Possible Applications to Limit Killer Whale (*Orcinus orca*) Predation on Steller Sea Lions (*Eumetopias jubatus*). AFSC Processed Report 2003-02. National Ocean and Atmospheric Administration, National Marine Fisheries Service, Seattle, WA.

Pugliares *et al.* 2007 — Pugliares, K.R., A. Bogomolni, K.M. Touhey, S.M. Herzig, C.T. Harry, and M.J. Moore. 2007. Marine Mammal Necropsy: An Introductory Guide for Stranding Responders and Field Biologists. Woods Hole Oceanographic Institution Technical Report WHOI-2007-06. Woods Hole, MA.

Raverty and Gaydos 2004 — Raverty, S.A. and J.K. Gaydos. 2004. Killer whale necropsy and disease testing protocol. SeaDoc Society, Wildlife Health Center, University of California Davis, School of Veterinary Medicine.

Reeves *et al.* 1996 — Reeves, R.R., R.J. Hofman, G.K. Silber, and D. Wilkinson. 1996. Acoustic Deterrence of Harmful Marine Mammal-Fisheries Interactions: Proceedings of a Workshop Held in Seattle, Washington, 20-22 March 1996. NOAA Technical Memorandum NMFS-OPR-10. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Silver Spring, MD.

Ridgway *et al.* 1975 — Ridgway, S.H., R.F. Green, and J.C. Sweeney. 1975. Mandibular anesthesia and tooth extraction in the bottlenose dolphin. *Journal of Wildlife Diseases* 11:415-428.

Rommel *et al.* 1992 — Rommel, S.A., D.A. Pabst, W.A. McLellan, J.G. Mead, and C.W. Potter. 1992. Anatomical evidence for countercurrent heat exchanger associated with dolphin testes. *The Anatomical Record* 232 (1):150-156.

Rommel *et al.* 1994 — Rommel, S.A., D.A. Pabst, W.A. McLellan, T.M. Williams, and W.A. Friedl. 1994. Temperature regulation of the dolphin testes: evidence from colonic temperatures. *Journal of Comparative Physiology B: Biochemical, Systemic, and Environmental Physiology* 164: 130-134.

Stoskopf *et al.* 2001 — Stoskopf, M.K., S. Willens, and J.F. McBain. 2001. Pharmaceutical and Formularies. In: *CRC Handbook of Marine Mammal Medicine*. Second Edition. L.A. Dierauf and F.M.D. Gulland, eds. CRC Press LLC, Boca Raton, FL.

Thomas *et al.* 1987 — Thomas, J.A., L.H. Cornell, B.E. Joseph, T.D. Williams, and S. Dreischman. 1987. An implanted transponder chip used as a tag for sea otters (*Enhydra lutris*). *Marine Mammal Science* 3(3): 271-274.

USN 2004 — U.S. Navy (USN), Pacific Fleet. 2004. Report on the results of the inquiry into allegations of marine mammal impacts surrounding the use of active sonar by *USS Shoup* (DDG 86) in the Haro Strait on or about 5 May 2003.

Wright *et al.* 1998 — Wright, I.E., S.D. Wright, and J.M. Sweat. 1997. Use of passive integrated transponder (PIT) tags to identify manatees (*Trichechus manatus latirostris*). *Marine Mammal Science*: 14(3): 641-645.

4. Acronyms

ABR	Auditory Brainstem Response
AEP	Auditory Evoked Potential
APHIS	Animal and Plant Health Inspection Service
cc	Cubic centimeter
ESA	Endangered Species Act
HSWRI	Hubbs-SeaWorld Research Institute
IATA	International Air Transport Association
IM	Intramuscular
IP	Intraperitoneal
IV	Intravenous
LHX	Life History transmitter
m	Meter
MMHSRP	Marine Mammal Health and Stranding Response Program
MMPA	Marine Mammal Protection Act
NMFS PR1	National Marine Fisheries Service, Office of Protected Resources, Permits, Conservation and Education Division
NMMTB	National Marine Mammal Tissue Bank
NOAA	National Oceanic and Atmospheric Administration
PIT	Passive Integrated Transponder
SQ	Subcutaneous
TDR	Time-depth Recorder
UME	Unusual Mortality Event
VHF	Very High Frequency

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APPENDIX I

REQUIRED TAKE TABLES FOR THE ESA/MMPA PERMIT APPLICATION

Table 1. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
Project 1: Emergency Response Activities								
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All (no restriction on age class)	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies[2]	Close approach, aerial and vessel surveys, disentanglement, capture, restraint, handling, tagging, marking (excluding hot branding), sample collection (including biopsy), sample analysis, anesthesia, sedation, treatment, import/export of animals, transport, relocation, rehabilitation, release, hazing away from harmful situations; and acoustic sampling, recording, and playbacks	Live animals may be transported to rehabilitation facilities and release sites. Live animals may be relocated	Beaches, coastal waters of the US, waters within the US EEZ, and international waters (for export); import/export animals world-wide	All/continuous
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Euthanasia, necropsy, carcass disposal	Carcasses may be transported to disposal sites or laboratories	Beaches, coastal waters of the US, and waters within the US EEZ	All/continuous
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Accidental mortality, necropsy, carcass disposal	Carcasses may be transported to disposal sites or laboratories	Beaches, coastal waters of the US, and waters within the US EEZ	All/continuous
All Cetacea, all Pinnipedia (including walrus), sea otter, manatee, and polar bear[3]	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Incidental harassment	N/A	Beaches, coastal waters of the US, and waters within the US EEZ	All/continuous

Table 1. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
All Cetacea, all Pinnipedia (including walrus), sea otter, manatee, dugong, and polar bear[3]	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Receipt, import/export of samples	Analytical and diagnostic samples may be transported, imported or exported as needed to laboratories	Beaches, coastal waters of the US, waters within the US EEZ, and international waters; world-wide import /export	All/continuous
Project 2: Prospective Health Assessment Research Activities								
Pinnipedia (except Guadalupe fur seal, Hawaiian monk seal, and Steller sea lion)	All	M/F	Unlimited	5	Close approach, aerial and vessel surveys	None	Coastal waters of the US, US EEZ, international waters	All
Pinnipedia (except Guadalupe fur seal, Hawaiian monk seal, and Steller sea lion)	All	M/F	Up to 300 annually (total)	5	Capture (net or hand), restraint, handling, tagging, marking (excluding hot branding), sample collection (including biopsy), release; and acoustic sampling, recording, and playbacks	None	Coastal waters of the US, US EEZ, international waters	All
Pinnipedia (except Guadalupe fur seal, Hawaiian monk seal, and Steller sea lion)	All	M/F	3 annually (total)	1	Accidental mortality during capture activities	None	Coastal waters of the US, US EEZ, international waters	All
Pinnipedia (except Guadalupe fur seal, Hawaiian monk, seal and Steller sea lion)	All	M/F	Up to 400 annually (total)	5	Collection of samples during other legal takes/permitted activities (subsistence harvest, by-catch, live capture/release)	None	Coastal waters of the US, US EEZ, international waters	All
ESA-listed Hawaiian monk seals and Guadalupe fur seals that are held in captivity and are not releasable back into the wild; and those undergoing rehabilitation	All	M//F	As warranted to satisfy the requirements of study design	As warranted to satisfy the requirements of study design	Capture (net or hand), restraint, handling, tagging, marking (excluding hot branding), sample collection (including biopsy), release; and acoustic sampling, recording, and playbacks	None	Captive holding facilities including rehabilitation centers	All

Table 1. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
Small Cetacea (*Tursiops, Stenella, Steno, Delphinus, Lagenorhynchus Lagenodelphis, Lissodelphis, Grampus, Peponocephala, Feresa, Pseudorca, Orcinus, Globicephala, Phocoena, Phocoenoides, Kogia, Delphinaterus, all beaked whales*)	All	M/F	Unlimited	5	Close approach, aerial and vessel surveys	None	Coastal waters of the US, US EEZ, international waters	All
Small Cetacea (see above)	All except YOY	M/F	Up to 200 annually (total)	5	Capture (net or hand), restraint, handling, tagging, marking (including freeze branding), sample collection, release; and acoustic sampling, recording, and playbacks	None	Coastal waters of the US, US EEZ, international waters	All
Small Cetacea (see above)	All except YOY	M/F	3 annually (total)	1	Accidental mortality during capture activities	None	Coastal waters of the US, US EEZ, international waters	All
Small Cetacea (see above)	All except YOY	M/F	Up to 400 annually (total)	5	Collection of samples during other legal takes/permitted activities (subsistence harvest, by-catch, live capture/release)	None	Coastal waters of the US, US EEZ, international waters	All
Large Whales (gray, right, humpback, fin, blue, sei, Bryde's, minke, bowhead, and sperm whales)	All except calves ≤ 6 months in age and cows with calves	M/F	Up to 5,000 annually (total)	5	Close approach, aerial and vessel surveys	None	Coastal waters of the US, US EEZ, international waters	All
Large Whales (same species as the previous entry)	All except calves ≤ 6 months in age and cows with calves (for	M/F	Up to 100 annually (total)	5	Tagging and sample collection (including biopsy and respiratory gases), acoustic sampling (including recording and playback	None	Coastal waters of the US, US EEZ, international waters	All

Table 1. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
	tagging and sampling)				experiments), collection of feces, photo-identification (for visual health assessment and ID)			
Large Whales (same species as the previous entry)	All	M/F	Up to 400 annually (total)	5	Collection of samples during other lawful "takes"/permitted activities (subsistence harvest, by-catch, live takes)	None	Coastal waters of the US, US EEZ, international waters	All
All Cetacea, all Pinnipedia (including walrus), marine and sea otter, manatee, dugong, and polar bear	All	M/F	As warranted to satisfy the requirements of study design	As warranted to satisfy the requirements of study design	Receipt, import/export of samples	Analytical and diagnostic samples may be transported, imported or exported as needed to laboratories	Beaches, coastal waters of the US, waters within the US EEZ, and international waters; world-wide import /export	All/continuous
Project 3: Cognitive Assessment of Sea Lions in Rehabilitation with Domoic Acid Intoxication								
Zalophus californianus	All	M/F	Up to 50 domoic acid exposed animals and up to 50 controls (total)	30 (up to 1/day)	Restraint, handling, and sample collection	Animals may be transported to Long Marine Laboratory.	Animals in rehabilitation at The Marine Mammal Center	Period for each animal- up to 30 days. Entire study- Over 5 years
Zalophus californianus	All	M/F	Up to 50 domoic acid exposed animals (total)	1	Accidental mortality during research activities	None	Animals in rehabilitation at The Marine Mammal Center	Entire study- Over 5 years

1 The ESA defines "take" as "harass, harm, pursue, hunt, shoot, would, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 U.S.C. 1532).
2. Due to the nature of stranding and entanglement events, the specific numbers of individuals that might be "taken" during responses to these events cannot be determined in advance
3. dugongs, manatees, polar bears, sea otters, and walruses are under the jurisdiction of the U.S. Fish and Wildlife Service and are not addressed in this biological opinion

Table 2. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct on endangered or threatened species under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
Project 1: Emergency Response Activities								
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All (no restriction on age class)	M/F	As warranted to respond to emergencies[2]	As warranted to respond to emergencies*	Close approach, aerial and vessel surveys, disentanglement, capture, restraint, handling, tagging, marking (excluding hot branding), sample collection (including biopsy), sample analysis, anesthesia, sedation, treatment, import/export of animals, transport, relocation, rehabilitation, release; hazing away from harmful situations; and acoustic sampling, recording, and playbacks	Live animals may be transported to rehabilitation facilities and release sites. Live animals may be relocated	Beaches, coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters; world-wide import/export of animals	All/continuous
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Euthanasia, necropsy, carcass disposal	Carcasses may be transported to disposal sites or laboratories	Beaches, coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters	All/continuous
All ESA-listed Cetacea, all ESA-listed Pinnipedia under NMFS jurisdiction	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Accidental mortality, necropsy, carcass disposal	Carcasses may be transported to disposal sites or laboratories	Beaches, coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters	All/continuous
All Cetacea, all Pinnipedia (including walrus), sea otter, manatee, and polar bear[3]	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Incidental harassment	N/A	Beaches, coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters	All/continuous

Table 2. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct on endangered or threatened species under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
All Cetacea, all Pinnipedia (including walrus), sea otter, manatee, dugong, and polar bear[3]	All	M/F	As warranted to respond to emergencies*	As warranted to respond to emergencies*	Receipt, import/export of samples	Analytical and diagnostic samples may be transported, imported or exported as needed to laboratories	Beaches, coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters; world-wide import/export	All/continuous
Project 2: Prospective Health Assessment Research Activities								
ESA-listed Hawaiian monk seals, and Guadalupe fur seals that are held in captivity and are not releasable back into the wild; and those undergoing rehabilitation	All	M//F	As warranted to satisfy the requirements of study design	As warranted to satisfy the requirements of study design	Capture (net or hand), restraint, handling, tagging, marking (tagging and marking excludes hot branding and would only occur if an animal is not already marked or is not otherwise identifiable), sample collection (including biopsy), release; and acoustic sampling, recording, and playbacks	None	Captive holding facilities, including rehabilitation centers	All
Large Whales (gray, right, humpback, fin, blue, sei, Bryde's, minke, bowhead, and sperm whales)	All	M/F	Up to 4,900 annually (total)	5	Close approach, aerial and vessel surveys (collection of feces, photo-identification for visual health assessment and ID)	None	Coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters	All
Large Whales (see above)	All except calves ≤ 6 months in age and cows with calves (for tagging and sampling)	M/F	Up to 100 annually (total)	5	Close approach, aerial and vessel surveys; Tagging and sample collection (including biopsy and respiratory gases), acoustic sampling (including recording and playback experiments), collection of feces, photo-identification (for visual health assessment and ID)	None	Coastal waters and EEZ of the United States, its territories, and possessions, and adjacent marine waters	All
Large Whales (see above)	All except calves ≤ 6	M/F	Up to 400 annually (total)	5	Collection of samples from dead animals in conjunction with the	None	Coastal waters and EEZ of the United	All

Table 2. Activities representatives of the National Marine Fisheries Service's Marine Mammal Health and Stranding Response Program would be authorized to conduct on endangered or threatened species under the proposed permit

Species	Life Stage	Gender	Expected Number of Individuals "Taken[1]"	Number of Times an Individual Might be "Taken"	Proposed Action	Transport	Location	Dates/Time Period
	months in age and cows with calves (for "takes" of live animals)				activities of other investigators who are operating under other permits or legal authority (subsistence harvest, by-catch); collection of respiratory gasses and blood samples from live animals in conjunction with the activities of other investigators who are operating under other permits or legal authority or during Emergency response activities under this permit		States, its territories, and possessions, and adjacent marine waters	
All Cetacea, all Pinnipedia (including walrus), sea otter, manatee, dugong, and polar bear[3]	All	M/F	As warranted to satisfy the requirements of study design	As warranted to satisfy the requirements of study design	Receipt, import/export of samples	Analytical and diagnostic samples may be transported, imported or exported as needed to laboratories	Beaches, coastal waters of the US, waters within the US EEZ, and international waters; world-wide import /export	All/continuous

1 The ESA defines "take" as "harass, harm, pursue, hunt, shoot, would, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 U.S.C. 1532)

2. "Emergencies" generally refers to health emergencies involving marine mammals and include, but are not limited to stranding events, entanglements, trauma-related incidents (for example, ship strikes and gun-shots), oil spills, disease outbreaks, and exposure to biotoxins. Due to their nature, the number of individuals that might be "taken" during responses to these health emergencies cannot be determined in advance

3. dugongs, manatees, polar bears, sea otters, and walruses are under the jurisdiction of the U.S. Fish and Wildlife Service and are not addressed in this biological opinion

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APPENDIX J

CARCASS DISPOSAL INFORMATION

PERSISTENT CONTAMINANTS IN SELECTED SPECIES OF MARINE MAMMALS IN US WATERS: A REVIEW OF THE LITERATURE FROM 1995 THROUGH 2005

A report prepared for the
National Oceanic and Atmospheric Administration,
National Marine Fisheries Service, Office of Protected Resources
Marine Mammal Health and Stranding Response Program
Purchase Order: DG133F03SE1139

by
Victoria M. Woshner, DVM, PhD

August 21, 2006

REPORT OUTLINE:

I. INTRODUCTION

II. ENVIRONMENTAL CONTAMINANTS IN SELECTED MARINE MAMMAL SPECIES IN US WATERS

A. Contaminant classes—background information
1. Persistent organic pollutants (POPs)
1. Polychlorinated biphenyls (PCBs)
2. Polychlorinated dibenzo-p-dioxins and furans (PCDD/Fs)
3. DDT (1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane)
4. Chlordanes (including heptachlor and heptachlor epoxide)
5. Hexachlorobenzene (HCB)
6. Hexachlorocyclohexanes (HCHs)
2. Toxic metals
1. Cadmium
2. Lead
3. Mercury
4. Organotins
3. Miscellaneous contaminants
1. Polybrominated diphenyl ethers (PBDEs)
2. Polyfluoroalkyls (PFAs)

B. Concentrations of environmental contaminants in selected species of marine mammals in US waters
1. Species addressed
2. Databases reviewed, including time period examined and search terms used.
3. Overview of tissue contaminant concentrations: Literature review summary
0. General comments upon format of tables and appendices
1. Persistent organic pollutants (POPs)
2. Toxic metals
3. Miscellaneous contaminants

C. Conclusions and comments regarding the nature and adequacy of the available literature database

III. LITERATURE CITED

IV. TABLES AND APPENDICES (ACCOMPANYING EXCEL FILE)

Table 1. Summary Data for Some Persistent Organic Pollutants, Including PCBs, DDTs, Chlordanes, Mirex, Dieldrin, HCHs and HCB in Blubber of Selected Marine Mammal Species from US Waters, Reported 1994 through 2005.

I. INTRODUCTION

As charismatic megafauna, marine mammals are beloved and revered by people around the world. Consequently, mortality events and scientific research involving marine mammals are often of a high public profile. Widely publicized reports of high levels of anthropogenic contaminants in some whale species have incited concern that the carcasses of the whales themselves may constitute a toxicological hazard. This literature review was initiated with a view to gathering the collective data pertaining to levels of persistent contaminants in that subset of marine mammal species in US waters that tends to strand most frequently, so that the potential toxicological hazard generated by carcasses of these animals might be assessed.

II. ENVIRONMENTAL CONTAMINANTS IN SELECTED MARINE MAMMAL SPECIES IN US WATERS

A. Contaminant classes—background information

II.A.1. Persistent organic pollutants (POPs)

II.A.1.*1*. Polychlorinated biphenyls (PCBs) are complex mixtures of synthetic chlorinated compounds produced in the US until 1977 for use as insulators, coolants and lubricants, particularly in transformers and other electrical equipment (ATSDR, 2000). The basic structure of PCBs consists of a biphenyl backbone with 1 to 10 chlorine atoms, yielding 209 possible PCB congeners. Position and degree of chlorination are important determinants of congener toxicity, with more highly chlorinated and coplanar (dioxin-like) PCBs exhibiting greater toxicity than less chlorinated and non-planar congeners. A greater degree of chlorination also confers longer environmental persistence, which can range from months to years (ATSDR, 2000). The highly lipophilic nature of PCBs allows them to accumulate in fatty tissues of organisms or to associate with organic components of sediments in environmental samples. In animals and humans, PCBs are toxic to integumentary, immune, endocrine, reproductive, and nervous systems. At high doses, PCBs have been associated with liver and kidney damage in laboratory animals. PCBs are a known animal carcinogen and considered a probable human carcinogen by the US Environmental Protection Agency (USEPA) and other agencies (ATSDR, 2000), although no increased risk of cancer has been detected in studies of individuals occupationally exposed to PCBs (Ross, 2004). PCBs also have been implicated as environmental endocrine disruptors in wildlife species (Chiu et al., 2000), although this link is controversial (Ross, 2004). While PCBs can persist in the environment for many years, they are susceptible to both anaerobic and aerobic microbial degradation via metabolism of congeners with higher or lower degrees of chlorination, respectively (Abraham et al., 2002).

II.A.1.*2*. Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzo-p-furans (PCDFs) are chlorinated hydrocarbon compounds produced by combustion of waste and organic materials, or as contaminants in chemical manufacturing processes. Both compound classes consist of two benzene rings joined by either one (PCDFs) or two

(PCDDs) oxygen atoms. Like PCBs, PCDDs/PCDFs are environmentally persistent compounds that associate with particulate matter and that are highly lipophilic and prone to biomagnify in the food chain. The most toxic PCDD, 2,3,7,8 tetrachlorodibenzo-*p*-dioxin (TCDD) serves as a standard for comparison of other dioxins and dioxin-like PCBs, the toxicity of which is sometimes expressed in "toxic equivalency factors" (TEQs) of TCDD (ATSDR, 1998). TCDD can cause dermal and hepatic toxicity, and is classified as a human carcinogen. Other PCDDs/PCDFs may cause similar effects, depending upon their structure (ATSDR, 1998).

II.A.1.*3*. DDT (1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane) is an organochlorine pesticide banned in the US in 1972, but still used in many parts of the world for control of malaria-transmitting mosquitoes. Technical grade DDT is a mixture of *p,p'*-, *o,p'*-D, and *o,o'*-DDT isomers and may also contain DDE (1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene) and DDD (1,1-dichloro-2,2-bis(p-chlorophenyl)ethane) as contaminants. The latter two compounds may also be produced via metabolism by some organisms, including microbes in the environment. In temperate regions, soil half-life of DDT is approximately 5 years, but may be up to 4 to 6 times as long, depending on the environmental conditions (ATSDR, 2002a). Like other organochlorines, DDT, DDE and DDD are extremely lipid soluble, tending to biomagnify and to associate with organic matter (soils and sediments) in the environment. At extremely high doses, DDT may be neurotoxic (ATSDR, 2002a). DDT and its metabolites are carcinogens and may also act as endocrine disruptors, although studies on estrogenic effects of DDT have been equivocal (Turusov et al., 2002).

II.A.1.*4*. Chlordane is an organochlorine pesticide used in the US until 1988 (ATSDR, 1994). It is a complex mixture of various chlordane isomers and other compounds, the fractions of which vary depending upon the purity of the preparation. The predominant components identified in technical chlordane were *cis*-chlordane, *trans*-chlordane, *trans*-nonachlor, octachlordane, heptachlor, and *cis*-nonachlor (Dearth and Hites, 1991). Chlordane may persist for decades in the environment and is highly lipid soluble, with oxychlordane comprising the major metabolite that bioaccumulates in fatty tissues (USEPA, 1997). A component of chlordane, heptachlor was also produced and used as a pesticide in its own right. Heptachlor epoxide may be produced by degradation or metabolism of heptachlor (ATSDR, 1993). Chlordane and the related compounds heptachlor and heptachlor epoxide are lipophilic and environmentally persistent (ATSDR, 1994 and 1993). At high doses, chlordane may cause toxic effects in the liver, digestive tract and nervous system (ATSDR, 1994). While data are limited, heptachlor and heptachlor epoxide also have been associated with toxic effects to the nervous and reproductive systems, as well as to liver and kidney in humans or animals, with the epoxide metabolite being more toxic than its parent compound (ATSDR, 1993). Evidence as to carcinogenicity of chlordane is inconclusive (ATSDR, 1994; USEPA, 1997). Heptachlor and heptachlor epoxide are considered possible human carcinogens by the USEPA, while the International Agency for Research on Cancer (IARC) determined that the two compounds are not classifiable with respect to human carcinogenicity (ATSDR, 1993).

II.A.1.*5*. Hexachlorobenzene (HCB) was produced in the US until 1970s, although it continued to be used as a fungicide until 1984. Also, some HCB is formed as a by-product in the manufacture of other chlorinated compounds as well as during incineration of garbage (McGovern, 2004). HCB is ubiquitous and persistent in the environment, with a half-life of up to approximately 6 years in soil, air and surface water, while in groundwater the half-life may be almost twice as long. Like other organochlorines, HCB is insoluble in water, but highly soluble in organic solvents and lipid allowing it to bioaccumulate readily in fatty tissues. HCB is toxic to virtually all organ systems, with the central nervous system, ovary and liver comprising the most vulnerable target organs. The USEPA classifies HCB as a probable human carcinogen based on data from animal studies (ATSDR, 2002b).

II.A.1.*6*. Technical grade hexachlorocyclohexane (HCH), which contains α, β, γ, δ, and ε isomers, was produced in the US until 1983 for use as an insecticide. While other forms of HCH are now banned, γ-HCH (also known as lindane) is still imported for use as an insecticide and topical treatment for lice (Research Triangle Institute, 1999). At high doses, HCHs can result in neural, musculoskeletal and reproductive toxicity. Abnormalities in developmental, endocrine, hepatic, renal, immunologic and hematopoieitic indices associated with HCH exposure also have been documented in humans or animals. Some animal studies have found increased incidence of liver cancer in rodents following chronic oral exposure to HCHs, leading the Department of Health and Human Services to extrapolate that HCHs may be a possible human carcinogen (Research Triangle Institute, 1999).

II.A.2. Toxic metals

1. *Cadmium*
2. *Lead*
3. *Mercury*
4. *Organotins*

Toxic metals are a unique class of environmental contaminants in that they occur naturally, although human activities have allowed them to become more pervasive and accessible to biotic cycles. However, because they are innate to the environment, it is difficult to distinguish “pollutant” from “natural” sources. Moreover, metals are not degraded via microbial or physical action, but may merely metamorphose by alterations in oxidation state and/or in the other elements to which they are bound in compounds.

II.A.2.*1*. Cadmium is a heavy metal often released as a by-product during refining of zinc, copper and lead, and has some industrial uses, such as in batteries and electrical components. There also are natural releases of cadmium to the environment through events such as volcanic eruptions and forest fires. Compared to other metals, cadmium is somewhat unique in that it is taken up and may accumulate to appreciable levels in some plants. In animals, cadmium is sequestered in the kidney and liver. The target organ of cadmium is the kidney; in addition, it is toxic to a number of other organs, including liver, bone and blood vessels. While data are scant, cadmium may be carcinogenic as well (ATSDR, 1999a). Various marine mammals are exposed to or bioaccumulate high levels of cadmium compared to terrestrial species (Woshner et al., 2001a; 2001b).

Although no physiologic requirement can be demonstrated for cadmium in the majority of organisms, some researchers recently have characterized a cadmium-containing enzyme in a marine diatom, refuting the long-held belief that cadmium was not only universally toxic but also functionless in living creatures (Lane et al., 2005).

II.A.2.*2*. Lead is ubiquitous in the environment, both as a result of natural geologic distribution and because of wide industrial applications, including former usage as a gasoline and paint additive. It is also released by combustion of fossil fuels and waste incineration. Lead is believed to be universally toxic, even at very low levels, with no organisms known to date demonstrating a physiologic requirement for lead. Generally, ingested lead is not well absorbed; however, because it is chemically similar to calcium, it may be assimilated and accumulated in tissues in lieu of calcium, particularly in growing organisms that are calcium limited. Although the nervous system (particularly the developing brain) is considered the "target organ" of lead, this metal is toxic to virtually all body systems, including the hematopoietic, cardiovascular, reproductive, immune, gastrointestinal, and musculoskeletal systems. Lead is carcinogenic in laboratory species, but has not been established as a human carcinogen (ATSDR, 1999b).

II.A.2.*3*. Mercury (Hg) is another metal that is apparently toxic to all organisms, even at low levels. Relative toxicity of mercury depends largely on the form of the metal (organic versus inorganic), and as is the case for all toxicants, the route by which exposure occurs. Ingested elemental mercury is not well-absorbed and hence of low toxicity, while exposure to methylmercury by this route is highly toxic, as it is almost completely absorbed. Like other toxic metals, mercury enters the environment from natural sources, such as volcanoes and degassing of the earth's crust. However, anthropogenic activity has dramatically increased mercury emissions, primarily through burning of fossil fuels, as well as through mining and other industrial applications. While mercury is toxic to virtually all body systems, the nervous system and kidney are the primary target organs for organic and inorganic mercury, respectively (ATSDR, 1999c).

II.A.2.*4*. In its inorganic form, tin (Sn) is non-toxic. However, organic forms of tin may be highly toxic. Organotins have a variety of industrial applications, including use of mono- and di-substituted organotins as catalysts and stabilizers in PVC plastics (Appel, 2004). Tributyl tin (TBT) compounds have been widely used as pesticides, particularly in antifouling paints on ships. As such, TBTs are ubiquitous in the aquatic environment, even as their use is being phased out due to concerns with respect to their ecotoxicity (Rüdel, 2003). As with many other toxicants, organotins adsorb onto organic particulates, such that an increase in dissolved organic matter decreases bioavailability of organotins. Also, speciation of organotins is pH-dependent; hence, increasing pH is associated with formation of organotin hydroxides, which are lipophilic and therefore predisposed to bioaccumulate (Fent, 2003). Organotins, especially TBT and triphenyltin (TPT) have been associated with tumorigenicity of the adenohypophysis, developmental toxicity, reproductive toxicity, neurotoxicity and most especially immunotoxicity, with thyrotoxicity apparently consitituting the most sensitive toxic endpoint in mammals (Rüdel, 2003). Gastropods are exceptionally vulnerable to toxic effects of TBT, which disrupts steroid metabolism leading to development of imposex at even minute

concentrations. In the environment, organotins undergo aerobic degradation, but can persist for years in anoxic sediments (Fent, 2004).

II.A.3. Miscellaneous contaminants

1. *Polybrominated diphenyl ethers (PBDEs)*
2. *Polyfluoroalkyls (PFAs)*

II.A.3.*1*. Polybrominated diphenyl ethers (PBDEs) are one group of brominated flame retardants that are currently in wide usage. These compounds are added to plastics, particularly those comprising plastic components of computers and televisions as well as to plastic foams and textiles (ATSDR, 2002c; Darnerud et al., 2001). While over 200 PBDE congeners are possible, forms with fewer than four bromine atoms generally are not employed in commercial applications. Release of PBDEs into the environment is believed to occur primarily through incineration and volatilization; leaching from landfills may also serve as a source of PBDE contamination, although studies are lacking to verify this (Darnerud et al., 2001). Like other persistent organic pollutants, PBDEs are resistant to environmental and biotic degradation. Although research is limited, uptake from the environment appears to occur mainly through oral exposure, with absorption efficiency inversely related to degree of bromination (ATSDR, 2002c). PBDEs are lipophilic, and appear to have potential for both bioaccumulation and biomagnification (ATSDR, 2002c). The extent to which PBDEs are metabolized and excreted appears to vary with species and degree of congener bromination (Darnerud et al., 2001). In laboratory studies, effects of PBDEs range from immunotoxicity and thyrotoxicity, to hormone disruption, neurobehavioral abnormalities and developmental toxicity. The limited evidence available to date suggests that PBDEs do not have teratogenic or genotoxic potential. (ATSDR, 2002c).

II.A.3.*2*. Polyfluoroalkyls (PFAs) are a group of compounds comprised chiefly by fluorotelomer alcohols and perfluoroalkyl sulfonamide alcohols (as well as their breakdown products), that were used in a variety of commodities, including surface protectants, paper, insecticides, surfactants, and fire-retardants (Olsen et al., 2003; Seacat et al., 2002). Because of their toxicity and environmental persistence, some PFAs have been banned (Olsen e al., 2003; Seacat et al., 2002). Through metabolism or environmental degradation, fluorotelomer alcohols appear to form carboxylic acids, fluorotelomer carboxylic acids (FTCA), and fluorotelomer unsaturated carboxylic acids (FTUCA) (Houde et al., 2005). Degradation of perfluoroalkyl sulfonamide alcohols yields sulfonic acids (PFSAs) such as perfluorooctane sulfonate (PFOS)—a stable, bioaccumulative, toxic end product that has been found among diverse species from widely different environments (Giesy and Kannan, 2001). Toxicity of PFOS is related primarily to effects on the liver, including hepatocellular hypertrophy and altered lipid metabolism, including decreased cholesterol (Olsen et al., 2003). Some PFAs have been found to act as hepatic peroxisome proliferators or to provoke developmental and neuroendocrine toxicity (Houde et al., 2005).

II.B. Concentrations of environmental contaminants in selected species of marine mammals in US waters

II.B.1. Species addressed

Twelve species of marine mammals are included in this review, based upon the frequency and patterns with which they strand (T. Rowles and J. Whaley, pers. comm.). Species that tend to strand as individuals include: pygmy and dwarf sperm whales (*Kogia breviceps* and *K. simus*, respectively); common bottlenose dolphin (*Tursiops truncatus*); California sea lion (*Zalophus californianus*); harbor seal (*Phoca vitulina*); and elephant seal (*Mirounga angustirostris*). Species that tend to strand *en masse* are represented by: long and short-finned pilot whales (*Globicephala melas and G. macrorhynchus*, respectively); rough-toothed dolphin (*Steno bredanensis*); and white-sided dolphin (*Lagenorhynchus acutus*). Large whale species considered are the gray and humpback whales (*Eschrichtius robustus* and *Megaptera novaeangliae*, respectively).

II.B.2. Databases reviewed, including time period examined and search terms used

The online databases Biological Abstracts, PubMed, and Toxline were searched, using an exhaustive list of key words, including (but not limited to): *Kogia*, *Tursiops*, *Zalophus*, *Phoca*, *Mirounga*, *Globicephala*, *Steno*, *Lagenorhynchus*, *Eschrichtius robustus*, *Megaptera*, elephant seal, dolphin, marine mammal, pinniped, whale, cetacean, polychlorinated biphenyls, PCB, DDT, persistent organic pollutants, pollutant, contaminant, heavy metal, mercury, hexachlorocyclohexane, HCB, chlordane, heptachlor, dieldrin, aldrin, and organochlorine(s). Reports on marine mammals considered for inclusion in this review were confined to those published in peer-reviewed journals from 1995 through 2005 that addressed any of the twelve species designated above in US waters. A few ancillary studies that were either published prior to 1995, or that dealt with marine mammals in non-US waters, were included when those waters were contiguous with US waters, and when other US-based studies for those particular species were lacking. For example, Varanasi et al., 1994, was published outside of the timeframe used as a criterion for inclusion in this review. Nevertheless, I incorporated this study, as well as a few other studies (Tilbury et al., 2002; De Luna and Rosales-Hoz, 2004; Ruelas-Inzunza et al., 2002; Mendez et al., 2002) that addressed contaminants in *E. robustus* from Russian (Bering Sea) and Mexican waters, because contaminant studies for gray whales were limited. Also, because gray whales migrate long distances, whales studied in Mexican or Russian waters likely navigate US waters as well, where they may strand or die and present a carcass disposal problem.

II.B.3. Overview of tissue contaminant concentrations: Literature review summary

II.B.3.*0. General comments upon format of tables and appendices*

This review covers studies done by multiple scientists who were in various geographic locations, attempting to answer different research questions, and using diverse techniques and laboratories. Consequently the data are quite disparate and difficult to harmonize. For

this reason, and to make this report as pertinent as possible for future applications, I have compiled as much data as feasible directly from the source papers. However, whenever possible, I attempted to give contaminant concentrations on a wet weight basis (since that is the state of the carcass presented for disposal) and to standardize the units in which data were given, presenting the persistent organic pollutants, PCDD/Fs, PBDEs, and PFAs in ng/g and metals in ug/g. I converted values from ng/g lipid weight to ng/g wet weight for Shaw et al, 2005, Struntz et al., 2004, She et al., 2002 and Gautier et al., 1997. All tables and appendices (in the accompanying Excel file) contain extensive footnotes to accurately characterize the data. In addition, species designations are color-coded in a consistent manner throughout the tables and appendices, to allow for easy location and comparison of text with respect to a given species.

II.B.3.*1. Persistent organic pollutants (POPs), including PCBs, PCDD/Fs, DDTs, Chlordanes, HCB, and HCHs*

Because organochlorines, as a class, are lipophilic compounds that might be expected to reach highest concentrations in fat (Norstrom, 2002), blubber represents the tissue where maximum organochlorine concentrations are likely. Blubber is also the tissue for which the most data have been generated pertaining to organochlorine contaminants in marine mammals. Reported levels of major persistent organic pollutants (i.e., PCBs, DDTs, chlordanes, mirex, dieldrin, aldrin, endrin, HCHs, HCB, and endosulfans) in the selected cetacean and pinniped species from US waters are provided in Appendices I and II, respectively, and summarized in Table 1, while metadata for studies addressing major persistent organic contaminants in the chosen marine mammals is presented in Table 2. Twenty-one papers focused on organochlorine contaminants in the cetacean species under consideration, while 16 studies examined organochlorines in pinniped species. For all contaminant classes combined, the number of studies and the collective number of individuals sampled for each cetacean species were as follows: *T. truncatus,* 9 studies (two of which, by Reddy et al. dealt with the same animals), 218 sampled; *K. breviceps*, 1 study, 2 sampled; *L. acutus,* 3 studies (two of which, by Tuerk et al., dealt with the same animals), 53 sampled; *G. melas*, 4 studies, 60 sampled (with some overlap between studies and animals, so this number is likely somewhat inflated); *S. bredanensis*, 2 studies (both of which dealt with the same animals), 15 sampled; *E. robustus*, 3 studies, 101 sampled (again, there appears to be some overlap between studies and animals, so this number likely overstates the true number of animals represented); *M. novaeangliae*, 2 studies, 32 sampled. For pinniped species, the number of studies and maximum total number of animals sampled were: *Z. californianus*, 6 studies (Le Boeuf et al., 2002 and Kannan et al., 2004 consider the same animals), 148 sampled; *P. vitulina*, 10 studies, 201 sampled; *M. angustirostris,* 4 studies, 13 sampled (Table 2). I found no studies addressing organochlorine contaminants in *K. simus* or *G. macrorhynchus* in my review of the literature.

Among the species addressed, mean total PCB levels were highest in blubber of *T. truncatus* (240,000 ng/g lipid weight; n=6), which also had the highest single observed concentration of total PCBs, at 1,120,000 ng/g lipid weight. *P. vitulina* had the lowest mean concentration of total PCBs (1.7 ng/g wet weight, n=10). Compared to other

species targeted in this review, California seal lions had by far the highest mean blubber concentrations of sum DDTs (143,000 ng/g lipid wgt.; n=36) and sum HCHs (780 ng/g lipid wgt.; n=36), as well as the highest single observed concentration of these contaminants in blubber (1,400,000 and 2,240 ng/g lipid wgt. for sum DDTs and sum HCHs, respectively, with the latter value obtained by adding the standard deviation to the corresponding mean). Compared to other species, *E. robustus* (n=38) and *K. breviceps* (n=2) had low blubber concentrations of sum DDTs (means of 130 and 540 ng/g wet weight, respectively). K. breviceps also had the lowest documented levels of HCHs (1.1 ng/g wet weight), although little significance can be imparted to a sample consisting of two individuals. *L. acutus* displayed both highest mean and overall blubber concentrations of sum chlordanes (8,800 ng/g wet weight; n=23, and 23,900 ng/g wet weight, respectively) and dieldrin (1,810 ng/g wet weight; n=23, and 3,940 ng/g wet weight, respectively). *Tursiops* had the lowest mean and overall blubber concentration of dieldrin (non-detectable) observed, while the lowest mean blubber concentration of sum chlordanes occurred in *K. breviceps*, followed by *E. robustus* (50 and 140 ng/g wet weight, respectively). The highest mean blubber concentrations of mirex (32,000 ng/g wet weight; n=8) and HCB (4,700 ng/g wet weight; n=8) were found in *P. vitulina*, which also had the highest overall blubber concentrations of these two contaminants (60,000 ng/g wet weight and 8,500 ng/g wet weight for mirex and HCB, respectively). Overall, among the species and data represented in this review of the literature, the bottlenose dolphin appears to be the cetacean species most contaminated by persistent organic pollutants, followed by *L. acutus*, while among pinnipeds the California sea lion represents the most contaminated species, followed by harbor seals. A cursory examination of Table 1 reveals that, among the selected cetacean species, *E. robustus*, *K. breviceps* (represented by only two individuals) and *M. novaeangliae* appear the least contaminated with persistent organic pollutants. Such a perfunctorily apparent inference cannot be made with respect to the three pinniped species, however; while blubber concentrations of none of the persistent organic pollutants in *M. angustirostris* exceeds the levels in the other two species, neither are they consistently lower than concentrations observed in *P. vitulina* or *Z. californianus*.

Collectively, four studies have measured PCDD/Fs in blubber from three of the species included in this review (Table 3). For all studies combined, the total number of individuals for each species is: *E. robustus* (n=2), *M. angustirostris* (n=6), and *P. vitulina* (n=75). Two studies, Jarman et al., 1996 and Lake et al., 1995, found no detectable levels of PCDD/Fs in blubber of *E. robustus* (n=2) or *P. vitulina* (n=15), respectively. The highest reported mean concentrations of sum PCDDs and sum PCDFs were 0.279 ng/g lipid weight (n=38) and 0.026 ng/g lipid weight=5), respectively, both of which were in seals from British Columbia, Canada.

II.B.3.*2. Toxic metals, including Hg, Cd, Pb, and Sn*

Twelve studies examined one or more of the toxic metals, Hg, Cd, Pb and Sn, in the cetacean species addressed in this review, while only three studies evaluated one or more of the metals in question in the selected pinniped species. For all metal contaminants combined, the number of studies and the maximum collective number of individuals

sampled for each cetacean species were as follows: *T. truncatus,* 5 studies, 148 sampled; *K. breviceps,* 1 study, 3 sampled; *L. acutus,* 1 study, 4 sampled; *G. melas*, 1 study, 9 sampled; *S. bredanensis,* 1 study, 15 sampled; and *E. robustus,* 5 studies, 35 sampled. Similarly for pinniped species, the number of studies and total number of animals sampled were: *Z. californianus,* 1 study, 10 sampled; *P. vitulina,* 2 studies, 13 sampled; *M. angustirostris,* 2 studies, 6 sampled. No studies were found that addressed levels of the specified metal contaminants in *G. macrorhynchus, M. novaeangliae,* or *K. sima* between 1995 and 2006 in US waters. Metadata describing studies pertaining to the potentially toxic metals Hg, Cd, Pb and Sn are summarized in Table 4, while reported levels of these metals in the given species over the publication timeframe under consideration are given in Appendix III.

It is difficult to make any generalizations or to draw any meaningful comparisons about the four potentially toxic metals covered by this literature review, because reported data is quite limited and methodologies between studies vary. Overall, ten studies report values on a wet weight basis, while the remaining five present metal concentrations on a dry weight basis, and since raw data generally are not provided, the reader cannot convert data from one form to the other.

II.B.3.*3*. Miscellaneous contaminants: *PBDEs* and *PFAs*

Within the geographic and temporal confines of this review, 6 studies have evaluated concentrations of PBDEs in the selected species of marine mammals (Table 5). Four studies examined PBDEs in blubber of *Tursiops, L. acutus, S. bredanensis* and *P. vitulina*, while the remaining two studies addressed PBDE levels in *P. vitulina* blood. Among the species in these studies, adult male *Tursiops* demonstrated the highest PBDE contamination, with a mean concentration of 3,110 ng/g wet weight in blubber (range: 126–16300, n=9).

As for PBDEs, PFAs have been assessed in a limited number of individuals and species (Table 6). Kannan et al., 2001 analyzed hepatic concentrations of PFOS in the following species: *K. breviceps* (n=2), *S. bredananensis* (n=2), *T. truncatus* (n=20), *Z. califonianus* (n=6), *M. angustirostris* (n=5), *P. vitulina* (n=3). Houde et al. (2005) conducted a more extensive study of various PFA compounds in *Tursiops* blubber and found concentrations of mean sum PFAs ranging from 778 (n=42) to 1738 (n=47) ng/g wet weight between geographic locations on the eastern US coast.

II.C. Conclusions and comments regarding the nature and adequacy of the available literature database

The studies encompassed by this literature review were conducted to determine concentrations of specific environmental contaminants in various given marine mammal species. Such monitoring investigations generally are undertaken to learn how environmental contaminants may be impacting individual or population health, as well as to indicate whether environmental contaminants might be implicated as a causative factor in stranding events. Tursiops is, by far, the species for which the most comprehensive

data exist pertaining to contaminants, and among those contaminants, PCBs have been the most widely analyzed in this species. Of nine studies that sampled a combined total of 218 bottlenose dolphins for PCBs, seven studies evaluated PCBs in blubber, with a combined total sample size of 210 animals. Of these 210 dolphin blubber samples, 129 appear to have been obtained via biopsy, while 81 were apparently from stranded animals. Eighty-one of the 210 blubber samples were taken from dolphins in the Gulf of Mexico, off the FL (including Sarasota Bay), TX, or AL coasts. Sixty-two blubber samples were from Atlantic dolphins, generally from three sites: Beaufort, NC, (n=40) Charleston Bay, SC, (n=11) and Indian River Lagoon, FL (n=17). The remaining 14 blubber samples were from dolphins in San Diego Bay, CA. The blubber PCB data reported among the seven studies is in a variety of formats. Hansen et al., (2004) reported the geometric means of their data, while Wells et al., (2005) did not report means at all. Other studies reported arithmetic means. The number of PCB congeners which comprise "sum PCBs" among these seven studies also vary widely, from ten to eighty-seven congeners, while three studies did not report the identity or number of congeners analyzed. All seven studies report PCB concentrations on a lipid weight basis. However, if the concern is not the consequences of PCB contamination on the dolphin itself, but rather the dispersion of the PCBs contained within the blubber throughout the environment during carcass decomposition or scavenging, the entity of interest is the level of contamination expressed on a wet weight basis. Because individual animal data including blubber percent lipid are not specified in any of these seven studies, conversion of concentration data to a wet weight basis is not possible.

Sampling techniques also influence the levels of organochlorines measured in blubber. Of the seven studies that quantified blubber PCBs, only two (Salata et al., 1995 and Finklea et al., 2000) stipulated that full-thickness blubber samples were obtained. Kuehl and Haebler (1995) and Johnson-Restrepo (2005) did not specify how blubber samples were taken. The remaining three research teams employed biopsy methods, including remote dart (Hansen et al., 2004), punch (Reddy et al., 2001) and wedge (Wells et al., 2005) biopsy. All of these biopsy techniques are inherently biased towards collection of the outermost portion of the blubber. However, Aguilar and Borrell (1991) and Severinsen et al., (2000) documented that organochlorines are not homogenously distributed throughout this tissue in species of two baleen whales and a phocid seal, respectively, but rather stratified such that contaminant levels in the outermost blubber are significantly greater than that of the innermost blubber layer. Moreover, this difference was not attributable merely to variation in lipid content (Severinsen et al., 2000). Struntz et al., 2004 noted the heterogeneous morphological and histological structure of *Tursiops* blubber. Consequently, it would be imprudent to assume that PCBs or other organochlorine contaminants are homogenously dispersed throughout blubber of bottlenose dolphins. Rather, contaminants concentrations obtained from blubber biopsy specimens likely overestimate blubber contaminant burdens, and should be interpreted with caution.

The above summary briefly illustrates the extremely limited nature of the database for the most thoroughly studied species and contaminant combination (*Tursiops* and PCBs) among those considered by this review. For other contaminants and species, the data are

even scantier. Certain generalizations might be made about the distribution of particular contaminants within tissues, and among individuals in a given population. For example, it is generally understood that species higher trophic species such as dolphins are more prone to bioaccumulating higher levels of some contaminants than species that feed at lower trophic levels, such as baleen whales. Also, lipophilic contaminants such as PCBs tend to be at highest levels in blubber of adult males, because contaminant levels increase with age, and because females can depurate some of their acquired contaminant load through transfer to offspring (Wells et al., 2005). This latter phenomenon accounts for the observation that immature animals may have higher blubber PCB concentrations than adults, when levels are evaluated on a lipid weight basis. Despite such documented patterns of PCB accumulation within *Tursiops*, overall the data are quite limited with respect to samples sizes, tissues analyzed and geographic locations represented.

Contaminant monitoring studies tend to focus on tissues that represent target organs of a given toxicant or are sites of bioaccumulation. Because few tissues are assayed, there is generally insufficient information to infer the total body burden of a given contaminant for an individual in a given population. Moreover, patterns of contaminant accumulation will vary based upon exposures. Individuals from highly contaminated areas will not serve to represent animals from less contaminated regions, and vice versa. The heterogeneous nature of contaminants data published for the selected marine mammals in US waters encompassed by this review make it difficult to compare between studies, much less to unify this disparate research into an assemblage with utility for other applications such as the evaluation of the potential toxicological environmental hazards posed by decomposing carcass. At current, the database for the contaminants in the species encompassed by this review is inadequate to support such an assessment.

III. LITERATURE CITED (for literature review text, tables 1-6, and appendices I-III)

Abraham, WR, Nogales, B, Golyshin, PN, Pieper, D, & Timmis, KN. (2002) Polychlorinated biphenyl-degrading microbial communities in soils and sediments. *Current Opinion in Microbiology* **5**, 246-253.

Aguilar, A & Borrell, A. (1991) Heterogeneous distribution of organochlorine contaminants in the blubber of baleen whales: Implications for sampling procedures. *Marine Environmental Research* **31**, 275-286.

Appel, KE. (2004) Organotin compounds: Toxicokinetic aspects. *Drug Metabolism Reviews* **36**, 763-786.

ATSDR, 2002a. *Toxicological profile for DDT, DDE, and DDD.* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 497 pp.

_____, 2002b. *Toxicological profile for hexachlorobenzene*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 403 pp.

_____, 2002c. *Draft toxicological profile for polybrominated biphenyls and polybrominated diphenyl ethers.* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 497pp.

_____, 2000. *Toxicological profile for polychlorinated biphenyls (PCBs).* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 948 pp.

_____, 1999a. *Toxicological profile for cadmium.* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 439 pp.

_____, 1999b. *Toxicological profile for lead.* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 640 pp.

_____, 1999c. *Toxicological profile for mercury*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 676 pp.

_____, 1998. *Toxicological profile for chlorinated dibenzo-p-dioxins*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 723 pp.

_____, 1994. *Toxicological profile for chlordane.* Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 262 pp.

_____, 1993. *Toxicological profile for heptachlor/heptachlor epoxide*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 162 pp.

Beck, KM, Fair, P, McFee, W, & Wolf, D. (1997) Heavy metals in livers of bottlenose dolphins stranded along the South Carolina coast. *Marine Pollution Bulletin* **34**(9), 734-739.

Becker, P, Mackey, E, Demiralp, R, Schantz, M, Koster, B, & Wise, S. (1997) Concentrations of chlorinated hydrocarbons and trace elements in marine mammal tissues archived in the U.S. National Biomonitoring Specimen Bank. *Chemosphere* **34**, 2067-2098.

Chiu, A, Chiu, N, Beaubier, N, Beaubier, J, Nalesnik, R, Sing, D, Hill, W, Lau, C, & Riebow, J. (2000) Effects and mechanisms of PCB ecotoxicity in food chains: Algae → fish → seal → polar bear. *Environmental Science & Health* **18**, 127-152.

Darnerud, PO, Eriksen, GS, Jóhannesson, T, Larsen, PB, & Viluksela, M. (2001) Polybrominated diphenyl ethers: Occurrence, dietary exposure, and toxicology. *Environmental Health Perspectives* **109**(Suppl. 1), 49-68.

De Luna, CJ & Rosales-Hoz, L. (2004) Heavy metals in tissues of gray whales *Eschrichtius robustus*, and in sediments of Ojo de Liebre Lagoon in Mexico. *Bulletin of Environmental Contamination & Toxicology* **72**, 460-466.

Dearth, M & Hites, R. (1991) Complete analysis of technical chlordane using negative ionization mass spectrometry. *Environmental Science & Technology* **25**, 245-254.

Debier, C, LeBoeuf, B, Ikonomou, M, De Tillesse, T, Larondelle, Y, & Ross, P. (2005) Polychlorinated biphenyls, dioxins, and furans in weaned, free-ranging northern elephant seal pups from central California, USA. *Environmental Toxicology & Chemistry* **24**, 629-633.

Debier, C, Ylitalo, G, Weise, M, Gulland, F, Costa, D, Le Boeuf, J, de Tillesse, T, & Larondelle, Y. (2005) PCBs and DDT in the serum of juvenile California sea lions: Associations with vitamins A and E and thyroid hormones. *Environmental Pollution* **134**, 323-332.

Fent, K. (2003) Ecotoxicological problems associated with contaminated sites. *Toxicology Letters* **140-141**, 353-365.

Finklea, B, Miller, G, & Busbee, D. (2000) Polychlorinated biphenyl residues in blubber of male Atlantic bottlenose dolphins *(Tursiops truncatus)* that stranded and died at Matagorda Bay. *Bulletin of Environmental Contamination & Toxicology* 64, 323-332.

Gauthier, JM, Metcalfe, CD, & Sears, R. (1997) Chlorinated organic contaminants in blubber biopsies Northwestern Atlantic balaenopterid whales summering in the Gulf of St. Lawrence. *Marine Environmental Research* **44**(2), 201-223.

Giesy, J & Kannan, K. (2001) Global distribution of perfluorooctane sulfonate in wildlife. *Environmental Science & Technology* **35**, 1339-1342.

Hansen, LJ, Schwacke, LH, Mitchum, GB, Hohn, AA, Wells, RS, Zolman, ES, & Fair, PA. (2004) Geographic variation in polychorinated biphenyl and organochlorine pesticide concentrations in the blubber of bottlenose dolphins from the US Atlantic coast. *Science of the Total Environment* **319**, 147-172.

Hayteas, DL & Duffield, DA. The determination by HPLC of PCB and *p,p'*-DDE residues in marine mammals stranded on the Oregon coast, 1991-1995. (1997) *Marine Pollution Bulletin* **34**(10), 844-848.

Hong, CS, Calambokidis, J, Bush, B, Steiger, GH, & Shaw, S. (1996) Polychlorinated biphenyls and organochlorine pesticides in harbor seal pups from the inland waters of Washington State. *Environmental Science & Technology* **30**, 837-844.

Houde, M, Wells, R, Fair, P, Bossart, G, Hohn, A, Rowles, T, Sweeney, J, Solomon, K, & Muir, D. (2005) Polyfluoroalkyl compounds in free-ranging bottlenose dolphins (*Tursiops truncatus*) from the Gulf of Mexico and the Atlantic Ocean. *Environmental Science & Technology* **35**, 6591-6598.

Jarman, WM, Norstrom, RJ, Muir, DCG, Rosenberg, B, Simon, M, & Baird, RW. (1996) Levels of organochlorine compounds, including PCDDs and PCDFs, in the blubber of cetaceans from the west coast of North America. *Marine Pollution Bulletin* **32**(5), 426-436. 96.

Johnson-Restrepo, B, Kannan, K, Addink, R, & Adams, D. (2005) Polybrominated diphenyl ethers and polychlorinated biphenyls in a marine foodweb of coastal Florida. *Environmental Science & Technology* **39**, 8243-8250.

Kajiwara, N, Kannan, K, Muraoka, M, Watanabe, M, Takahashi, S, Gulland, F, Olsen, H, Blankenship, AL, Jones, PD, Tanabe, S, & Giesy, JP. (2001) Organochlorine pesticides, polychlorinated biphenyls, and butytin compounds in blubber and livers of stranded California sea lions, elephant seals, and harbor seals from coastal California, USA. *Archives of Environmental Contamination & Toxicology* **41**, 90-99.

Kannan, K, Kajiwara, N, Le Boeuf, BJ, & Tanabe, S. (2004) Organochlorine pesticides and polychlorinated biphenyls in California sea lions. *Environmental Pollution* **131**, 425-434. 2004.

Kannan, K, Koistinen, J, Beckmen, K, Evans, T, Gorzelany, JF, Hansen, KJ, Jones, PD, Helle, E, Nyman, M, & Giesy, JP. (2001) Accumulation of perfluorooctane sulfonate in marine mammals. *Environmental Science & Technology* **35**, 1593-1598.

Kannan, K, Senthilkumar, K, Loganathan, BG, Takahashi, S, Odell, DK, & Tanabe, S. (1997) Elevated accumulation of tributyltin and its breakdown products in bottlenose dolphins (*Tursiops truncatus*) found stranded along the U.S. Atlantic and Gulf Coasts. *Environmental Science & Technology* **31**, 296-301.

Krahn, MM, Becker, PR, Tilbury, KL, & Stein, JE. (1997) Organochlorine contaminants in blubber of four seal species: Integrating biomonitoring and specimen banking. *Chemosphere* **34**(9-10), 2109-2121.

Krahn, M, Ylitalo, G, Burrows, D, Calambokidis, J, Moore, S, Gosho, M, Gearin, P, Plesha, P, Brownell, R, Blokhin, S, Tilbury, K, Rowles, T, & Stein, J. (2001) Organochlorine contaminant concentrations and lipid profiles in eastern North Pacific gray whales (*Eschrichtius robustus*). *Journal of Cetacean Research & Management* **3**, 19-29.

Kuehl, DW & Haebler, R. Organochlorine, organobromine, metal, and selenium residues in bottlenose dolphins (*Tursiops truncatus*) collected during an unusual mortality event in the Gulf of Mexico, 1990. (1995) *Archives of Environmental Contamination & Toxicology* **28**, 494-499.

Lake, CA, Lake, JL, Haebler, R, McKinney, R, Boothman, WS, & Sadove, SS. (1995) Contaminant levels in harbor seals from the northeastern United States. *Archives of Environmental Contamination & Toxicology* **29**, 128-134.

Lane, T. & Morel, F. (2000) A biological function for cadmium in marine diatoms. *Proceedings of the National Academy of Sciences* **97**, 4627-4631.

Le Boeuf, B., Giesy, J., Kannan, K., Kajiwara, N., Tanabe, S., & Debier, C. (2002) Organochloride pesticides in California sea lions revisited. *BMC Ecology* **2**, http://www.biomedcentral.com/1472-6785/2/11.

Lieberg-Clark, P, Bacon, CE, Burns, SA, Jarman, WM, & Le Boeuf, BJ. DDT in California sea lions: A follow-up study after 20 years. (1995) *Marine Pollution Bulletin* **30**(11), 744-745.

Mackey, EA, Demiralp, R, Becker, PR, Greenberg, RR, Koster, BJ, & Wise, SA. (1995) Trace element concentrations in cetacean liver tissues archived in the National Marine Mammal Tissue Bank. *Science of the Total Environment* **175**, 25-41.

Mackey, EA, Oflaz, RD, Epstein, MS, Buehler, B, Porter, BJ, Rowles, T, Wise, SA, & Becker, PR. Elemental composition of liver and kidney tissues of rough-toothed dolphins (*Steno bredanensis*). (2003) *Archives of Environmental Contamination & Toxicology* **44**, 523-532.

McGovern, V. (2004) Hexachlorobenzene exposure: Widespread toxicant produces pervasive effects. *Environmental Health Perspectives* **112**, A416.

Meador, JP, Ernest, D, Hohn, AA, Tilbury, K, Gorzelany, J, Worthy, G, & Stein, JE. (1999) Comparison of elements in bottlenose dolphins stranded on the beaches of Texas and Florida in the Gulf of Mexico over a one-year period. *Archives of Environmental Contamination & Toxicology* **36**, 87-98.

Mendez, L, Alvarez-Castańeda, ST, Acosta, B, & Sierra-Beltran, AP. Trace metals in tissues of gray whale (*Eschrichtius robustus*) carcasses from the Northern Pacific Mexican Coast. (2002) *Marine Pollution Bulletin* **44**, 217-221.

Metcalfe, C, Koenig, B, Metcalfe, T, Paterson, G, & Sears, R. Intra- and inter-species di.erences in persistent organic contaminants in the blubber of blue whales and humpback whales from the Gulf of St. Lawrence, Canada. *Marine Environmental Research* **57**, 245-260. 2004.

Neale, J., Gulland, F., Schmeltzer, K., Harvey, J., Berg, E., Allen, S., Greig, D., Grig, E, & Tjeerdema, R. (2005) Contaminant loads and hematological correlates in the harbor seal (*Phoca vitulina*) of San Francisco Bay, California. *Journal of Toxicololgy & Environmental Health, Part A* **68**, 617-633.

Neale, J, Schmeltzer, K, Gulland, F, Berg, E, & Tjeerdema, R. (2005) Organohalogen levels in harbor seal (*Phoca vitulina*) pups increase with duration of nursing. *Journal of Toxicololgy & Environmental Health, Part A* **68**, 687-691.

Norstrom, R.J. (2002) Understanding bioaccumulation of POPs in food webs: Chemical, biological, ecological and environmental considerations. *ESPR — Environmental Science & Pollution Research* **9**, 300-303.

Olsen, GW, Church, TR, Miller, JP, Burris, JM, Hansen, KJ, Lundberg, JK, Armitage, JB, Herron, RM, Medhdizadehkashi, Z, Nobiletti, JB, O'Neill, EM, Mandel, JH, Zobel, LR.. (2003) Perfluorooctanesulfonate and other fluorochemicals in the serum of American Red Cross adult blood donors. *Environmental Health Perspectives* **111**, 1892-1901.

Owen, BD & Flegal, AR. (1998) Blood lead concentrations in marine mammals validate estimates of 10^2- to 10^3-fold Increase in human blood lead concentrations. *Environmental Research* **78**(2), 134-139.

Reddy, M, Echols, S, Finklea, B, Busbee, D, Reif, J, & Ridgway, S. (1998) PCBs and chlorinated pesticides in clinically normal *Tursiops truncatus*: Relationship between levels in blubber and blood. *Marine Pollution Bulletin* **36**(11), 892-903.

Reddy, ML, Reif, JS, Bachand, A, & Ridgway, SH. (2001) Opportunities for using Navy marine mammals to explore associations between organochlorine contaminants and unfavorable effects on reproduction. *Science of the Total Environment* **274**, 171-182.

Research Triangle Institute, 1999. *Toxicological profile for alpha-, beta-, gamma-, and delta-hexachlorocyclohexane*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, Georgia. 316 pp.

Ross, G. (2004) The public health implications of polychlorinated biphenyls (PCBs) in the environment. *Ecotoxicology & Environmental Safety* **59**, 274-291.

Ross, P., Jeffries, S., Yunker, M., Addison, R., Ikonomou, M., & Calambokidis, J. (2004) Harbor seals (*Phoca vitulina*) in British Columbia, Canada, and Washington State, USA, reveal a combination of local and global polychlorinated biphenyl, dioxin, and furan signals. *Environmental Toxicology & Chemistry* **23**, 157-165.

Rüdel, H. (2003) Case study: Bioavailability of tin and tin compounds. *Ecotoxicology & Environmental Safety* **56**, 180-189.

Ruelas-Inzunza, J & Páez-Osuna, F. (2002) Distribution of Cd, Cu, Fe, Mn, Pb and Zn in selected tissues of juvenile whales stranded in the SE Gulf of California (Mexico). *Environment International* **28**, 325-329.

Ruelas-Inzunza, JR, Horvat, M, Pérez-Cortés, H, & Páez-Osuna, F. (2003) Methylmercury and total mercury distribution in tissues of gray whales (*Eschrichtius robustus*) and spinner dolphins (*Stenella longirostris*) stranded along the lower Gulf of California, Mexico. *Ciencias Marinas* **29**(1), 1-8.

Salata, GG, Wade, TL, Sericano, JL, Davis, JW, & Brooks, JM. (1995)Analysis of Gulf of Mexico bottlenose dolphins for organochlorine pesticides and PCBs. *Environmental Pollution* **88**, 167-175.

Seacat, A, Thomford, P, Hansen, K, Clemen, L, Eldridge, S, Elcombe, C, & Butenhoff, J (2003) Sub-chronic dietary toxicity of potassium perfluorooctanesulfonate in rats. *Toxicology* **183**, 117-131.

Severinsen, T, Skaare, JU, & Lydersen, C. (2000) Spatial distribution of persistent organochlorines in ringed seal (*Phoca hispida*) blubber. *Marine Environmental Research* **49**(3), 291-302.

Shaw, S, Brenner, D, Bourakovsky, A, Mahaffey, C, & Perkins, C. (2005) Polychlorinated biphenyls and chlorinated pesticides in harbor seals (*Phoca vitulina concolor*) from the northwestern Atlantic coast. *Marine Pollution Bulletin* **50**, 1069-1084.

She, J, Petreas, M, Winkler, J, Visita, P, McKinney, M, & Kopec, D. (2002) PBDEs in the San Francisco Bay area: Measurements in harbor seal blubber and human breast adipose tissue. *Chemosphere* **46**, 697-707.

Struntz, D, McLellan, W, Dillaman, R, Blum, J, Kucklick, J, & Pabst, D. (2004) Blubber development in bottlenose dolphins (*Tursiops truncatus*). *Journal of Morphology* **259**, 7-20.

Struntz, WDJ, Kucklick, JR, Schantz, MM, Becker, PR, McFee, WE, & Stolen, MK. (2004) Persistent organic pollutants in rough-toothed dolphins (*Steno bredanensis*) sampled during an unusual mass stranding event. *Marine Pollution Bulletin* **48**, 164-173.

Tilbury, KL, Adams, NG, Krone, CA, Meador, JP, Early, G, & Varanasi, U. (1999) Organochlorines in stranded pilot whales (*Globicephala melaena*) from the coast of Massachusetts. *Archives of Environmental Contamination & Toxicology* **37**, 125-134.

Tilbury, KL, Stein, JE, Krone, CA, Brownell, RL, Blokhin, SA, Bolton, JL, & Ernest, DW. (2002) Chemical contaminants in juvenile gray whales (*Eschrichtius robustus*) from a subsistence harvest in Arctic feeding grounds. *Chemosphere* **47**, 555-564.

Tuerk, K, Kucklick, J., Becker, P., Stapleton, H., & Baker, J. (2005) Persistent organic pollutants in two dolphin species with focus on toxaphene and polybrominated diphenyl ethers. *Environmental Science & Technology* **39**, 692-698.

Tuerk, K, Kucklick J, Mcfee, W, Pugh, R, & Becker, P. (2005) Factors influencing persistent organic pollutant concentrations in the Atlantic white-sided dolphin (*Lagenorhynchus acutus*). *Environmental Toxicology & Chemistry* **24**, 1079-1087.

Turusov, V, Rakitsky, V, & Tomatis, L. (2002) Dichlorodiphenyltrichloroethane (DDT): Ubiquity, persistence, and risks. *Environmental Health Perspectives* **110**, 125-128.

USEPA, 1997. *Toxicological review of chlordane (technical)*. US Environmental Protection Agency, Washington, DC. 73 pp.

Varanasi, U, Stein, JE, Tilbury, KL, Meador, JP, Sloan, CA, Clark, RC, & Chan, S-L. (1994) Chemical contaminants in gray whales (*Eschrichtius robustus*) stranded along the west coast of North America. *Science of the Total Environment* **145**, 29-53.

Watanabe, M, Kannan, K, Takahashi, A, Loganathan, BG, Odell, DK, Tanabe, S, & Giesy, JP. (2000) Polychlorinated biphenyls, organochlorine pesticides, tris(4-chlorophenyl)methane, and tris(4-chlorophenyl)methanol in livers of small cetaceans stranded along Florida coastal waters, USA. *Environmental Toxicology & Chemistry* **19**(6), 1566-1574.

Weisbrod, AV, Shea, D, Moore, MJ, & Stegeman, JJ. (2000) Bioaccumulation patterns of polychlorinated biphenyls and chlorinated pesticides in northwest Atlantic pilot whales. *Environmental Toxicology & Chemistry* **19**(3), 667-677.

Weisbrod, AV, Shea, D, Moore, MJ, & Stegeman, JJ. (2001) Species, tissue and gender-related organochlorine bioaccumulation in white-sided dolphins, pilot whales and their common prey in the Northwest Atlantic. *Marine Environmental Research* **51**, 29-50.

Wells, R, Tornero, V, Borrell, A, Aguilar, A, Rowles, T, Rhinehart, H, Hofmann, S, Jarman, W, Hohn, A, & Sweeney, J. (2005) Integrating life-history and reproductive success data to examine potential relationships with organochlorine compounds for bottlenose dolphins (*Tursiops truncatus*) in Sarasota Bay, Florida. *Science of the Total Environment* **349**, 106-119.

Wood, CM & Van Vleet, ES. (1996) Copper, cadmium and zinc in liver, kidney and muscle tissues of bottlenose dolphins (*Tursiops truncatus*) stranded in Florida. *Marine Pollution Bulletin* **32**(12), 886-889.

Woshner, V, O'Hara, T, Bratton, G, & Beasley, V. (2001) Concentrations and interactions of selected essential and non-essential elements in ringed seals and polar bears of arctic Alaska. *Journal of Wildlife Diseases* **37**, 711-721.

Woshner, V, O'Hara, T, Bratton, G, Suydam, R, & Beasley, V. (2001) Concentrations and interactions of selected essential and non-essential elements in bowhead and beluga whales of arctic Alaska. *Journal of Wildlife Diseases* **37**, 693-710.

Ylitalo, G, Stein, J, Hom, T, Johnson, L, Tilbury, K, Hall, A, Rowles, T, Greig, D, Lowenstine, L, & Gulland, F. (2005) The role of organochlorines in cancer-associated mortality in California sea lions (*Zalophus californianus*). *Marine Pollution Bulletin* **50**, 30-39.

Young, D, Becerra, M, Kopec, D, & Echols, S. (1998) GC/MS analysis of PCB congeners in blood of the harbor seal *Phoca vitulina* from San Francisco Bay. *Chemosphere* **37**(4), 711-733.

Table 1. Summary of Concentrations of Major Organochlorine Contaminant Classes in Blubber of Selected Marine Mammal Species from US Waters as Reported in Literature from 1994-2005

Table 1. Summary Data for Some Persistent Organic Pollutants, Including PCBs, DDTs, Chlordanes, Mirex, Dieldrin, HCHs and HCB in Blubber of Selected Marine Mammal Species from US Waters, Reported 1994 through 2005.
For each species, the lowest and highest overall means among reported studies are given, followed by the corresponding sample size, as well as overall ranges for animals in all studies combined.

CETACEANS	Analyte (ng/g)	Lipid (%)	∑ PCBs	∑ DDTs	∑ chlordanes	mirex	dieldrin	∑ HCHs	HCB
T. truncatus[a]	Lowest mean (n)	19.9 (4)	5644 (6)	3988 (6)	548 (6)	20.3 (2)	ND (2)	109 (33)	ND (9[b])
	Highest mean (n)	39.4 (9)	240000 (6)	51906 (5)	7022 (5)	663 (4)	1550 (5)	234 (14)	3360 (5)
	Overall range	1.2 - 82.8	420 - 1120000	428 - 87281	195 - 10553	ND - 6540	ND - 3120	9 - 354	ND - 5730
K. breviceps[c]	Mean (n)	3.4 (2)	560 (2)	540 (2)	50 (2)	NA	NA	1.1 (2)	5.5 (2)
	Overall range	2.6 - 4.1	290 - 830	400 - 680	27 - 73	NA	NA	1.1 - 1.1	1.4 - 9.7
L. acutus[c]	Lowest mean (n)	43.8 (6)	9410 (9)	4090 (9)	2200 (9)	40.4 (9)	293 (9)	91 (9)	50.6 (9)
	Highest mean (n)	43.8 (6)	29400 (23)	15900 (23)	8800 (23)	73.7 (15)	1810 (23)	301 (23)	237 (23)
	Overall range	17.2[f]	490 - 62700	498 - 43300	285 - 23900	18.4 - 112	62.6 - 3940	50.4 - 821	11[d] - 606
G. melas[c]	Lowest mean (n)	39 (16)	4172 (11)	6000 (16)	1221 (11)	27 (11)	262 (7)	57.5 (11)	200 (16)
	Highest mean (n)	75 (16)	12000 (6)	18336[a] (16)	3000 (6)	56[a] (16)	441 (11)	104[a] (16)	370 (6)
	Overall range	17.7[d] - 88	1087[d] - 25000	ND[a,d] - 42046[a,e]	55[a,d] - 5800	ND[c,d] - 90[a,e]	56.8 - 674[e]	ND[c,d] - 157[a,e]	ND[a,d] - 620
S. bredanensis[c]	Mean (n)	53 (15)	18392 (15)	9285.5 (15)	3825 (15)	269.3 (15)	233.8 (15)	26.0 (15)	28.8 (15)
	Overall range	38 - 73.3	643 - 43301	146 - 23139	74.1 - 2093	16.4 - 664	9.03 - 1220	2.6 - 177	0.4 - 67.4
E. robustus[c]	Lowest mean (n)	8.5 (22)	220 (38)	130 (38)	140 (17)	NA	NA	NA	100 (38)
	Highest mean (n)	48 (17)	1600 (22)	444 (22)	340 (22)	NA	160 (22)	NA	510 (24)
	Overall range	0.6 - 73	120 - 10000	11 - 2940	13 - 2200	ND - 100	4 - 1600	NA	17 - 2900
M. novaeangliae[c]	Lowest mean (n)	NA	897[a] (12)	NA	NA	1.8 (6)	308 (6)	104 (6)	73.4 (6)
	Highest mean (n)	44.9 (7)	1153 (7)	NA	385.6 (6)	7.2[a] (12)	363.4[a] (13)	108.1[a] (12)	172.2[a] (13)
	Overall range	27 - 63	301[a,d] - 2958	NA	125.6 - 728.3	ND - 11.1[a,e]	52.7 - 777	33.8 - 242	15.8 - 293.1[a,e]
PINNIPEDS									
Z. californianus[c]	Lowest mean (n)	4.2 (9)	1300 (5)	13947 (9)	457 (9)	NA	NA	57 (9)	ND[g]
	Highest mean (n)	50 (36)	48158 (12)	143000[a,h] (36)	3420[a] (36)	NA	190[a] (36)	780[a] (36)	ND[g]
	Overall range	1 - 88	ND - 410000[a]	456 - 1400000[a]	17 - 9450	NA	220[f]	6.5 - 2240[a,e]	ND[g]
M. angustirostris[c]	Lowest mean (n)	74 (4)	550 (6)	11000[a] (2)	1095[a] (2)	NA	NA	122[a] (2)	30 (4)
	Highest mean (n)	85 (2)	6979 (4)	12418 (4)	1118 (4)	NA	28[a] (2)	184 (4)	32.5[a] (2)
	Overall range	18 - 93	460[d] - 10440	3000[a] - 19800	290[a] - 1900[a]	NA	19[a] - 37[a]	44[a] - 279	14.8 - 43[a]
P. vitulina[c]	Lowest mean (n)	40 (3)	1.7 (10)	314 (5)	205 (5)	4.9 (3)	5 (5)	33[a] (2)	5.3 (9)
	Highest mean (n)	89 (2)	40376 (3)	8790 (3)	4015 (3)	32000 (8)	364[a] (4)	220[a] (4)	4700 (8)
	Overall range	16 - 95	ND - 78474	130 - 13612	80 - 8938	1.2 - 60000	3 - 1060[a]	22.4[a] - 425[a]	2.79[d] - 8500

Abbreviations: ND, the analyte was not detected above the limit of detection; NA, not available
[a]ng/g lipid weight
[b]Largest sample with this mean
[c]ng/g wet weight
[d]Value obtained by subtracting the SD from the corresponding mean
[e]Value obtained by adding the SD to the corresponding mean
[f]Standard deviation of mean above
[g]ND in either of two studies that address this analyte
[h]∑DDTs refers to p,p' forms of DDE, DDD and DDT only

Table 2. Metadata for Persistent Organic Pollutants, Including PCBs, DDTs, Chlordanes, HCHs and HDB in Selected Marine Mammal Species from US Waters, Reported 1994 through 2005.
An "X" in a given contaminant column denotes that contaminant was analyzed.

Source	Species	Contaminant Classes Analyzed						Date Sampled	Event	Location	Source data characterization Arith.(A) or Geo. (G) Mean; lw or ww; % lipid given?; individual animal data provided?
		PCBs (# of congeners)	DDTs	Chlordanes*	HCHs	HCB	Tissue (n)				
CETACEANS											
Hansen et al., 2004	T. truncatus	X (15)	X	X		X	blubber (62)	1995-2000	B	NC, SC, FL	G; lw; yes; no
Reddy et al., 2001; 1998	T. truncatus	X (10)	X	X	X	X	blubber (14) blood (16)	1994	B	CA	NR; lw; no; yes
Salata et al., 1995	T. truncatus	X (NR)	X	X	X	X	blubber (33)	NR	S	TX, FL	A; lw; no; no
Kuehl & Haebler, 1995	T. truncatus	X (NR)	X[a]	X		X	blubber (24)	1990	S	TX, FL	A; lw; no; no
Finklea et al., 2000	T. truncatus	X (87)					blubber (10)	1990	S	TX	A; lw; no; yes
Johnson-Restrepo et al., 2005	T. truncatus	X (NR)					blubber (20)	1991-2004	S & B[d]	FL	A; lw; yes; no
Wells et al., 2005	T. truncatus	X (22)					blubber (47) blood (NR) milk (NR)	2000-2001	B	FL	NR[f]; lw; no; no
Watanabe et al., 2000	T. truncatus	X (35)	X[a]	X	X	X	liver (6)	1989-94	S	FL	A; ww; yes; yes
	K. breviceps	X (35)	X[a]	X	X	X	liver (2)	1991-92	S	FL	A; ww; yes; yes
Tuerk et al., 2005a,b	L. acutus	X(55)	X	X	X	X	blubber (47)	1993-2000	S	MA	A;ww; no; no
Weisbrod et al., 2001	L. acutus	X (27)	X	X	X	X	blubber (6) skin (6) liver (6) lung (2) kidney (2)	1994-96	S	MA, NY	A; ww; yes; no
	G. melas	X (27)	X	X	X	X	blubber (11) skin (3) liver (8) heart (4) muscle (6) kidney (3) testis (1)	1990-96	S	MA, NY	A; ww; yes; no
Weisbrod et al., 2000	G. melas	X (27)	X	X	X	X	blubber (16) liver (17)	1990-96	S	MA	A; lw; yes; no
Becker et al., 1997	G. melas	X (33)	X	X		X	blubber (7)	NR[b]	NR[b]	MA	A; ww; no; no
Tilbury et al., 1999	G. melas[b]	X (17)	X	X		X	blubber (22) liver (25) kidney (9) brain (8) ovary (2)	1986-90	S	MA	A; ww; yes; no
Struntz et al., 2004; Tuerk et al., 2005a	S. bredanensis	X (33)	X	X	X	X	blubber (15)	1997	S	FL	A; lw; yes; yes
Varanasi et al., 1994	E. robustus	X (NR)	X	X		X	blubber (22) liver (10) brain (1)	1988-91	S	CA, WA & AK	A[c]; ww; yes; no
Tilbury et al., 2002	E. robustus	X (17)	X	X		X	blubber (17) liver (14) kidney (6) brain (6) muscle (3)	1994	H	Russia (Western Bering Sea)	A; ww; yes; no
Krahn et al., 2001	E. robustus[b]	X (17)	X	X		X	blubber (62)	1996 & '99	B & S	WA	A; ww; yes; no
Metcalfe et al., 2004	M. novaeangliae	X (25)	X[a]	X	X	X	blubber (25)	1993-99	B	Canada	A; lw; no; no
Gauthier et al., 1997	M. novaeangliae	X (19)	X[a]	X	X	X	blubber (7)	1991	B	Canada	A; lw; yes; yes
PINNIPEDS											
Lieberg-Clark et al., 1995	Z. californianus	---	X[a]				blubber (7)	1988-92	S	CA	G; ww; no; no
Hayteas & Duffield, 1997	Z. californianus	X (NR)	X[a]				blubber (5)	1991-95	S	OR	G; ww; no; yes
	P. vitulina	X (NR)					blubber (10)	1991-95	S	OR	G; ww; no; yes
	M. angustirostris	X (NR)					blubber (1)	1991-95	S	OR	G; ww; no; yes
Kajiwara et al., 2001	Z. californianus	X (NR)	X[a]	X	X	X	blubber (12) liver (9)	1991-97	S	CA	A; ww; yes; yes
	P. vitulina	X (NR)	X[a]	X	X	X	liver (10)	1991-97	S	CA	A; ww; yes; yes
	M. angustirostris	X (NR)	X[a]	X	X	X	blubber (4)	1991-94	S	CA	A; ww; yes; yes
Kannan et al., 2004; Le Boeuf et al., 2002	Z. californianus	X (NR)	X[a]	X	X		blubber (36)	2000	S	CA	A; lw; yes; no
	M. angustirostris	X (NR)	X[a]	X	X	X	blubber (2)	2000	S	CA	A; lw; yes; no
Lake et al., 1995	P. vitulina	X (18)	X[a]	X		X	blubber (9) liver (9)	1990-92	S	NY, MA	A; ww; no; no
Young et al., 1998	P. vitulina	X (20)					blood (16)	1990	S	CA	A; ww; no; no
Hong et al., 1996	P. vitulina	X (73) X (54)	X[a]			X	blubber (8) liver (8)	1990	S	WA	A; ww; no; no
Krahn et al., 1997	P. vitulina	X (17)	X	X		X	blubber (15)	1992-93	S & H	WA, OR, AK	A[f]; ww; yes; no[f]
Ross et al., 2004	P. vitulina	X (109)					blubber (60)	1996-97	B	Canada; WA	A; lw; no; no
Neale et al., 2005a	P. vitulina	X (10)	X[e]				blood (17)	2001-02	B	CA	A; ww & lw, no, no
Neale et al., 2005b	P. vitulina	X (11)	X[e]				blood (35)	2001-02	B	CA	NR; ww & lw; no; no
Shaw et al., 2005	P. vitulina	X (20)	X	X	X	X	blubber (30)	2001-02	S	MA, ME, NH, NY	A; lw; yes; yes
Debier et al., 2005a	M. angustirostris	X (141)					blubber (6)	2002	B	CA	A; lw & ww; yes; no
Debier et al., 2005b	Z. californianus	X (NR)	X				serum (12)	2002	B	CA	A; ww & lw; yes; no
Ylitalo et al., 2005	Z. californianus	X (17)	X				blubber (76)	1993-2003	S	CA	A; ww & lw; yes; no

Abbreviations: NR, not reported; S, stranded; B, biopsied; H, subsistence harvest; A, arithmetic mean; G. geometric mean; lw, reported on a lipid weight basis; ww, reported on a wet weight basis

*Number of chlordane isomers analyzed varied between studies

[a]Only *p,p'* isomers of DDT, DDE and DDD were analyzed; in some studies, not all three *p',p'* isomers were analyzed.

[b]In Appendix I, see footnotes "g," "h" and "j" for Becker et al.(1997),Tilbury et al.(1999) and Krahn et al. (2001), respectively, regarding study overlap

[c]Means exclude values below limit of detection

[d]From archived samples; from source text it appears that 14 are from stranded dolphins and the remaining 6 were biopsies

[e]4,4' DDE only

[f]Ranges only were given for data (except for some data subsets in Wells); data provided in graphic format only

Table 3. Polychlorinated dibenzo-p-dioxins and -furans (PCDD/Fs) Contaminants in Tissues of Selected Marine Mammal Species from US Waters, Reported 1995 through 2005.

	Source: Jarman et al., 1996 Event: Stranding			Source: Ross et al., 2004 Event: Biopsy									Source: Lake et al., 1995 Event: Stranding			Source: Debier et al., 2005a Event: Biopsy		
	Location: British Columbia, Canada (Vancouver Is. & Denman Is.)			Location: BC, Canada (Queen Charlotte Strait)			Location BC, Canada (Strait of Georgia)			Location: WA (Puget Sound)			Location: NY & MA			Location: CA (Ano Nuevo Is.)		
	Date Sampled: 1987-88 Species: *Eschrichtius robustus* Tissue: Blubber			Date Sampled: 1996-97 Species: *Phoca vitulina* Tissue: Blubber			Date Sampled: 1996-97 Species: *Phoca vitulina* Tissue: Blubber			Date Sampled: 1996-97 Species: *Phoca vitulina* Tissue: Blubber			Date Sampled: 1990-92 Species: *Phoca vitulina* Tissue: Blubber			Date Sampled: 2002 Species: *Mirounga angustirostris* Tissue: Blubber		
Analyte (ng/g wet weight)	n	Mean	LOD[b]	n	Mean[a,c]	SE	n	Mean[c]	SE	n	Mean[c]	SE	n			n	Mean[c]	SD
2,3,7,8-TCDD	2	ND	<2										15[d]					
1,2,3,7,8-PnCDD	2	ND	<5										15[d]					
1,2,3,4,7,8-HxCDD													15[d]					
1,2,3,6,7,8-HxCDD	2		<8										15[d]			6	0.007	NR
1,2,3,7,8,9-HxCDD	2	ND	<8										15[d]					
1,2,3,4,6,7,9-HpCDD	2	ND	<10															
1,2,3,4,6,7,8-HpCDD	2	ND	<10										15[d]			6	0.008	NR
OCDD	2	ND	<20										15[d]			6	0.017	NR
∑ 2,3,7,8-PCDDs				5	0.072	0.006	38	0.256	0.031	17	0.119	0.011						
∑ PCDDs				5	0.096	0.01	38	0.279	0.032	17	0.119	0.016				6	0.032[e]	0.023
2,3,7,8-TCDF	2	ND	3										15[d]					
1,2,4,7,8-PnCDF	2	ND	<5															
1,2,3,7,8-PnCDF													15[d]					
2,3,4,7,8-PnCDF	2	ND	<5										15[d]			6	0.007	NR
1,2,4,8,9-PnCDF	2	ND	<5															
1,2,4,6,8,9-HxCDF	2	ND	<8															
1,2,3,4,7,8-HxCDF													15[d]					
1,2,3,6,7,8-HxCDF													15[d]					
1,2,3,7,8,9-HxCDF													15[d]					
2,3,4,6,7,8-HxCDF													15[d]					
1,2,3,4,6,9-/1,2,3,6,8,9-HxC	2	ND	<8															
1,2,3,4,6,8,9-HpCDF	2	ND	<10															
1,2,3,4,6,7,8-HpCDF													15[d]					
1,2,3,4,7,8,9-HpCDF													15[d]					
OCDF													15[d]			6	0.01	NR
∑ 2,3,7,8-PCDFs				5	0.022	0.002	38	0.016	0.002	17	0.01	0.001						
∑ PCDFs				5	0.026	0.004	38	0.025	0.013	17	0.01	0.001				6	0.017[e]	0.005

Abbreviations: ND, the analyte was not detected above the limit of detection; SE, standard error of the mean; SD, standard deviation; NR, not reported

[a]Arithmetic

[b]LOD-limits of detection for individual PCDD/F congeners

[c]ng/g lipid weight

[d]All samples were near or below limits of detection (3-5 pg/g).

[e]On a wet weight basis means (SD) were: 0.025(0.017) and 0.014(0.004) for∑ PCDDs and ∑ PCDFs, respectively.

Table 4. Metadata for Toxic Metal Pollutants, Including Mercury (Hg), Cadmium (Cd), Lead (Pb) and Tin (Sn) in Selected Marine Mammal Species from US Waters, Reported 1994 through 2005.
An "X" in a given metal contaminant column denotes that metal was analyzed.

		Metal Contaminant Analyzed								
Source	**Species**	**Mercury**	**Cadmium**	**Lead**	**Tin**	**Tissue (n)**	**Date Sampled**	**Event**	**Location**	**Comments**
CETACEANS										
Ruelas-Inzunza et al., 2002	*E. robustus*	X (THg & MeHg)	X	X		Kidney (4) Liver (4) Muscle (4)	1999	S	Mexico (Gulf of California)	DW
Tilbury et al., 2002	*E. robustus*	X (THg)	X	X		Brain (6) Kidney (6) Liver (5)	1994	H	Russia (NW Bering Sea)	WW
Varanasi et al., 1994	*E. robustus*	X (THg)	X	X	X[a]	Brain (1) Kidney (10) Liver (10)	1988-1991	S	CA, WA & AK	WW
De Luna & Rosales-Hoz, 2004	*E. robustus*			X		Bone (8) Epidermis (8) Kidney (2) Muscle (8)	1999	S	Mexico (Ojo de Liebre Lagoon)	DW
Mendez et al., 2002	*E. robustus*		X	X		Blubber (5) Heart (7) Kidney (5) Liver (5) Lung (7) Muscle (5)	1999	S	Mexico (Sinaloa & Baja California Sur)	DW
Mackey et al., 1995	*G. melas*	X (THg)	X			Liver (9)	1990-1990	S	MA	WW
	L. acutus	X (THg)	X			Liver (4)	1993	S	MA	WW
Beck et al., 1997	*T. truncatus*	X (THg)	X	X		Liver (34)	NR	S	SC	WW
Kuehl & Haebler, 1995	*T. truncatus*	X (THg)	X	X		Liver (24)	1990	S	TX & AL (Gulf of Mexico)	WW
Meador et al., 1999	*T. truncatus*	X (THg & MeHg)	X[c]	X[c]		Blubber (4) Kidney (30[b]) Liver (30[b])	1990-1991	S	TX	DW[f]
	T. truncatus	X (THg & MeHg)	X[c]	X[c]		Kidney (13[b]) Liver (14[b])	1990-1991	S	FL	DW
Wood & Van Vleet, 1996	*T. truncatus*		X			Kidney (21) Liver (29) Muscle (21)	1990-1994	S	FL	DW
Kannan et al., 1997	*T. truncatus*				X[d]	Blubber (1) Brain (1) Heart (1) Liver (16) Kidney (17) Melon (1) Muscle (11)	1989-1994	S	FL	WW
	K. breviceps				X[d]	Kidney (2) Liver (3) Muscle (2)	1989-1994	S	FL	WW
Mackey et al., 2003	*S. bredanensis*	X (THg)	X		X[e]	Kidney (15) Liver (15)	1997	S	FL (Gulf of Mexico)	WW
PINNIPEDS										
Lake et al., 1995	*P. vitulina*	X (THg)				Liver (7)	1990-1992	S	NY & MA	WW
Owen & Flegal, 1998	*M. angustirostris*			X		Blood (4)	1994-1995	B	CA	WW
Kajiwara et al., 2001	*M. angustirostris*				X[d]	Liver (2)	1991-1994	S	CA	WW
	P. vitulina				X[d]	Liver (6)	1991-1997	S	CA	WW
	Z. californianus				X[d]	Liver (10)	1991-1997	S	CA	WW

Abbreviations: THg, Total mercury; MeHg, organic (methyl) mercury; NR, not reported; S, stranded; B, biopsied; H, subsistence harvest; WW, reported on a wet weight basis; DW, reported on a dry weight basis

[a]Total tin was analyzed in kidney and liver of seven animals
[b]Maximum analyzed for this tissue at this location
[c]Analyzed in kidney and liver only
[d]Sum of butyltins, including mono-, di- and tri-butyltin
[e]Total tin
[f]Except for blubber, which was reported as WW

Appendix III. Mercury, Cadmium, Lead and Tin in Tissues of Selected Marine Mammal Species from US Waters, Reported 1994 through 2005. All concentrations are reported on a wet weight basis, except where noted otherwise by an asterisk*.

Mercury (Hg)									
Species	**Tissue**	**Mean ug/g**	**Min.**	**Max.**	**n**	**Location**	**Date Sampled**	**Event**	**Reference**
E. robustus	kidney[a]	277*	140[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	kidney[b]	51*	22[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	liver[a]	185*	82[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	liver[b]	42*	34[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	muscle[a]	145*	82[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	muscle[b]	109*	40[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza et al., 2002
E. robustus	brain[a]	0.022	0.002[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]
E. robustus	kidney[a]	0.034	0.001[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]
E. robustus	liver[a]	0.16	0.061[h]	NR	5[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]
E. robustus	brain[a]	ND	ND	ND	1	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	kidney[a]	0.034	ND	0.06	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	liver[a]	0.056	0.009	0.12	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
G. melas	liver[a]	40.3	1.00	112.0	9	MA	1990-91	Stranding	Mackey et al., 1995
L. acutus	liver[a]	10.36	1.00	22.70	4	MA	1993	Stranding	Mackey et al., 1995
S. bredanensis	kidney[a]	5.8	0.9	15	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
S. bredanensis	liver[a]	70	3.4	235	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
T. truncatus	liver[a]	17.8	<0.5	146.5	34	SC	NR	Stranding	Beck et al., 1997
T. truncatus	liver[a]	0.96	0.15	2.23	5[o]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver[a]	4.39	1.72	8.36	5[g]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver[a]	45.5	5.1	87.8	9[p]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver[a]	25.9	6.1	48.7	5[q]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	blubber[b]	0.6	0.4	0.7	4	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney[a]	33*	1.0	89	29	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney[a]	68*	11.2	110	12	FL	1991-92	Stranding	Meador et al., 1999[c,d]

Mercury (Hg) (continued)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
T. truncatus	kidney[b]	4.5*	1.3	10.4	23	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney[b]	9.9*	1.4	19	13	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver[a]	212*	8.3	1404	30	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver[a]	304*	18	1312	13	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver[b]	6*	0.9	23	24	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver[b]	11*	2.5	24	14	FL	1991-92	Stranding	Meador et al., 1999[c,d]
P. vitulina	liver[a]	38.5	31.6	49.3	4	NY & MA	1990-92	Stranding	Lake et al., 1995
P. vitulina	liver[a]	69.9	16.0	138	3	NY & MA	1990-92	Stranding	Lake et al., 1995

Cadmium (Cd)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
E. robustus	blubber	0.16*	ND	0.16	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	heart	0.68*	0.16	1.81	7[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	kidney	15.4*	1.93	35.1	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	liver	1.77*	0.81	3.62	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	lung	1.16*	0.1	5.26	7[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	muscle	0.86*	0.05	2.34	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	kidney	5.7*	1.4[j]	8.0	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002
E. robustus	liver	1.1*	1.0[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002
E. robustus	muscle	0.4*	0.2[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002
E. robustus	brain	0.1	0.01[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]

Cadmium (Cd) (continued)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
E. robustus	kidney	0.59	0.11[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]
E. robustus	liver	0.21	0.04[h]	NR	5[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002[i]
E. robustus	brain	0.02	0.02	0.02	1	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	kidney	4.1	0.14	6.1	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	liver	4.3	0.06	6.2	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
G. melas	liver	7.88	2.8	14.3	9	MA	1990-91	Stranding	Mackey et al., 1995
L. acutus	liver	0.42	0.24	0.86	4	MA	1993	Stranding	Mackey et al., 1995
S. bredanensis	kidney	1.73	0.05	3.94	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
S. bredanensis	liver	0.54	0.01	1.02	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
T. truncatus	liver	0.051	0.009	0.27	34	SC	NR	Stranding	Beck et al., 1997
T. truncatus	liver	0.06	0.01	0.08	5[o]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.11	0.08	0.16	5[g]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.43	0.10	1.34	9[p]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.31	0.11	0.64	5[q]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	kidney	1.9*	ND	4.2	30 (11 ND)	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney	4.4*	ND	5.2	13 (5 ND)	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver	0.32*	ND	0.7	14 (8 ND)	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver	1.6*	ND	1.6	11 (10 ND)	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney	1.3*	ND	6.4	21	FL	1990-94	Stranding	Wood & Van Vleet, 1996
T. truncatus	liver	0.2*	ND	1.7	29	FL	1990-94	Stranding	Wood & Van Vleet, 1996
T. truncatus	muscle	ND	ND	ND	21	FL	1990-94	Stranding	Wood & Van Vleet, 1996

Lead (Pb)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
E. robustus	bone	50*[k]	NR	NR	2[l]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	bone	20*[k]	NR	NR	3[g]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	bone	30*[k]	NR	NR	3[m]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	epidermis	15*[k]	NR	NR	8	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	kidney	30*[k]	NR	NR	2[l]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	muscle	15*[k]	NR	NR	2[l]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	muscle	22*[k]	NR	NR	3[g]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	muscle	18*[k]	NR	NR	3[m]	Mexico (Ojo de Liebre Lagoon)	1999	Stranding	De Luna & Rosales-Hoz, 2004
E. robustus	blubber	1.06*	0.33	1.78	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	heart	2.31*	1.28	3.4	7[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	kidney	2.09*	0.34	6.12	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	liver	2.06*	0.78	3.62	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	lung	1.21*	0.36	4.40	7[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	muscle	1.11*	0.42	1.8	5[g]	Mexico (Sinaloa & Baja California Sur)	1999	Stranding	Mendez et al., 2002
E. robustus	kidney	0.6*	0.3[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002
E. robustus	liver	0.9*	0.8[j]	0.9	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002
E. robustus	muscle	0.6*	0.4[j]	NR	4	Mexico (Gulf of California)	1999	Stranding	Ruelas-Inzunza & Paez-Osuna, 2002

Lead (Pb) (continued)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
E. robustus	brain	0.014	0.003[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002
E. robustus	kidney	0.028	0.005[h]	NR	6[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002
E. robustus	liver	0.06	0.013[h]	NR	5[g]	Russia (NW Bering Sea)	1994	Subsistence harvest	Tilbury et al., 2002
E. robustus	brain	0.06	0.06	0.06	1	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	kidney	0.053	ND	0.10	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	liver	0.12	0.02	0.27	10	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
T. truncatus	liver	<0.10	NR	NR	34	SC	NR	Stranding	Beck et al., 1997
T. truncatus	liver	0.45	0.08	1.47	5[o]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.26	0.04	0.88	5[g]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.68	0.2	2.12	9[p]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	liver	0.48	0.09	1.20	5[q]	TX & AL (Gulf of Mexico)	1990	Stranding	Kuehl & Haebler, 1995
T. truncatus	kidney	0.17*	ND	1.6	30 (11 ND)	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	kidney	0.08*	ND	0.14	13 (11 ND)	FL	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver	0.3*	ND	2.6	30 (11 ND)	TX	1991-92	Stranding	Meador et al., 1999[c,d]
T. truncatus	liver	0.09*	ND	0.2	13 (10 ND)	FL	1991-92	Stranding	Meador et al., 1999[c,d]
M. angustirostris	blood	0.13[n]	0.071[n]	0.21[n]	4[o]	CA	1994-95	live animal collection	Owen & Flegal, 1998

Tin (Sn)

Species	Tissue	Mean ug/g	Min.	Max.	n	Location	Date Sampled	Event	Reference
E. robustus	kidney	0.04[r]	ND	0.05	7	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
E. robustus	liver	0.04[r]	ND	0.04	7	CA, WA & AK	1988-91	Stranding	Varanasi et al., 1994
K. breviceps	kidney	0.062[e]	0.059	0.065	2	FL	1989-94	Stranding	Kannan et al., 1997
K. breviceps	liver	0.39[e]	0.35	0.41	3	FL	1989-94	Stranding	Kannan et al., 1997
K. breviceps	muscle	0.021[e]	0.016	0.026	2	FL	1989-94	Stranding	Kannan et al., 1997
S. bredanensis	kidney	0.053[r]	0.01	0.14	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
S. bredanensis	liver	5.4[r]	3.8	7.3	15	FL (Gulf of Mexico)	1997	Stranding	Mackey et al., 2003
T. truncatus	blubber	0.63[e]	0.63	0.63	1	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	brain	0.11[e]	0.11	0.11	1	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	heart	0.05[e]	0.05	0.05	1	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	kidney	0.20[e]	0.025	0.67	16	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	liver	1.4[e]	0.11	11.34	17	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	melon	0.19[e]	0.19	0.19	1	FL	1989-94	Stranding	Kannan et al., 1997
T. truncatus	muscle	0.041[e]	0.013	0.11	11	FL	1989-94	Stranding	Kannan et al., 1997
M. augustirostris	liver	0.08[e]	0.06	0.099	2[f]	CA	1991-94	Stranding	Kajiwara et al., 2001
P. vitulina	liver	0.034[e]	0.002	0.091	6[f]	CA	1991-97	Stranding	Kajiwara et al., 2001
Z. californianus	liver	0.045[e]	0.024	0.087	10[f]	CA	1991-97	Stranding	Kajiwara et al., 2001

Abbreviations: ND, the analyte was not detected above the limit of detection; NR, not reported

*dry weight

[a]Total Hg

[b]Organic (i.e., methyl) Hg

[c]Mean ratios of dry to wet weight were 0.26 and 0.22 for TX liver and kidney, respectively (n=31), and 0.29 (n=14) and 0.23 (n=13) for FL liver and kidney, respectively.
[d]Means for analytes with data below detection limits (ND) were determined with maximum likelihood method for censored data. Means with no ND values were estimated following the procedure of Gilbert (1987) for lognormally-distributed data.

[e]Sum of butyltins, including mono-, di- and tri-butyltin
[f]Data for individual animals and organotins given in cited source.

[g]Juveniles

[h]Standard error of the mean
[i]For values below the limit of detection (LOD), one-half the LOD was used to calculate the mean

[j]Standard deviation

[k]Value extrapolated from graph

[l]Calves

[m]Adults (both sexes)

[n]ug/dl
[o]sucklings (live, for Owen & Flegal, 1998; stranded, for Kuehl & Haebler, 1995)

[p]Adult males

[q]Adult females

[r]Total Sn

Euthanasia Questionnaire Response Summary

Responder	Species	Stranding Type*	Frequency (or #) of Euthanasia in past year	Euthanasia Agent & Route	Induction Agent & Route	Adverse Reactions?	Disposal Methods	Comments
MarMamCenter, CA	*Zalophus californianus* *Mirounga angustirostrus* *Phoca vitulina*	I	96/796	pentobarb IV, IC	tiletamine/zolazepam IM	No	Renderer	no disposal problems
HBOI, FL	*Tursiops truncatus* *Kogia breviceps* *Kogia simus*	I	4	pentobarb +- phenytoin IC, IP	---	No	Beach burial Landfill	no disposal problems
Nat'l Aquarium, MD	*Phoca vitulina* *Pagophilus groenlandicus* *Tursiops truncatus* *Phocoena phocoena*	I	1 in 2003 avg. 1.9/yr (11 yrs)	pentobarb.+ phenytoin	tiletamine/zolazepam diazepam	Yes - lack of sedation	not indicated	generally not problematic
C. Harms, NCSU	*Tursiops truncatus* *Kogia breviceps* *Kogia simus* *Grampus griseus*	I	done 3-4	pentobarb +- phenytoin IV, IC	xylazine, acepromazine	Yes - hyperexcitability in G. gri. with xylazine or metomidate	Beach burial (if drugs admin.) disposal at sea (no drugs)	no disposal problems
W. McFee, NOS, SC	*Kogia breviceps* *Kogia simus* *Ziphius cavirostris*	I, P	~60% 1 in past yr.	pentobarb IV, IC	---	Yes - excitability in K. bre.	Burial	no disposal problems
Mote Mar Lab, FL	*Tursiops truncatus* *Kogia breviceps* *Kogia simus* *Globicephala macrorhynchus* *Lagenodelphis hosei*	I, M (Kogia & Glob.)	1-3/yr.	pentobarb. IV	xylazine	No	not indicated	Disposal problematic, did not elaborate
Cape Cod SN, MA	*Lagenorhynchus acutus* *Phocoena phocoena* *Delphinus delphis* *Globicephala melas*	I, M	179/403 over 5 yr period	pentobarb.+- phenytoin	---	Yes - hyperexcitability in cetaceans (T. tru., L. acu., D. del., G. mel.)	truck off Cape to landfill tow to sea & sink	Disposal very problematic, no rendering service avail., landfill won't accept, perception that whale remains contain contaminants, high cost
VA Marine Sc. Museum, VA	*Phoca vitulina* *Delphinus delphis* *Kogia breviceps*	I	7 in 2003	pentob. +- phenytoin	xylazine diazepam	Yes, Observed violent death throes in D. delphis w/ or w/o induction agent, and appeared to have violent rx to acepromazine also, slight excitability in Grampus w/ xylazine	commercial carcass dispo. co. to transport to landfill burial landfill	Difficulty procuring heavy eqp't.

Euthanasia Questionnaire Response Summary

Responder	Species	Stranding Type*	Frequency (or #) of Euthanasia in past year	Euthanasia Agent & Route	Induction Agent & Route	Adverse Reactions?	Disposal Methods	Comments
Litz, NOAA Fisheries SER, Southeast US, PR & Virgin Is	*Tursiops truncatus* *Kogia spp.* *Steno bredanensis* *Globicephala spp.*	I, P, M	68/474 from 1995-2000 (may be more-do not keep these stats.)	pentobarb. IV, IC	---	---	landfill	Disposal very problematic in mass strandings or with large cetaceans
George, GA DNR	*Feresa attenuata* *Kogia breviceps*		5 Kogia breviceps (3 adults/2 calves) 1 Feresa attenuata in 2004	Euthasol (390mg/mL) Gunshot	Xylazine (100mg/mL)	Yes- "Convulsions" prior to death seen with xylazine alone	left on beach buried on site landfill	Disposal in remote areas where removal of the carcass isn't possible precluding use of barbituates for euthanasia due to relay toxicosis concerns.

*I = individuals
P = pairs
M = mass

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APPENDIX K

PRESCOTT GRANT PROGRAM

Prescott Overview FY01-09

				Running Totals:	
Year	**Applications**	**Awards**	**Amount**	**Awards**	**Amount**
2001-2002	84	68	$5,781,494	68	$5,781,494
2003	53	48	$4,465,343	116	$10,246,837
2004	35	31	$2,663,983	147	$12,910,820
2005	97	40	$3,620,154	187	$16,530,974
2006	74	42	$3,654,271	229	$20,185,245
2007	80	41	$3,689,886.30	270	$23,875,131
2008	75	39	$3,504,647.00	309	**$27,379,778**
2009	84	2009 funding has not been awarded (to date).			

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2002	AK	Alaska Sealife Center	Alaska Sealife Center Rescue and Rehabilitation Program	$99,993
2002	AK	Aleut Community of St Paul Island	Assessment of northern fur seal entanglement in marine debris on the Pribilof Islands	$95,945
2002	AK	Seward Association for the Advancement of Marine Science	Improved rehabilitation techniques through monitoring of nutrition and growth rates in free-ranging and rehabilitated harbor seal pups	$100,000
2002	AK	University of Alaska Anchorage	Cellular and subcellular structure of the adrenal medulla of the Atlantic bottlenose dolphin (Tursiops Ttruncatus) in relation to physiological stress.	$33,591
2002	AK	University of Alaska Fairbanks	Marine mammal tissue and specimen archives - University of Alaska Museum	$100,000
2002	AL	Spring Hill College	Enhancement of Data Collection	$45,785
2002	CA	California Department of Fish and Game	Marine mammal pathology service for the central California coast	$99,935
2002	CA	Marine Animal Rescue Rehabilitation and Release	Diagnostic and Surgery Center (at the Marine Mammal Care Center at Fort MacArthur)	$70,000
2002	CA	Marine Mammal Center	Advancement of clinical care of stranded marine mammals at the Marine Mammal Center	$100,000
2002	CA	Marine Mammal Center	Development of a biomonitoring program to detect novel diseases and changes in prevalence of known diseases in pinnipeds stranded along the central California coast	$100,000
2002	CA	Northcoast Marine Mammal Center	Obtain operating funds to improve rehabilitation facility and provide more advanced and comprehensive diagnostic abilities.	$100,000
2002	CA	Regents of the University of California/UCSC Stranding Network	UCSC Long Marine Lab Stranding Network upgrade of Information Management Systems and capabilities to improve or allow access to the National Database.	$2,500
2002	CA	San Jose State Univ. Foundation	Movements, Dive Behavior and Survival of Post Release CA Sea Lions after Rehabilitation for Domoic Acid Toxicity	$95,019
2002	CA	San Jose State Univ. Foundation	Gray whale and other large whale stranding investigations: A collaboration of marine mammal stranding participants in central California	$95,680
2002	CA	Sea World, San Diego	Improved care and monitoring of beached marine mammals in Southern California	$100,000
2002	CT	Mystic Aquarium	Marine mammal stranding program support for Mystic Aquarium	$100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2002	CT	Mystic Aquarium/Sea Research Foundation	Prognostic indicators for rehabilitation and survival of stranded harp and hooded seals	$99,924
2002	DE	DE Dep't. of Natural Resources and Environmental Conservation	Renovation of a Seal Holding Facility	$27,000
2002	FL	Clearwater Marine Aquarium	Transportation, rehabilitation facilities, and technology for marine mammal stranding events	$94,175
2002	FL	Dynamac Corporation	Marine mammal rescue and stranding program on Florida's space coast	$16,732
2002	FL	Florida Fish and Wildlife Conservation Commission	Development of standardized protocols for stranding networks in Florida	$96,498
2002	FL	Florida Keys Marine Mammal Rescue Team	South Florida cetacean rescue triage and necropsy facility and response enhancement project	$57,430
2002	FL	Gulf World Inc	To upgrade the quality of Gulf World Marine Park's existing stranding facility, improve response time and capabilities.	$100,000
2002	FL	Harbor Branch Oceanographic Institution	Marine Mammal Necropsy Facility Ehancement	$69,811
2002	FL	Hubbs-SeaWorld Research Institute	Life history and stranding patterns of pygmy and dwarf sperm whales (genus Kogia) as critical tools in interpreting health assessment trends in wild populations	$98,240
2002	FL	Hubbs-SeaWorld Research Institute	Comprehensive stranding enhancement along the central east coast of Florida	$76,339
2002	FL	Marine Animal Rescue Society	Upgrade MARS from a Short-Term Critical Care Facility to a Long-Term Rehabilitation Center	$99,579
2002	FL	Mote Marine Laboratory	Mortality Patterns of Cetaceans Stranded on the Central West Coast of Florida	$100,000
2002	FL	Mote Marine Laboratory	Facility, staff and equipment upgrades for the dolphin and whale hospital	$100,000
2002	FL	SeaWorld (Orlando)	Enhancement of live stranding response capabilities and necropsy of code 2 animals in Northeast and east-central Florida: SeaWorld Florida equipment upgrades	$98,946
2002	FL	University of Florida, College of Veterinary Medicine	Marine Mammal Microbiology Diagnostic and Support Laboratory	$100,000
2002	GA	Georgia Depart. Natural Resources	Implement Marine Mammal Stranding Network in Georgia	$43,000
2002	HI	Hawaiian Islands Stranding Response Group	Cooperative partnerships in Hawaii which upgrade the capacity of the region's stranding ntework, detect, and dtermine the cause of marine mammal morbidity/mortalities	$99,830

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2002	HI	Robert C. Braun	Incidence of disease and health evaluation of Hawaiian Monk Seals (Monachus schauinslandi)in the Main Hawaiian Islands	$99,650
2002	MA	Cape Cod Stranding Network	Enhanced mass stranding response on Cape Cod: Success through preparation, protocols and cooperation	$100,000
2002	MA	Cape Cod Stranding Network	Health assessment of stranded marine mammals: Interpretation and field applications of blood and tissue analyses	$100,000
2002	MA	New England Aquarium Corporation	Marine Mammal Stranding Response, Rescue and Rehabilitation at the New England Aquarium in Support of the National Marine Fisheries Service under the Marine Protection Act	$98,671
2002	MA	New England Aquarium Corporation	An Analysis of the Spacial Patterns and Genetic Characteristics of the Harp and Hooded Seals Along the United States Eastern Coast	$99,996
2002	MA	Whale Center of New England	A Program to Respond to Stranded Marine Mammals in Northeastern Massachusetts-Evaluation, Rescue, Data Collection, and Public Education	$90,262
2002	MA	Woods Hole Oceanographic Institution	Necropsy enhancement for stranded marine mammals on Cape Cod	$93,897
2002	MD	Maryland Depart Natural Resources	Marine Mammal Stranding Response in Maryland	$47,002
2002	MD	National Aquarium in Baltimore	Enhanced Operations: Hospital pool restoration and satellite tags. Marine animal rescue program of the National Aquarium in Baltimore	$99,850
2002	MD	National Aquarium in Baltimore	Stranded Marine Animal Education and Outreach for professionals and the Public Marine Animal Rescue Program of the National Aquarium in Baltimore	$98,425
2002	ME	College of the Atlantic	Enhancement of the marine mammal stranding response and rescue program for the Maine coastal region, Rockland (ME) east, by creation of a new personnel position, network expansion, equipment upgrades, and acquisitions, and facility improvements	$72,750
2002	ME	College of the Atlantic	Use of stable isotope analysis to determine individual population and ecosystem health of Gulf of Maine Balaenopterids	$63,850
2002	ME	Marine Animal Lifeline	Enhancing seal rehabilitation care through improved isolation and the implementation of dedicated areas for veterinary treatments and necropsy	$87,015

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2002	ME	Marine Animal Lifeline	Development and use of a Geographic Information System for analysis of harp, hooded and harbor seal sightings/stranding locations: Adding a spatial dimension to strandings	$30,400
2002	MS	Institute for Marine Mammal Studies/Marine Life Oceanarium	Enhancement and Refurbishment of a Pre-Existing Stranding Facility and Development of First Response Capability Including Equipment and Training for Marine Mammal Live Response	$100,000
2002	NC	University of North Carolina, Wilmington	Enhanced evaluation of human interaction with bottlenose dolphins (*Tursiops truncatus*) in North Carolina and Virginia	$74,240
2002	NC	University of North Carolina, Wilmington	Enhance tissue collection and health monitoring of stranded of marine mammals in NC	$100,000
2002	NJ	Marine Mammal Stranding Center	To provide safe water and land transport of marine mammals	$71,250
2002	NJ	Marine Mammal Stranding Center	Operational expenses to support and enhance marine mammal and sea turtle rehabilitation	$100,000
2002	NY	Riverhead Foundation for Marine Research and Preservation	Request for operational support to upgrade facilities for the New York State Marine Mammal and Sea Turtle Stranding Program	$81,190
2002	NY	Riverhead Foundation for Marine Research and Preservation	Characterization of ice seal movements and evaluation of existing treatment protocols employed in the rehabilitation and field assessment through the uses of satellite telemetry and video documentation of stranded pinnipeds	$59,181
2002	OK	Oklahoma State University	A comprehensive two-year study of the viral, bacterial, mycologic and toxicologic conditions associated with marine mammal strandings in the Gulf coast of the US	$100,000
2002	OR	Oregon State University	Enhancing the capabilities of the Oregon Marine Mammal Stranding Network	$100,000
2002	PA	Trustees of the University of Pennsylvania	Toxicological and Pathoanatomic Stranding response and post-mortem evaluation of stranded marine mammals in San Juan Couny Washington	$75,206
2002	TX	Texas Marine Mammal Stranding Network	Improved recovery and rehabilitation of stranded marine mammals	$99,936
2002	TX	Texas Marine Mammal Stranding Network	Improved data collection from living and dead marine mammal strandings	$99,904
2002	VA	Virginia Marine Science Museum	Improving Triage and Treatment of Live Stranded Marine Mammals in Virginia	$82,850

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2002	VA	Virginia Marine Science Museum	Improving response to and assessments of dead marine mammal stranding in Virginia	$99,000
2002	WA	Cascadia Research Collective	Trends, spatial distribution, health effects of contaminants in Washington harbor seals from stranded animals	$98,968
2002	WA	Cascadia Research Collective	Strandings of large whales in Washington state and examination of contaminant accumulation	$99,461
2002	WA	WA Depart. Fish and Wildlife	Investigation of health parameters and causes of mortality in marine mammals from Washington waters	$100,000
2002	WA	Whale Museum	Stranding response and post-mortem evaluation of stranded marine mammals in San Juan Couny Washington	$89,123
2002	WA	Wolf Hollow Wildlife Rehabilitation Center	Enhancement and Support of Marine Mammal Treatment Facility	$75,053
2002	WA	Wolf Hollow Wildlife Rehabilitation Center	Upgrade of Life Support System for Marine Mammal Holding Pools	$99,400
2003	AK	University of AK Anchorage	The effects of acute and chronic stress on the Atlantic bottlenose dolphin (Tursiops Truncatus) Adrenal gland.	$74,619
2003	CA	City of Malibu	Consistency and improvement in marine mammal stranding response for the City of Malibu coastline	$100,000
2003	CA	Friends of the Seal Lion Marine Mammal Center	Pathology enhancement and database development	$97,975
2003	CA	Marine Mammal Care Center	Veterinary Fellowship Program at the Marine Mammal Care Center at Fort MacArthur	$100,000
2003	CA	Marine Mammal Center	Continuation of a biomonitoring program to detect novel diseases and changes in prevalence of know diseases in pinnipeds stranded along the central California coast	$100,000
2003	CA	Marine Mammal Center	Advancement of clinical care of stranded marine mammals, especially those intoxicated with the algal toxin domoic acid	$100,000
2003	CA	Natural History Museum of Los Angeles County	Development of an Improved Protocol for Examining Stranded Cetaceans: Combining Museum-based Science and Veterinary Medicine	$95,000
2003	CA	Regents of the University of CA	Cancer in stranded CA sea lions: answering questions about the role of contaminants, genetics, and diagnostic of herpes virus infection and early cancers	$100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2003	CA	Regents of the University of CA	Enhancement of Stranding Response at the University of CA Santa Cruz Long Marine Lab	$49,703
2003	CA	San Jose State University Foundation	Improving the Response to Marine Mammal Strandings by Moss Landing Marine Laboratories in Central CA	$99,716
2003	CA	Santa Barbara Museum of Natural History	Enhancement of Facility, Equipment and Supplies to Recover and Archive Dead, Stranded Cetaceans	$99,989
2003	CA	Sea World, San Diego	Improving response, care and diagnostic for stranded marine mammal in Southern CA	$100,000
2003	CA	Sea World, San Diego	Enhancement and integration of southern CA stranded marine mammal post-mortem evaluations and materials archives	$100,000
2003	CT	Mystic Aquarium	Support for the Marine Mammal Stranding Program at Mystic Aquarium	$100,000
2003	CT	Mystic Aquarium	Application and refinement of a prognostic index to evaluate the health, nutritional status, and cause of stranding of stranded harp seals and hooded seals in the Northeastern U.S., with particular emphasis on a disease with epizootic potential	$99,997
2003	CT	University of Connecticut	Evaluation of immune functions are potential diagnostic and prognostic tools in stranded marine mammals	$95,744
2003	DC	Smithsonian Institution	Enhancement and Maintenance of the Smithsonian Institution's Cetacean Distributional Database and Research Collection's (1 Year)	$97,580
2003	DE	Delaware DNR	Outfitting a necropsy lab to improve acquisition, analysis and storage of levels A, B and C data from stranded marine mammals in coastal Delaware and it's inland waterways	$100,000
2003	FL	FL Fish & Wildlife Conservation Commission	Facilities of Southwest Florida Cetaceans Rescue and Recovery	$90,800
2003	FL	Gulf World, Inc.	Request for equipment to help facilities large animals and to make moving of all animals easier, safer and faster and for financial assistance with stranding facility operations	$45,675
2003	FL	Hubbs-Sea World Research Institute	Enhancing live animal stranding response, necropsy procedures and tissue archiving capabilities along the central and northeast coast of FL	$96,826

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2003	FL	Marine Animal Rescue Society (MARS)	Improve MARS' impact on live stranding events in South FL, while nurturing existing outreach channels with a better presence	$99,952
2003	FL	Mote Marine Lab	Facility expansion for the Dolphin and Whale Hospital	$100,000
2003	FL	University of Florida	Poxvirus Infections in North American Pinnipeds	$38,181
2003	LA	Audubon Nature Institute, Inc.	Enhancement of data collection from stranded marine mammals by the Louisiana Marine Mammal Rescue Program	$74,940
2003	MA	Cape Cod Stranding Network, Inc.	Enhanced stranding response and investigation on Cape Cod: assessment, data, collection, sampling, and disposal	$100,000
2003	MA	New England Aquarium Corporation	Improved field diagnostic and post release monitoring of mass stranded cetaceans	$99,958
2003	MA	New England Aquarium Corporation	Improving marine mammal stranding response and rehabilitation in Massachusetts, New Hampshire, and Southern Maine	$100,000
2003	MA	Woods Hole Oceanographic Institution	2003 Necropsy Enhancement for Stranded Marine Mammals	$99,267
2003	MD	Maryland DNR	Improving Response to and Assessment of Dead Stranded Marine Mammals in Maryland	$99,997
2003	MD	National Aquarium in Baltimore	Enhanced operations of Marine Animal Stranding Rescue and Rehabilitation through the procurement of medical/rescue equipment and a centralized storage facility.	$99,030
2003	ME	College of the Atlantic	A medium-range response vessel to enhance the Marine Mammal Stranding Response Program (MMSRP) for Mid-coast/Downeast Maine	$80,000
2003	ME	Marine Animal Lifeline	Improved veterinary care and marine mammal rehabilitation program support	$98,401
2003	ME	Marine Animal Lifeline	Enhancing and supporting marine mammal rescue response and stabilization procedures	$99,734
2003	ME	University of Southern Maine	Establishing a national resource of marine mammal cell lines for toxicological, infectious disease, and other biomedical research	$100,000
2003	MS	Institute for Marine Mammal Studies, Inc.	Evaluation of trends and possible causes of marine mammal strandings in the Mississippi sound and adjacent waters	$100,000
2003	NC	University of North Carolina, Wilmington	Enhancing response to and necropsy of stranded large whales in North Carolina and Virginia	$93,262

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2003	NC	University of North Carolina, Wilmington	Enhanced tissue collection and health monitoring of stranded marine mammal's in North Carolina and Virginia	$94,046
2003	NJ	Marine Mammal Stranding Center (MMSC)	To ensure and support MMSC staffing requirements	$100,000
2003	NY	Mount Sinai School of Medicine	Atlas of mysticete anatomy	$92,181
2003	NY	Riverhead Foundation for Marine Research and Preservation	Facility upgrade to enhance access to veterinary care for marine mammals while collecting valuable supplemental data	$99,711
2003	OR	Oregon State University	Enhancing the capabilities of the Oregon marine mammal stranding network	$99,967
2003	SC	South Carolina DNR	Continuation of South Carolina's Marine Mammal Strandings Network	$86,690
2003	TX	Texas Marine Mammal Stranding Network (TMMSN)	Improved Recovery and Treatment of Live Stranded Animals--Rescue, Rehabilitation and Release	$99,649
2003	TX	Texas Marine Mammal Stranding Network (TMMSN)	Improved data collection from living and dead marine mammal strandings	$99,319
2003	VA	Virginia Marine Science Museum	Supporting response to dead marine mammal strandings in Virginia	$100,000
2003	WA	Washington Department of Fish & Wildlife	Investigations of marine mammals health parameters and causes of mortality in marine mammals from Washington waters	$72,256
2003	WA	Whale Museum	Stranding response and post-mortem evaluation of stranded marine mammals in San Juan County, Washington	$95,178
2004	AK	Aleut Community of St Paul Island	Assessment of northern fur seal entanglement in marine debris on the Pribilof Islands.	$100,000
2004	AK	Seward Association for the Advancement of Marine Science	Rescue and Rehabilitation of Pinnipeds and Cetaceans in AK	$99,815
2004	AK	University of AK Fairbanks	Morbidity and mortality of marine mammals on the north coast of Alaska Peninsula	$99,908
2004	AL	Marterra Foundation, Inc.	Enhancement of data collection Phase 2	$99,924
2004	CA	Marine Mammal Care Center	Enhanced Veterinary Medical Program at the Marine Mammal Care Center at Fort MacArthur	$100,000
2004	CA	Northcoast Marine Mammal Center	Enhance diagnostic and treatment abilities, improve facilities for stranded marine mammals; continue employment of facility manager and primary investigating veterinarian to accomplish goals and objectives	$100,000
2004	CA	Regents of the University of CA	Marine Mammal Pathology for the Central CA	$99,980

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2004	CA	San Jose State University Foundation	Movements, Dive Behavior and Survival of Post Release CA Sea Lions after Rehabilitation for Domoic Acid Toxicity	$97,322
2004	CA	Santa Barbara Marine Mammal Center	Pinniped Rescue Capture Techniques Training Program	$32,000
2004	DC	Smithsonian Institution	Enhancement and Maintenance of the Smithsonian Institution's Cetacean Distributional Database and Research Collection's (Year 2)	$97,467
2004	FL	Dynamac Corporation	Marine Mammal Stranding Program on Florida's Space Coast: Upgrade Rescue and Data Collection	$43,198
2004	FL	Harbor Branch Oceanographic Institution	Diagnostic Equipment Purchase	$54,964
2004	FL	Harbor Branch Oceanographic Institution	Stranding Center Pool Enhancement	$97,763
2004	FL	Hubbs-Sea World Research Institute	Cetacean stranding response and the development of a photographic stranding atlas for network education and training	$94,720
2004	FL	Marine Animal Rescue Society (MARS)	Improve MARS' impact on live stranding events in South FL, while nurturing existing outreach channels with a better presence (2nd Year Funding)	$32,602
2004	FL	Mote Marine Laboratory	Enhancement of marine mammal rescue and stranding program for central west FL	$100,000
2004	HI	Hawaiian Islands Stranding Response Group	Collect consistent level A data throughout the jurisdiction, including remote areas, and collect level B and C data from stranding of dead marine mammals	$100,000
2004	HI	Hawaiian Islands Stranding Response Group	Collect consistent level A data throughout the jurisdiction, including remote areas, and collect level B and C data from stranding of dead marine mammals (2nd Year Funding)	$100,000
2004	LA	Audubon Nature Institute, Inc.	Enhancement of data collection from stranded marine mammals by the Louisiana Marine Mammal Rescue Program	$32,740
2004	MA	Cape Cod Stranding Network, Inc.	The science of stranding response: supporting data collection from live and dead stranded marine mammals on Cape Cod	$100,000
2004	MA	Whale Center of New England	A project to increase the breadth and efficiency of marine mammal stranding response on Massachusetts' North Shore	$86,658

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2004	MD	National Aquarium in Baltimore	Enhanced operations of Marine Animal Stranding Rescue and Rehabilitation through the procurement of medical/rescue equipment (2nd Year Funding)	$71,344
2004	ME	College of the Atlantic	Enhancement of the Marine Mammal Stranding Response Program (MMSRP) for the Mid-coast/Downeast Maine	$66,058
2004	NC	North Carolina State University	Improving live marine mammal stranding response in North Carolina through rapid diagnostic capability and short-term holding capacity	$83,195
2004	NJ	Marine Mammal Stranding Center (MMSC)	To ensure and support MMSC staffing requirements (2nd Year Funding)	$100,000
2004	NY	Riverhead Foundation for Marine Research and Preservation	Evaluation of current rescue response protocols and post-rehabilitation monitoring of marine mammals through the enhancement of data collection, satellite and radio tracking, and data on the prevalence of morbilli and herpes in pinnipeds in the northwest	$100,000
2004	VA	Virginia Marine Science Museum	Recovery and treatment of Live Stranded Marine Mammals in Virginia	$100,000
2004	WA	Cascadia Research Collective	Cetacean stranding response in Washington with special attention to gray whales and harbor porpoise	$83,595
2004	WA	Cascadia Research Collective	Trends, spatial distribution, health effects of contaminants in Washington pinnipeds	$96,372
2004	WA	Whale Museum	Stranding response and post-mortem evaluation of stranded marine mammals in San Juan County, Washington (2nd Year Funding)	$94,378
2004	WA	Wolf Hollow Wildlife Rehabilitation Center	Advancement of Marine Mammal Rehabilitation Program, Facilities, Techniques, Training and Research	$99,980
2005	AK	Seward Association for the Advancement of Marine Science	Alaska Region Stranding Network coordination and development project	$97,837
2005	AK	University of Alaska - Fairbanks	Salvaging beach-dead marine mammals - collaborative effort between UAM, volunteer salvage crews and NOAA	$89,718
2005	CA	Hubbs-SeaWorld Research Institution (CA)	Post-release monitoring of rehabilitated marine mammals in southern California through the use of VHF and UHF (satellite-linked) radio telemetry	$96,093
2005	CA	Marine Mammal Care Center at Fort MacArthur	Support and upgrade of the Veterinary Medical Program at the Marine Mammal Care Center at Fort MacArthur	$100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2005	CA	Pacific Marine Mammal Center	Enhancing diagnostic applications for stranded marine mammals and improving operational capabilities	$69,566
2005	CA	San Jose State University Foundation	Body burden assessments of total mercury in stranded Pacific harbor seals, *Phoca vitulina richardii* , in central California	$98,814
2005	CA	Sea World San Diego	Equipment and personnel for improving response and care for live stranded marine mammals in southern California	$76,108
2005	CA	The Marine Mammal Center	Development of a biomonitoring program to detect novel diseases and changes in prevalence of known diseases in pinnipeds stranded along the central California coast - year 3	$100,000
2005	CA	The Regents of the University of California	Enhancement of stranding response at University of California Santa Cruz Long Marine Lab	$37,581
2005	CA	The Regents of the University of California	Marine Mammal Pathology Service for the central California coast, Part 3	$99,980
2005	CT	Mystic Aquarium	Support and enhancement for the Marine Mammal Stranding Program at Mystic Aquarium	$100,000
2005	DC	Smithsonian Institution	Enhancement of Level A, B and C Cetacean Data: Improving data quality and access to the Smithsonian Institution's Cetacean Distributional Database	$88,685
2005	DE	Delaware Department of Natural Resources	Support staffing and operational needs to facilitate improved stranding response for marine mammals occurring along the Delaware coast and its waterways	$100,000
2005	FL	Dynamac Corporation	Marine Mammal Stranding Program on Florida's space coast	$36,961
2005	FL	Florida Fish and Wildlife Conservation Commission - Jacksonville	Equipping the Northeast Florida Stranding Network for response to cetacean strandings	$65,116
2005	FL	Harbor Branch Oceanographic Institution	Research project on cardiomyopathy of dwarf and pygmy sperm whales	$99,706
2005	FL	Hubbs-Sea World Research Institute	An evaluation of demographic and health related factors of the Indian River Lagoon dolphin population following an Unusual Mortality Event	$76,540
2005	FL	Marine Animal Rescue Society	Improve MARS' impact on live stranding events in South Florida, while nurturing existing outreach channels with a better presence	$99,996
2005	FL	Mote Marine Laboratory	Support for operation with the increased capacity of the Dolphin and Whale Hospital	$84,169

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2005	FL	Mote Marine Laboratory	Enhancement of the marine mammal stranding program and post-release monitoring of rehabilitated cetaceans for central west Florida	$100,000
2005	HI	Robert C. Braun, D.V.M.	Hawaiian monk seal health trend surveillance and captive care response	$100,000
2005	LA	Audubon Nature Institute, Inc.	Enhancement and maintenance of data collection from stranded marine mammals by the Louisiana Marine Mammal Rescue Program: Phase 2	$99,900
2005	MA	Cape Cod Stranding Network	Pursuing excellence in marine mammal stranding response: support for basic operational needs and innovative solutions to stranding challenges	$100,000
2005	MA	New England Aquarium	Strengthening marine mammal stranding response and rehabilitation at the New England Aquarium	$88,246
2005	MA	The Whale Center of New England	Marine mammal stranding response on Massachusetts' north shore: Continuation and expansion of data collection and assistance to stranded animals	$73,377
2005	MA	Woods Hole Oceanographic Institution	Development of necropsy, anatomy, and pathology training materials from stranded marine mammals	$99,969
2005	MD	Maryland Department of Natural Resources	Enhancing the quality and quantity of data collection from dead stranded marine mammals in Maryland	$88,387
2005	ME	College of the Atlantic	Maintenance and enhancement of the Marine Mammal Stranding Response Program (MMSRP) for the midcoast/downeast region of Maine, 2005-2006	$77,388
2005	ME	University of New England	The enhancement of pinniped rehabilitation at Marine Animal Rehabilitation Center	$85,615
2005	ME	University of Southern Maine	Establishing a national resource of marine mammal cell lines for toxicological, infectious disease, and other biomedical research	$100,000
2005	MS	Institute for Marine Mammal Studies	Evaluation of trends and possible causes of Atlantic bottlenose dolphin (*Tursiops truncatus*) strandings in the Mississippi Sound and adjacent waters (continuation study)	$100,000
2005	NC	University of North Carolina - Wilmington	Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia	$98,587
2005	NJ	Marine Mammal Stranding Center	To enhance and support basic needs for volunteer training and response, treatment and data collection of live and dead stranded marine mammals in New Jersey	$100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2005	NY	The Riverhead Foundation for Marine Research	Facility upgrade to enhance operational support and response to live marine mammal strandings while collecting valuable supplemental data	$100,000
2005	OR	Oregon State University	Enhancing the capabilities of the Oregon Marine Mammal Stranding Network	$99,201
2005	OR	Portland State University	Implementation of an archival system for cetacean tissue and anatomical specimens collected during 10 years of stranding network activity	$76,462
2005	TX	Texas Marine Mammal Stranding Network	Response, treatment and data collection from living and dead stranded marine mammals	$99,905
2005	VA	Virginia Aquarium Foundation	Enhancing response to live marine mammal strandings in Virginia	$100,000
2005	WA	Washington Department of Fish and Wildlife	Investigations of marine mammal health parameters and causes of mortality in Washington state	$94,655
2005	WA	Wolf Hollow Wildlife Rehabilitation Center	Advancement of marine mammal rehabilitation program, operations, facilities, training and research	$88,068
2006	AK	Aleut Community of St. Paul Island	Assessment of northern fur seal (*Callorhinus ursinus*) entanglement in marine debris on the Pribilof Islands	99,083
2006	AK	University of Alaska Fairbanks	Improvements to marine mammal data and specimen archives at UAM	100,000
2006	AK	University of Alaska Fairbanks	Morbidity and mortality of marine mammals on the north coast of the Alaska Peninsula	100,000
2006	CA	City of Malibu	Advancement of marine mammal stranding response for the city of Malibu coastline	87,698
2006	CA	Marine Mammal Care Center at Fort MacArthur	Staffing resources upgrade at the Marine Mammal Care Center at Fort MacArthur	83,200
2006	CA	Northcoast Marine Mammal Center	Enhance response, rescue and rehabilitation on Northern California's remote coastline	100,000
2006	CA	Pacific Marine Mammal Center	Enclosure renovation and pool construction project	58,539
2006	CA	Regents of the University of California	Marine Mammmal Pathology Service for the Central California Coast, Part 4	99,946
2006	CA	Regents of the University of California	Enhancement of Stranding Response at University of California Santa Cruz Long Marine Lab	48,389
2006	CA	Santa Barbara Museum of Natural History	Support for and enhancement of data collection from Dead-Stranded cetaceans	63,756
2006	CA	Sea World San Diego	Personnel for improving stranded animal response in Southern California	100,000
2006	CA	The Marine Mammal Center	Development of diagnostic assays to detect lungworm (Otostrongylus circumlitus) infection in stranded northern elephant and Pacific harbor seals	99,550

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2006	CT	Sea Research Foundation, Inc. (Mystic Aquarium)	Support and Enhancement for the Marine Mammal Stranding Program at Mystic Aquarium	99,310
2006	CT	University of Connecticut	Evaluation of immune functions as potential diagnostic and prognostic tools in stranded marine mammal, a regional approach.	100,000
2006	FL	Florida Fish and Wildlife Conservation Commission	Stranding and Necropsy Training For Increasing Quality of Level A, B, and C Data Collection by the Florida Cetacean Stranding Network	99,913
2006	FL	Hubbs-SeaWorld Research Institute	Enhancing live animal stranding response, assessing cetacean health trends, and evaluating neonatal mortality trends of the bottlenose dolphin (Tursiops truncatus) along the east coast of Florida	99,479
2006	FL	Hubbs-SeaWorld Research Institute	Validation of historic marine mammal stranding data from the southeastern United States	64,474
2006	FL	Marine Animal Rescue Society (MARS)	Improve MARS' mass stranding response capability (immediate triage and necropsy support) and post-rehabilitation monitoring preparedness for the SEUS stranding region	64,296
2006	FL	Mote Marine Laboratory	Investigating brevetoxin-induced mortality in bottlenose dolphins stranded in central west Florida	100,000
2006	FL	Nova Southeastern University	An Analysis of Kogia Stranding Data Collected by the Southeast Region Marine Mammal Stranding Network	29,177
2006	FL	University of Florida	Clinical Pathology and Histopathologic Processing and Analysis of Cetaceans in Northern and Central Florida	99,955
2006	GA	GA Dept. of Natural Resources	Enhance Georgia Marine Mammal Stranding Network	55,848
2006	MA	Cape Cod Stranding Network	The Next Step: Operational Support to Enhance Stranding Response Capabilities and Promote Data Analysis and Publication	100,000
2006	MA	New England Aquarium Corporation	Advancement of Clinical Care, Data Collection, and Pathology Training for Marine Mammal Stranding Response	99,954
2006	MA	The Whale Center of New England	Marine mammal stranding response on Massachusetts' North Shore: Timely assistance for living animals and comprehensive regional data collection	85,062
2006	MA	Woods Hole Oceanographic Institution	2006 Necropsy of Fresh and Human-Impacted Marine Mammal Strandings in SE Massachusetts and Cape Cod	98,714

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2006	MD	National Aquarium in Baltimore	2006 National Aquarium in Baltimore, Marine Animal Rescue Program Operations	46,800
2006	ME	College of the Atlantic	Maintenance and Enhancement of the Marine Mammal Stranding Response Program (MMSRP) for the Mid-coast/Downeast Region of Maine, 2006-2007	82,890
2006	ME	Marine Animal Lifeline	Veterinary care staffing and rehabilitation supply expense support for the marine mammal rehabilitation program	100,000
2006	ME	University of New England	The Enhancement of Cetacean Response, Treatment and Data Collection in Southern Maine	93,596
2006	ME	University of New England	Composting as a Disposal Option	60,025
2006	NC	North Carolina State University	Improving live marine mammal stranding response in North Carolina through a rapid diagnostic capability and short-term holding capacity	56,930
2006	NC	University of North Carolina Wilmington	Enhancing response to and necropsy of large whales in North Carolina, Virginia and South Carolina	92,830
2006	NC	University of North Carolina Wilmington	Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia	99,986
2006	NJ	Marine Mammal Stranding Center	To enhance and support Marine Mammal Stranding Center staffing requirements	100,000
2006	NY	Riverhead Foundation for Marine Research and Preservation	Facility Upgrade to Enhance Operational Support and Response to Marine Mammal Strandings	100,000
2006	OR	Oregon State University	Enhancing the capabilities of the Oregon Marine Mammal Stranding Network	99,931
2006	TX	Texas Marine Mammal Stranding Network	Response, treatment and data collection from living and dead stranded marine mammals	99,998
2006	VA	Virginia Aquarium and Marine Science Center Foundation	Continuing Investigation of Dead Marine Mammal Strandings in Virginia	100,000
2006	WA	Orca Network	Stranding response and post-mortem examination of stranded marine mammals in Central Puget Sound, Washington	99,772
2006	WA	Washington Department of Fish and Wildlife	Response to stranded marine mammals and investigating causes of mortality in Washington waters	99,532
2006	WA	Wolf Hollow Wildlife Rehabilitation Center	Care of Live Stranded Harbor Seals in the Northwest Region: Treatment, Data Management, Research, and Training	85,638

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2007	AK	Alaska Department of Fish and Game	Reduce Entanglements of Live Stranded Steller Sea Lions in Alaska	54,000
2007	AK	Seward Association for the Advancement of Marine Science	Basic operations and medical care of rehabilitation patients	99,803
2007	AK	Seward Association for the Advancement of Marine Science	Alaska Region Stranding Network Development and Training	40,000
2007	AK	University of Alaska Fairbanks	Improvements to marine mammal data and specimen archives at UAM.	100,000
2007	AK	Alaska Whale Foundation	Improving Alaska Whale Foundation's disentanglement preparedness in Southeast Alaska	39,540
2007	CA	Northcoast Marine Mammal Center	Enhance response, rehabilitation and data collection of stranded marine mammals on Northern California's remote coastline	94,780
2007	CA	The Marine Mammal Center	Stranded harbor seals as indicators of pathogen prevelance in harbor seals of San Francisco, a heavily urbanized environment	95,792
2007	CA	The Marine Mammal Center	Understanding the cyclic dynamics of leptospirosis in California sea lions (*Zalophus californianus*)	99,428
2007	CA	The Regents of the University of California	Continued Prescott Program Enhancement of Stranding Response at University of California Santa Cruz Long Marine Lab	90,906
2007	CA	The Regents of the University of California	Marine Mammal Pathology Service for the Central California Coast, Part 5	97,883
2007	CA	San Jose State University Foundation	Enhancing the Response to Marine Mammal Strandings by Moss Landing Marine Laboratories in Central California	99,838
2007	CA	Santa Barbara Museum of Natural History	Enhancement of Cetacean Bio-Monitoring in Central and Southern California	75,984.90
2007	CA	Marine Mammal Care Center at Fort MacArthur	Improving operational capabilities at the Marine Mammal Care Center at Fort MacArthur	96,100
2007	CA	Friends of the Sea Lion, Inc. dba Pacific Marine Mammal Center	Diagnostic and Treatment Enhancements for Stranded Marine Mammals	99,644
2007	CA	Biomimetica	Establishing Auditory Evoked Potential Measurement Capabilities for Stranding Response Teams	51,978.90

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2007	CT	Mystic Aquarium	Support and Enhancement for the Marine Mammal Stranding Program at Mystic Aquarium	100,000
2007	DE	DNREC - Delaware Division of Fish and Wildlife	Support staffing and operational needs for comprehensive stranding response and health assessments for marine mammals stranding in Delaware	99,680
2007	FL	Hubbs-SeaWorld Research Institute	Enhancing live animal response, public outreach and education, and improving the assessment of cetecean health trends and interactions between bottlenose dolphins and recreational fishing gear	99,581
2007	FL	Hubbs-SeaWorld Research Institute	Age, growth, reproduction and feeding ecology of rough-toothed dolphins from single and mass strandings in Florida, with a compilation of voucher materials deposited in various institutions	91,421
2007	FL	Florida Fish and Wildlife Conservation Commission	Cetacean Stranding Response and Training in Lee and Collier Counties, Florida	40,086
2007	FL	Mote Marine Laboratory, Inc.	Support for Operation of the Dolphin and Whale Hospital	100,000
2007	HI	Attractions Hawaii , dba Sea Life Park by Dolphin Discovery	Development of live cetacean stranding response teams on the main Hawaiian Islands and a long-term cetacean rehabilitation facility on Oahu, Hawaii	100,000
2007	HI	Hawaii Pacific University	Continuing To Enhance Cetacean Necropsy Capabilities in the Main Hawaiian Islands	100,000
2007	MA	Cape Cod Stranding Network, Inc.	Maintaining Readiness: Operational Support for Single and Mass Stranding Response and Training on Cape Cod and Southeastern Massachusetts	100,000
2007	MA	New England Aquarium Corporation	Enhancement of Marine Mammal Response, Rehabilitation and Data Collection with a Focus on Mass Stranding Events	99,906
2007	MD	Maryland Department of Natural Resources	Continuation of Enhanced Level B and C Data Collection from Dead Stranded Marine Mammals in Maryland	65,435
2007	ME	College of the Atlantic	Maintenance and enhancement of the Marine Mammal Stranding Response Program (MMSRP) for the Mid-coast/ Downeast region of Maine, 2007-2008	97,800
2007	ME	Maine Department of Marine Resources	Support basic needs of organizations for response, treatment, and data collection from living and dead stranded marine mammals.	100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2007	ME	University of New England	Marine Animal Rehabilitation Center Diagnostic Enhancement, Disease Surveillance, and Operational Support	99,559
2007	MP	Northern Marianas College	Building the capacity of US Insular areas for Marine Mammal Stranding Response	80,000
2007	NC	University of North Carolina Wilmington	Enhanced tissue collection and health monitoring of stranded marine mammals in North Caorlina and Virginia	98,240
2007	NJ	Marine Mammal Stranding Center	To enhance and support Marine Mammal Stranding Center staffing and veterinary requirements	100,000
2007	NY	Riverhead Foundation for Marine Research and Preservation	Program Support to Enhance Operations for Response, Treatment and Data Collection from Living and Dead Stranded Marine Mammals	100,000
2007	OR	Oregon State University	Enhancing the Capabilities of the Oregon Marine Mammal Stranding Network	98,502
2007	OR	Portland State University	Diagnostic Assessment of Health and Investigation of Potential Relationship of Diet and Exposure to Biotoxins in Stranded Marine Mammals in Oregon	98,393
2007	PR	Puerto Rico Department of Natural and Environmental Resources	Puerto Rico Marine Mammal Rescue Network	100,000
2007	TX	Texas Marine Mammal Stranding Network	Response, treatment and data collection from living and dead marine mammals stranded along the Texas coast	100,000
2007	VA	Virginia Aquarium & Marine Science Center Foundation, Inc.	Response, rehabilitation & examination of stranded marine mammals in Virginia	99,990
2007	WA	Cascadia Research Collective	Stranding response in southern Puget Sound and central outer coast Washington 2007-2009 including large whale stranding response for all Washington	99,832.50
2007	WA	Washington Department of Fish and Wildlife	Enhanced response to stranded marine mammals and investigating causes of mortality in Washington waters.	100,000
2007	WA	Wolf Hollow Wildlife Rehabilitation Center	Care of Live Stranded Harbor Seals in the Northwest Region: Treatment, Data Collection and Compilation, and Training	85,783
2008	AK	Seward Association for the Advancement of Marine Science	Basic Operations and Medical Care of Rehabilitation Patients	$99,994
2008	AK	Seward Association for the Advancement of Marine Science	Alaska Region Stranding Network Annual Meetings and Training	$99,997

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2008	CA	Northcoast Marine Mammal Center	Enhanced Stranding Response and Rehabilitation on the Lost Coast: Support for Basic Operational Needs and Development of Written Protocols and Manuals	$94,136
2008	CA	California Academy of Sciences	Improving marine mammal data collection facilities and specimen archives at the California Academy of Sciences	$100,000
2008	CA	Regents of the University of California, Davis	Monitoring post-release movement and survival of rehabilitated harbor seal pups	$97,398
2008	CA	Regents of the University of California, Santa Cruz	Continued Prescott Program Enhancement of Stranding Response at University of California Santa Cruz Long Marine Lab	$99,106
2008	CA	San Jose State University Foundation	A vessel for whale disentanglement in central california	$20,000
2008	CA	Santa Barbara Museum of Natural History	Enhancement of Cetacean Bio-Monitoring in Central and Southern California	$77,297
2008	CA	City of Malibu	Marine Mammal Stranding Response and Data Collection for the City of Malibu	$74,740
2008	CA	Marine Mammal Care Center at Fort MacArthur	Facility expansion and Upgrade at the Marine Mammal Care Center at Fort MacArthur	$93,155
2008	CT	Sea Research Foundation, Inc.	Support and Enhancement for the Marine Mammal Stranding Program at Mystic Aquarium	$74,966
2008	FL	Florida Atlantic University Foundation (Harbor Branch Oceanographic Institution)	Furthern Investigations of the Etiopahogenesis of *Kogia* spp. Cardiomyopathy	$99,997
2008	FL	Hubbs-SeaWorld Research Institute	Enhancing public and network outreach and education in the SEUS stranding network and support for marine mammal stranding response along the east coast of Florida	$99,966
2008	FL	Marine Animal Rescue Society	Enhance MARS' stranding support, facility capacity and outreach within the network through continual improvements of proven methods	$100,000
2008	FL	Mote Marine Laboratory	Monitoring natural and human-related mortality of cetaceans along the central West coast of Florida and post-release tracking of rehabilitated animals	$100,000
2008	FL	Mote Marine Laboratory	Facility and Equipment Enhancement at the Dolphin and Whale Hospital	$100,000
2008	GA	GA Department of Natural Resources	Enhancing the Georgia Marine Mammal Stranding Network Through Improved Academic Collaboration	$34,877

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2008	HI	Hawaii Pacific University	Continuing to Build Capacity for Cetacean Necropsies in the Main Hawaiian Islands and the Greater Pacific	$100,000
2008	LA	Audubon Nature Institute, Inc.	Louisania Marine Mammal Rescue Program: continued program operations and response for live and dead strandings while increasing Level A, B, and C data collection and samples for analysis	$95,400
2008	MA	New England Aquarium	Expanding Our Understanding of Marine Mammal Strandings through Enhanced Proficiency of Staff and Volunteers, Increased Sample Collection and Analysis, and More Efficient Manipulation of Data	$99,676
2008	MA	Woods Hole Oceanographic Institution	2008- Examination of Offshore Large Whale Mortalities	$99,918
2008	MD	National Aquarium in Baltimore	2008 Support and Enhancement of the National Aquarium in Baltimore's Marine Animal Rescue Program	$76,813
2008	MD	Maryland Department of Natural Resources	Enhanced Tissue and Data Collection from Dead Stranded Marine Mammals in Maryland	$57,390
2008	ME	College of the Atlantic	Maintenance and Enhancement of the Marine Mammal Stranding Program (MMSRP) for the Mid-Coast/Downeast Region of Maine, 2008-2009	$92,308
2008	ME	University of New England	Broadening Observations Through Technology, Continuation of Infectious Disease Monitoring, and Operational Support for the Marine Animal Rehabilitation Center at the University of New England	$99,225
2008	ME	Maine Department of Marine Resources	Prescott Funds for the Maine Department of Marine Resources Marine Mammal Response	$100,000
2008	MS	Institute for Marine Mammal Studies, Inc	Enhancement of marine mammal stranding response, data collection, and tissue analysis in the Mississippi Sound and the adjacent waters of the North-Central Gulf of Mexico	$100,000
2008	NC	University of North Carolina, Wilmington	Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia	$99,974
2008	NJ	Marine Mammal Stranding Center	Support and Enhancement for the Marine Mammal Stranding Program at MMSC	$100,000
2008	NY	Riverhead Foundation for Marine Research and Preservation	Operational Support to Enhance Resources for Response, Treatment, and Date Collection from Living and Dead Stranded Marine Mammals Recovered in New York State	$100,000

YEAR	STATE	APPLICANT	TITLE	FEDERAL AMOUNT
2008	OR	Portland State University	Enhancement of Diagnostic Capabilities and Extension of Geographic Coverage for the Northern Oregon/Southern Washington Marine Mammal Stranding Program (NOSWSP)	$100,000
2008	OR	Oregon State University	Enhancing the Capabilities of the Oregon Marine Mammal Stranding Network	$99,627
2008	TX	Texas State Marine Mammal Stranding Network	Response, Treatment, and Data Collection from Living and Dead Marine Mammals Stranded Along the Texas Coast	$100,000
2008	VA	Virginia Aquarium	Processing archived samples from stranded Tursiops in VA	$99,865
2008	VA	Virginia Aquarium	Supporting Expert Response to Stranded Marine Mammals in Virginia	$100,000
2008	WA	Makah Tribe	Investigations of Marine Mammal Strandings on the Makah Indian Reservation	$29,288
2008	WA	The Whale Museum	Response and postmortem evaluation of marine mammals stranded in San Juan County, Washington	$94,881
2008	WA	Orca Network	Enhanced stranding response, post-mortem examination, and diagnostics of stranded marine mammals in Central Puget Sound, Washington.	$94,750
2008	WA	Cascadia Research Collective	Enhanced Reponse to Stranded Marine Mammals in Washington Including Searches of Outer Coast Beaches and Smith Island to Examine Underreporting of Stranding Rates and Follow Up of Unusual Mortalities	$99,903

APPENDIX L

MARINE MAMMAL OIL SPILL RESPONSE GUIDELINES

MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM

Marine Mammal Oil Spill Response Guidelines

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources
Marine Mammal Health and Stranding Response Program

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MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM

Marine Mammal Oil Spill Response Guidelines

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Correct citation of this report is:

Johnson, S., and M. Ziccardi. 2006. Marine Mammal Oil Spill Response Guidelines. NOAA Technical Memorandum..

Acknowledgements

Development and publication of the *Marine Mammal Oil Spill Guidelines* was made possible with the financial support from NOAA Fisheries, National Marine Mammal Health and Stranding Response Program and the combined effort of many different interested and willing parties and organizations. The bulk of these procedures are based on protocols developed by participant organizations within California's Oiled Wildlife Care Network (OWCN) from years of marine mammal rehabilitation and oil spill response experience. These guidelines could not have been written without the previous contribution to the field of marine mammal oil spill response by Pamela Yochem (Hubbs-SeaWorld Research Institute, San Diego, CA) and Marty Haulena (The Marine Mammal Center, Sausalito, CA). Additions and modifications to this document should be made regularly as advances in oil spill response techniques are made. Any suggestions for additional material or comments on methods included in this document are welcome.

Many individuals and organizations helped make this publication possible through the generous contributions of their time and effort and we offer our sincere thanks to everyone involved.

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Internet Resources

NOAA Fisheries, Marine Mammal Health and Stranding Response Program
http://www.nmfs.noaa.gov/pr/health/

NOAA, Damage Assessment and Restoration Program (DARP):
http://www.darp.noaa.gov/

U.S. Coast Guard Oil Spill Response: http://www.uscg.mil/hq/g-m/nmc/response/index.htm

U.S. Coast Guard Area Contingency Plans: http://www.uscg.mil/vrp/acp/acp.shtml

U.S. National Response Team: http://www.nrt.org/

Wildlife Health Center, UC Davis: http://www.vetmed.ucdavis.edu/whc/

Oiled Wildlife Care Network: http://www.vetmed.ucdavis.edu/owcn/

Introduction

Marine Mammals and Oil: A Brief Overview

In comparison to marine birds, marine mammals are infrequently affected by oil spill incidents. The number of individuals and species affected, as well as the degree of pathological impact of such exposure, will depend on many variables, such as the location and size of the spill, the characteristics of the oil, weather and water conditions, types of habitats affected, the time of year the spill occurs, as well as the behavior and physiology of the marine mammal. Information on the effects of oil on marine mammals is sparse, and is mostly a result of the *Exon Valdez* oil spill in Alaska in 1989 and a limited number of exposure experiments on a narrow range of species exposed to relatively low doses of oil (Geraci and St. Aubin, 1990).

The sensitivity of marine mammals to spilled oil is highly variable and appears to be most directly related to the relative importance of fur and blubber to thermoregulation. In those species with relatively sparse fat stores, direct contact with oil impairs the thermal insulative value of fur thus resulting in hypothermia. External exposure can also result in dermal injury and conjunctivitis. Internal exposure of oil by ingestion (either by direct ingestion or indirect through food and water sources) can result in gastrointestinal ulcers and liver and kidney damage. Inhalation of volatile hydrocarbons can result in central nervous system and pulmonary damage and behavioral abnormalities. Depending upon the extent of external exposure, the toxicity of the petroleum product, the volume ingested or inhaled, the presenting clinical signs, and the species affected, some marine mammals exposed to oil may not need rehabilitation. Oil spill responders must consider that such procedures involving capturing, holding, treating, and releasing the wild animals places stress on the animal, and the consequences of capture and captivity may be a greater risk to its well being than contacting oil. Exceptions may include abandoned or moribund young pups of any species and species that rely on fur for thermal insulation. These animals will most likely require rehabilitation when oiled due to the physical and toxicological effects of petroleum exposure.

Pathological Effects of Petroleum Exposure

Documented clinical and histopathological effects of oil in pinnipeds and sea otters include ambulatory restrictions, thermoregulatory imbalance, central nervous system depression, interstitial pulmonary emphysema, aspiration pneumonia, anemia, conjunctivitis and corneal edema, gastrointestinal irritation, and hepatic and renal tubular necrosis/lipiosis, and adrenal gland dysfunction (Davis and Anderson, 1976; Geraci and Smith, 1976; Engelhardt et al., 1977; Engelhardt, 1985; Geraci and St. Aubin, 1988; Geraci and Williams, 1990; St. Aubin, 1990; Lipscomb et al., 1993). Small laboratory studies on the effects of oil have been conducted on ringed and harp seals (Smith and Geraci, 1975; Geraci and Smith, 1976); however most studies have been unable to correlate the degree of oiling with the type of effect and many of these lesions may be related to captivity stress or other underlying factors. Changes in acute phase proteins and cytokines (e.g. elevated IL-6, haptoglobin and creatine kinase) have been correlated with probable petroleum exposure in river otters (Duffy et al., 1993; Duffy et al., 1994). Oiled sea otters displayed evidence of hepatic and renal dysfunction as well as anemia in their blood parameters (Williams et al., 1995).

Heavy oiling did not appear to interfere with seal locomotion during the *Exxon Valdez* oil spill (Lowry et al., 1994), but in previous spills seal pups encased in oil have drowned due to their inability to swim (Davis and Anderson, 1976). During *Exxon Valdez*, harbor seals were observed exhibiting abnormally tame or lethargic behavior. These observations are most likely explained by midbrain nerve damage found in oiled harbor seals and Steller sea lions (Spraker et al., 1994). In addition to the acute mortalities associated with the loss of thermoregulation and buoyancy, many physiological and behavioral problems have been attributed to internal exposure to petroleum and polycyclic aromatic hydrocarbon (PAH) compounds in sea otters. However, many of these conditions have been difficult to differentiate from lesions attributed to, or compounded by, shock and chronic stress associated with capture and the rehabilitation process (Williams and Davis, 1995). It has become clear that animals captured during oil spill responses undergo additional stressors that may or may not be offset by the medical care they receive.

Background

The purpose of the Marine Mammal Oil Spill Response Guidelines (Guidelines) is to provide a foundation for coordination and communication between the National Marine Mammal Health and Stranding Response Program participants and other state and federal governmental agencies involved in oil spill response and marine mammal conservation and protection. The National Oceanic and Atmospheric Administration (NOAA) Fisheries, Office of Protected Resources, Marine Mammal Health and Stranding Response Program (MMHSRP) enlisted the University of California (UC) Davis, Wildlife Health Center to assist in the development of these Guidelines with input and assistance from NOAA's National Ocean Service, Office of Protected Resources, Damage Assessment and Restoration Program (DARP) and NOAA Fisheries, Office of Law Enforcement (OLE). The UC Davis, Wildlife Health Center, through its Oiled Wildlife Care Network (OWCN) program is among the world's leading experts on oiled wildlife response methods and standards. The primary purpose of the document is to: outline appropriate standardized data collection techniques for response activities and damage assessment; define chain-of-custody protocols for animal collection, necropsy and sampling; provide recommendations for protection of human health and oil spill safety training for responders; and present guidelines for best achievable care of oiled marine mammals. Standardization of this information between and among oiled marine mammal responders should allow for more accurate collection of data for analysis, which then may yield better information on the effects of oil on marine mammals and further improvements in oil spill response involving marine mammals. These Guidelines by their design do not address overall marine mammal husbandry methods in detail, but are intended to provide basic information on oil spill specific issues (such as search and collection, transport, emergency care and stabilization), and procedures specific to oil spill response. For more information on general marine mammal rescue and rehabilitation, the reader should consult references such as Marine Mammals Ashore (Geraci and Lounsbury, 1993) and the CRC Handbook of Marine Mammal Medicine (Dierauf and Gulland, 2001).

Intended Uses

These Guidelines are intended for use by the NOAA Fisheries MMHSRP, other natural resource management agencies, marine mammal stranding networks and rehabilitators, On-Site Coordinators, and Potentially Responsible Parties (PRPs) as a guide in:

- Developing appropriate sections of Area Contingency Plans (ACPs)
- Stimulating communication and documentation coordination between interested parties
- Caring for oiled marine mammals
- Evaluating marine mammal rehabilitation center capabilities for oil spill response
- Collecting evidence for assessment of impacts on marine mammals
- Making informed choices during spill responses

Responses to spills impacting marine mammal will depend upon factors including the size of the spill, species involved, type of product spilled, time of year, and location. It is important that spill responders and pre-spill planners recognize that the variability in degree of effort and complexity in marine mammal response can be significant when comparing small and large events.

This document is not intended for use as a training manual. Nor is this document an exhaustive list of techniques in this field, in which practical knowledge is being continuously refined and developed. It is to serve as guidance for acquiring the best achievable care and data collection during an oil spill response and should be periodically reviewed and updated.

Organizational Structure

Organizational Structure of Wildlife Response

Actions taken to protect wildlife resources follow an organized and agreed-upon cascade of agency notifications and activities. All activities of the oil spill response are coordinated through the Unified Command (UC) and follow an Incident Command System (ICS) structure as standardized by the National Interagency Incident Management System (NIIMS) and modified for oil and hazardous substance spill response by the National Response Team (Figure 1., NRT 2004). The UC is the governing body ultimately responsible for all decision making processes during the spill response, and is made up of a Federal On-Scene Coordinator (FOSC) (usually a Coast Guard Captain of the Port for the affected area), a State Incident Commander (IC) or On-Scene Coordinator (SOSC), and a qualified individual from the Responsible Party (RP), if known. When appropriate, local government representatives can be included in the UC. The FOSC has the ultimate responsibility for directing the oil spill response if a consensus cannot be reached among the members of the UC. Wildlife response activities usually exist within the Operations Section of the ICS, though some wildlife actions (primarily baseline assessment and planning) also occur with the Environmental Unit of the Planning Section. The Wildlife Branch within the Operations Section coordinates and initiates wildlife response activities. Guidance for dealing with oiled wildlife is not specifically provided in the National Contingency Plan, therefore the Wildlife Branch operational plan is developed uniquely within each Regional and Area Contingency Plan based on the specific resources and agency involvement.

Early but prudent initiation of a wildlife response plan and the previous development of the Wildlife Branch ensure timely mobilization of dedicated staff, equipment, and volunteers. This structure allows for effective lines of communication, making the response effort much more efficient. The degree of the wildlife response effort is designed to be flexible and scalable to the size of the oil spill - only those positions necessary and appropriate for a specific spill incident are filled.

Trustee Organizations

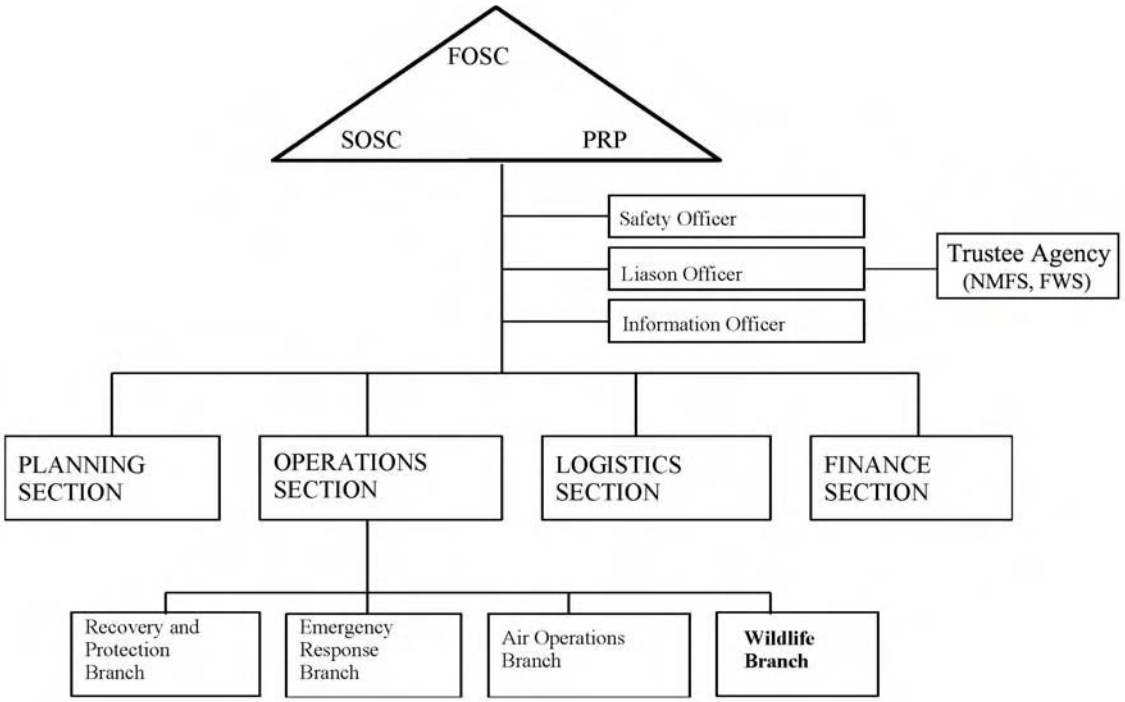
Under federal statutes, NOAA Fisheries, National Marine Fisheries Service (NMFS) has responsibility for managing and protecting all cetaceans and pinnipeds in U.S. waters, except walruses; U.S. Fish and Wildlife Service (FWS) has responsibility for managing and protecting manatees, walruses, sea otters, and polar bears. NOAA Fisheries is responsible for the administration of the Endangered Species Act (ESA) as it applies to certain cetaceans and pinnipeds and the FWS is responsible for the administration of the ESA as it applies to remaining marine mammals and terrestrial mammal and bird species. Following an oil spill, specific information on wildlife resources at risk and appropriate wildlife response actions are made available to the Federal On-Site Coordinator (FOSC) and other members of the Unified Command (UC) through representatives of appropriate wildlife resource managers. Therefore, the UC must immediately consult with FWS or NMFS whenever a response may affect these resources. The Marine Mammal Protection Act (MMPA) prohibits the "take" of sea otters, seals, sea lions, walruses, whales, dolphins, and porpoises, which includes harassing or disturbing these animals as well as actual harming or killing; however, Section 109(h) of the MMPA allows take by

Federal, State, or local governmental officials, during their official duties, provided the take is for the welfare and protection of the animal or public health. Accordingly, the FOSC/UC is authorized to take marine mammals during an oil-spill response if to protect the welfare of the animal. Section 12(c) of the MMPA allows NMFS to enter into cooperative agreements (e.g. Stranding Agreements) that allow stranding network participants marine mammal take in order to carry out the purposes of the MMPA. The ESA and its implementing regulations provide special provisions for consultations during emergencies (such as oil spills) with FWS and/or NMFS for making recommendations to the FOSC to avoid the taking of listed species or to otherwise reduce response-related impacts. In some State statutes, management and protection of wildlife resources are joint responsibilities between NMFS, FWS and the State. Because of these shared trust responsibilities, both federal and state agencies are required to respond to spills, or potential spills, that may impact marine mammals. To facilitate efficient and effective coordination during an oil spill response, federal and state agencies may consider developing Memorandums of Agreement (MOA's) or Memorandums of Understanding (MOU's) that pre-designate regional primary points of contact, establish lead representatives, and define roles for natural resource emergency situations.

In the wake of the *Exxon Valdez* spill, Congress passed the Oil Pollution Act of 1990 (OPA 90). OPA 90 sets forth an extensive liability scheme that is designed to ensure that, in the event of a spill or release of oil or other hazardous substance, the responsible parties are liable for the removal costs and damages that result from the incident. A responsible party may be liable for removal costs and damages to natural resources, real or personal property, subsistence use, revenues, profits and earning capacity, and public services. OPA 90 also set aside a significant trust fund that can be utilized quickly to implement a spill response prior to establishment of liability.

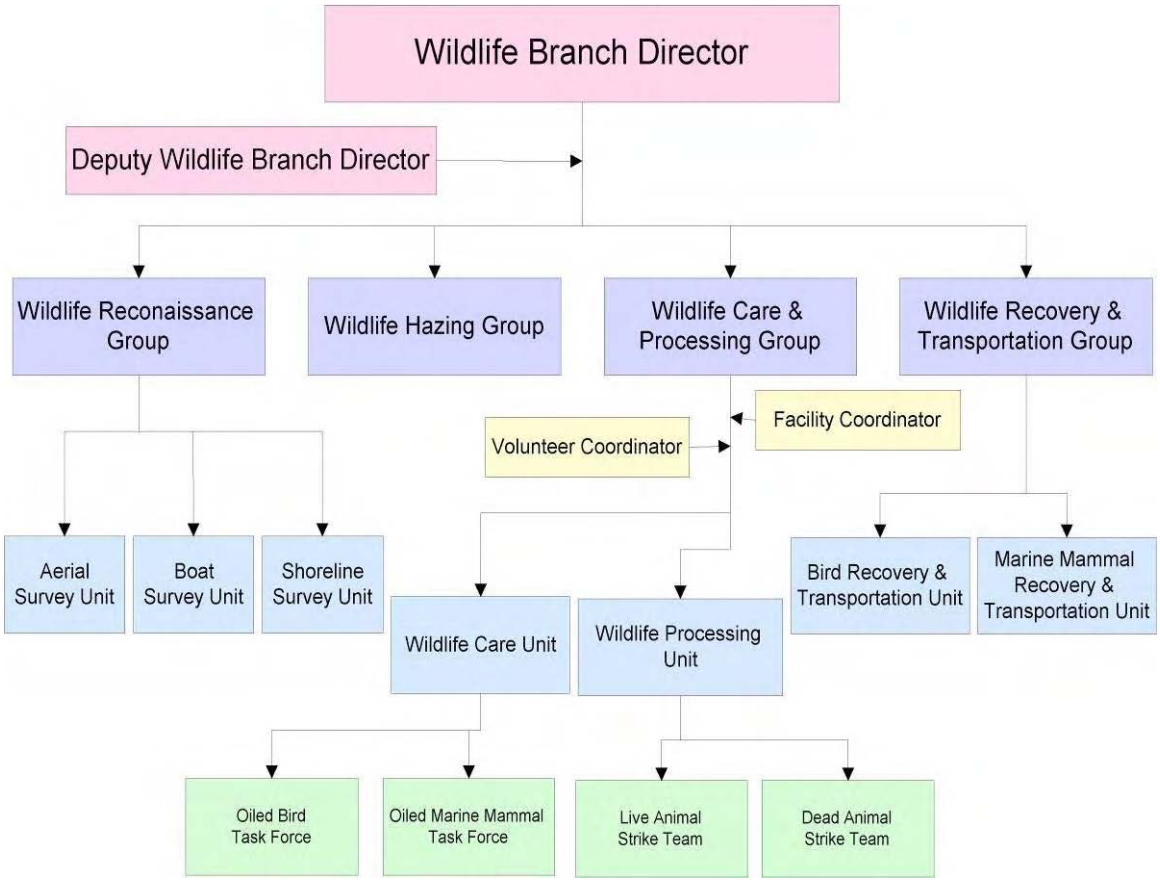
OPA 90 directs the appointed trustees to conduct natural resource damage assessments (NRDAs) and develop and implement plans to restore, rehabilitate, or replace damaged natural resources. Authority to claim damages to natural resources also stems from Clean Water Act (CWA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Under the CWA, federal and state agencies with diverse jurisdictions and missions are directed to combine their response and planning efforts in the event of an oil spill or release of another hazardous substance under the aegis of a National Contingency Plan (NPC) or an Area Contingency Plan (ACP). An Area Contingency Plan must provide for efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges. In so doing, an ACP assigns duties and responsibilities to various federal and state agencies, provides for maintenance of necessary equipment and supplies, and establishes Coast Guard strike teams with specialized training in oil and hazardous substance control. In addition, an ACP is designed to provide for surveillance and notification systems to detect oil spills as early as possible. Further, an Area Contingency Plan is to provide for a specific fish and wildlife response plan, developed with the advice of expert agencies, to minimize disruptions to fish and wildlife and their habitat. Regional and Area Contingency Plans can be located at the U.S. National Response Team website (www.nrt.org) and the USCG website: (http://www.uscg.mil/vrp/acp/acp.shtml).

Figure 1: Incident Command Structure for Oil Spill Response (NRT 2004)



Once the FOSC activates the Wildlife Branch, several components of oiled wildlife response can be initiated, including reconnaissance to determine species and areas to focus operations, hazing of animals to prevent oiling, search and collection for live and dead animals in the spill area, treatment and rehabilitation of oiled animals, and release and monitoring of recovered animals. The agencies, organizations, and individuals responsible for these functions should be outlined in the Area Contingency Plan. An example of Wildlife Branch organization is shown in Figure 2.

Figure 2: Wildlife Branch Organization (State of California, Wildlife Response Plan, 2004)



Under the direction of the Wildlife Branch Director (WBD), the principal objectives of Wildlife Operations during spill response and cleanup are to:

- Provide the best achievable care to impacted and/or threatened wildlife
- Document for the Unified Command the immediate impacts of the oil spill to wildlife
- Minimize injuries to wildlife
- Protect wildlife and habitats from adverse effects of wildlife recovery

To ensure these objectives are achieved with maximum efficiency, the WBD (in coordination with the Environmental Unit) manages the activities of the federal, state, and local agencies along with commercial and non-profit organizations responsible for wildlife protection and management who fall under the authority of the Unified Command during spill response

Stranding Network and Facility Requirements

Wildlife Operation plans should include (where available and appropriate) properly trained regional Stranding Network Participants because of their experience with live animal stranding response and rehabilitation for the local area. In order for Stranding Network Participants to contribute during wildlife response, they must hold a Stranding Agreement or Letter of Authorization (MMPA, Section 112(c)) with NMFS/FWS and have received specific oil spill training and meet facility requirements for oiled marine mammal rehabilitation. NOAA Fisheries, Office of Protected Resources, may include oil spill response authorization in the Stranding Agreement with the Participant when it is determined that the Stranding Network Participant meets these criteria. Authorized marine mammal rehabilitation organizations should make efforts to become engaged in the development of their Area Contingency Plans to ensure their involvement during oil spill response.

Criteria for Evaluating Marine Mammal Rehabilitation Groups

The following criteria can be used when considering and evaluating marine mammal rehabilitators for conducting oil spill response.

- Holds all necessary permits, Stranding Agreements (NMFS) and Letter of Authorizations (FWS) for marine mammal stranding and response activities.
- Experience in the capture, treatment, and care of oiled marine mammals
- Knowledge of conducting marine mammal response activities within an Incident Command System structure including appropriate communication and notification procedures
- Sufficiently trained (health/safety and animal care), equipped, and experienced supervisory staff
- Ability to train and equip personnel and volunteers for marine mammal response during an emergency oil spill response
- Ability to quickly mobilize to perform marine mammal capture, field evaluation, stabilization and transport (including to remote locations if necessary)
- Access to appropriate facilities for treating and housing oiled marine mammals (including adequate animal care, hazardous waste, and personnel infrastructure)
    - Ability to establish and operate marine mammal intake, holding, and isolation areas within 12-24 hours of wildlife response activation.

  - Ability to establish and operate marine mammal cleaning and pre-release areas within 72 hours of wildlife response activation.

- Agreement with a licensed veterinarian experienced in the treatment of oiled marine mammals to provide necessary medical care

- Use of best practices as outlined in the remainder of this document

Facility Requirements for Marine Mammal Oil Spill Rehabilitation

General Considerations

The size of the spill, its location, and the number and species of animals oiled will help determine the type and location of a facility that can meet the required need. Not all spill responses will be in the vicinity of a permanent rehabilitation facility. Temporary facilities that can care for oiled marine mammals in the short or long-term can be established in local, fixed structures, or mobile units can be brought to a spill location to set up as a temporary facility. However, it is critical that spill responders and pre-spill planners recognize the degree of effort, the unique requirements of oiled wildlife care and the complexity required to implement and establish an adequate facility. Pre-spill planning is strongly encouraged to achieve wildlife response systems that will adequately address the needs of small as well as large rescue efforts as rapidly as possible during a spill.

There are published standards for the design of facilities housing marine mammals in captivity. In the United States, these standards are published by the Department of Agriculture, Animal and Plant Health Inspection Service (APHIS, www.aphis.usda.gov/ac/cfr/9cfr3.html) and are a requirement for facilities that wish to display animals to the public. They include such items as haul-out requirements, pool size and depth, water quality, number of animals to be kept in a particular environment, and strict standards for food preparation areas and medications. The USDA standards are useful guidelines but may not be appropriate for animals that require constant medical attention and handling, or for facilities that only keep animals for a short period of time. NMFS is in the process of developing specific marine mammal rehabilitation facility guidelines (NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release: Pinniped and Cetacean Rehabilitation Facility Guidelines).

Facility design for rehabilitation centers is an ongoing area of study and no perfect facilities exist to suit all needs for each species and age class of marine mammal. Notwithstanding, certain principles should be kept in mind when designing an oil spill response facility or when attempting to house oiled marine mammals in an existing facility (Davis and Davis, 1995). An ideal facility should include: intake/physical exam/evidence processing area; a veterinary hospital with isolation capabilities; indoor wildlife housing/caging areas; food storage and preparation facilities; animal washing and rinsing areas; drying areas; outdoor pool and pen areas; pathology facilities; volunteer training and eating areas (with restrooms); administrative offices with multiple phone/fax lines and conference space; storage; and access to a large parking area.

Minimizing stressors is an important aspect of creating a good rehabilitation environment. Specific animal needs must be taken into account when trying to provide adequate housing for animals during an oil spill. These needs may be affected by such factors as the animal's species, age, physical condition, degree of oiling, and nature of the product with which it was oiled.

Housing Requirements and Considerations

Indoor and outdoor housing should maximize safety to humans and the animals, provide an escape-proof enclosure, and minimize visual stress and human traffic. Within an oil spill response facility, housing should be set up so that there are appropriate areas for holding animals prior to intake, pre-wash assessment and stabilization, post-wash, quarantine, and longer term housing. These areas will differ in the amount of access to the animals that is required, the space that each animal requires, the degree to which the environmental temperature can be controlled, and type (if any) of water requirements (fresh versus salt). Ideally, all of these areas should have separate filtration systems. Separate systems are required for pre- and post-wash animals to prevent oil contamination of animals that have already been washed.

Environmental Control: A finer degree of environmental temperature control is required for newly admitted animals, neonates, and animals that are more compromised due to poor nutritional state, greater extent of secondary effects, or underlying disease. Animals that are compromised require easy or limited access to water, haul-out areas, and heat sources such as heating pads and lamps, but may need frequent observation to ensure that severely debilitated animals are able to move away from heat sources to prevent hyperthermia and burns. Some animals may require more frequent handling for monitoring, sample collection, feeding or medicating. Housing should minimize stress but maximize accessibility and ease of monitoring (Tuomi et al., 1995)

Ventilation: Adequate ventilation is an extremely important factor for maintaining marine mammals in captivity and is more important in oil spill situations to protect against the toxic effects of volatile agents and prevent the spread of infectious agents between animals. Ten to fifteen air changes per hour has been recommended as adequate for inside animal holding (NIH, 1985) and these standards should be adhered to if at all possible. Outdoor housing is ideal for maintaining ventilation but drawbacks include lack of environmental control, discomfort for personnel working with the animals, and more challenging access control by staff.

Quarantine: The potential for the spread of disease is an important issue to consider for marine mammals in captivity. Captured animals, staff and volunteers may carry infectious agents without showing signs of disease and could pose a threat to oiled animals. Staff should use effective quarantine protocols including foot baths containing appropriate antimicrobial solutions between housing areas, cleaning/disinfecting or changing protective clothing between animals, designating separate feeding and cleaning equipment for different areas, and minimizing movement of animals and personnel between areas. Extra care must be taken in areas where animals with infectious diseases are kept and when handling immunocompromised animals.

Water Supply: Oiled wildlife care facilities require large quantities of water to provide all areas simultaneously (e.g., wash/rinse area, pool area, laundry). The quantity should be sufficient to provide at a minimum a continuous flow of 4 gallons/minute to all indoor valves and additional supply to fill, operate filtration and ozonation equipment, and provide overflows for pools. Washing and rinsing areas require temperature-controlled hot water (98-108°F) with water hardness of 2-5 grains per gallon at pressure of 40-60 psi.

Waste Water: Facilities must dispose of all oil and animal wastewater in accordance with appropriate Federal, State, and municipal regulations. Oil contaminated water often must be contained in separate holding tanks and not released in normal sewer system.

Data Collection

Data Collection and Chain-of-Custody Procedures

Systematic search and recovery, transportation, processing, and treatment of all oil-affected wildlife are critical for guiding response actions and gaining an understanding of the short-term and long-term consequences of oil spills to wildlife populations. In addition, these data can be used after the emergency response for natural resource damage assessment activities. In order to track the samples and collect data during oiled wildlife response, the trustee agencies and response organizations must adhere to pre-established chain-of-custody and animal identification procedures. For tracking purposes, data on oiled animals are compiled on standard data log forms (Appendix 2-3). During large-scale responses, pre-identified wildlife agency personnel or their agents will complete log forms; however, field and rehabilitation responders should be familiar with the forms and their completion for smaller-scale responses and for individual oiled animals that present to participating facilities independent of a spill response. In addition to the tracking of live animal data, all samples (carcasses, samples, photos, records) that may be used in legal cases must be tracked and secured at all times.

Quality assurance (QA) procedures are necessary to ensure that data are collected in a scientifically valid manner. It is important throughout any sampling and analysis program to maintain integrity of the sample from the time of collection, through the point of data reporting, to the final sample disposition. Proper chain-of-custody procedures allow the possession and handling of samples traced from collection to final disposition. Documents needed to maintain proper chain-of-custody include:

Field Logbook: All pertinent information on field activities and sampling efforts should be recorded in a field logbook. The logbook should enable someone else to completely reconstruct the field activity without relying on the memory of the field crew. All entries should be made in indelible ink (preferably ballpoint), with each page signed and dated by the author, and a line drawn through the remainder of any page. All corrections should consist of permanent line-out deletions that are initialed. An example of a Search Effort Log is presented in Appendix 1. For tracking and chain-of-custody purposes, all live and dead animals recovered should be identified (tagged/marked) in the field and the identification noted on the Search Effort Log. Permanent tags will then be applied and logged at the processing facility.

Animal Logs: At admittance to a wildlife care and processing facility, the animal must be logged into the Live Marine Mammal Data Log or Dead Marine Mammal Data Log (Appendix 2-3) and all of the boxes on these forms must be completed. All animals collected dead or alive should be given a unique log number and identifier (e.g. tag), as well as a Level A data field number, in order to track the individual animals through the capture/collection, processing, and for live animals the rehabilitation and release process.

Sample Collection and Label: It is necessary to collect an oil sample from each individual animal. A detailed protocol for the collection of evidence is provided in Appendix 6. Each sample must be identified with a waterproof label that is securely attached to the outside of each sample container. Labels must contain the oil spill name, date, species, intake log number and Level A data field number of that animal, animal capture location, and flipper tag color and number and then sealed with evidence tape or custody seals. Custody seals are used to detect unauthorized tampering with the samples. Samples and photo must be properly stored in a secure location that has limited and controlled access.

Intake Form: For live animals, the Oiled Marine Mammal Intake Form (Appendix 4) must be completed for each animal. This form contains important questions about the extent of oiling, location and depth of oiling, as well as a place for documenting physical examination findings. For evidence documentation, a photo of the animal and oil sample must be taken during intake and admission into the wildlife care and processing centers (see Intake and Admission Procedures). During rehabilitation, each animal must have individual records documenting the treatment and care of that animal. Authorization for cleaning and later release must be documented on the Oiled Marine Mammal Intake Form and signed by the authorizing authority (i.e. attending veterinarian). For resource damage assessment purposes, a photo of the animal with identification (i.e. card with animal log number and date) must be taken prior to release.

Chain-of-Custody Forms: A chain-of-custody record must accompany every sample that is removed from the secured location in the wildlife processing and care facilities. The chain-of-custody form should be supplied by the managing agency (NMFS, USFWS) representative that is acquiring the sample. Both the person relinquishing custody of the sample(s) and the person receiving the sample(s) must sign the form and ensure that the samples and records are not left unattended unless secured properly. An example chain of custody form can be found in Appendix 10.

Tissue Sampling: Tissue samples are collected for either chemical or histological analysis. Only after authority is given by the appropriate trustee agency and the Unified Command can necropsies be performed by qualified veterinarians and pathologists to collect tissue samples and determine cause of death on collected carcasses and mortalities that occurred during rehabilitation. Each animal should be photographed prior to sampling and samples collected following the sample collection protocols described in Appendix 6.

Safety and Human Health

Worker health and safety are of primary importance in any oiled marine mammal rescue and rehabilitation effort. The earliest phases of an oil spill are generally the most hazardous to human health and safety. Thus, safe practices during field collection of marine mammals must be a priority. Rescue programs should not be initiated unless personnel can conduct activities safely.

As with all spill response activities, the marine mammal rescue and rehabilitation effort needs to be coordinated and monitored by the spill response command center operations, safety, and medical staffs. A written Site Safety Plan (SSP) must be developed and approved by the spill's Safety Officer for the rehabilitation facility. If field activities are on-going for marine mammal response, the site safety plan needs to be expanded to include these activities including any specialized equipment that will be used. All staff and volunteers working on the spill must be familiar with and sign the SSP prior to work.

Training for Marine Mammal Rescue/Rehabilitation Personnel

In addition to mastering specific marine mammal rescue and rehabilitation tasks, personnel must be trained to recognize and minimize risk of injuries from oil-related and physical hazards associated with oil spill response operations prior to being allowed to participate in on-site activities. Elements of required and recommended training will vary depending on the tasks of the individuals involved in the response. Training-hour requirements and specific courses vary with level of involvement, agency policy, and OSHA and state regulations.

Required Training

Personnel involved in oil spill response activities must comply with all applicable worker health and safety laws and regulations. The primary Federal regulations are the Occupational Safety and Health Administration (OSHA) standards for Hazardous Waste Operations and Emergency Response (HAZWOPER) published by the U.S. Department of Labor in Title 29 of the Code of Federal Regulations (CFR), section 1910.120 (www.osha.gov). Oiled marine mammal responders and rehabilitation centers are not specifically addressed by HAZWOPER and training to address risks associated with marine mammal stranding and oil spill response personnel may fall within the scope and application of the Hazard Communication Standard ("HAZCOM", 29 CFR 1910.1200(h)). The OSHA field compliance or Safety Officer should be contacted to ascertain the worker training requirements and develop an implementation plan to minimize the hazards of exposure to workers involved in cleanup operations. For maximum protection of the environment, OSHA has recognized the need to quickly clean-up spilled oil and has empowered the OSHA Regional Response Team representative to reduce the training requirements for responders engaged in post-emergency response operations as directed by OSHA Instructions CPL 2-2.51 (www.osha.gov). State requirements which are more restrictive will preempt Federal requirements. Marine mammal stranding network participants are responsible for training and certifying their employees and volunteers.

Recommended Training

In addition to the training required by Federal regulations, further training is highly recommended for safe and efficient operations during a spill response. This guidance is considered a minimum

essential training for marine mammal rehabilitators in accordance with the goal of establishing best practices.

Search and collection and transport personnel

- General oil spill response training
- HAZWOPER 24hr training
- Aircraft/boating/ all-terrain vehicle safety
- First aid/CPR
- Local geographical knowledge
- Marine mammal identification and capture techniques

Rehabilitation Facility Management

- Marine mammal oil spill response training
- Incident Command System
- HAZWOPER 24hr training
- Crisis management
- First aid / CPR
- Media relations

Rehabilitation/Stranding Network Facility Workers and Volunteers (Live and Dead Animal Handling)

- General oiled marine mammal training
- HAZCOM - Hazardous Communication training
- First aid / CPR

Personal Protective Equipment

Personal protective equipment (PPE) must be used to protect wildlife response personnel from exposure to hazardous substances and dangers associated with animal care activities. To guard against injury from marine mammals, all workers should wear approved personal protective equipment appropriate to their task.

Recommended PPE

Full eye protection, i.e., goggles, safety glasses, or face shield
Oil resistant rain gear or oil protective clothing (coated Tyvek, Saranex, etc.)
Gloves (neoprene or nitrile) that are oil resistant and waterproof
Non-skid shoes/boots that are oil resistant and waterproof
Ear protection (muff or ear plug type) when using pyrotechnic devices or operating machinery
Personal flotation device when working on or near water

Respiratory protection from organic vapor hazards may also be required for some operations. If respirators are used, training and fit testing are required. All workers must be trained on the proper use and limitations of all personal protective equipment prior to using the equipment.

Hazardous Substances

Rescue and rehabilitation workers may be exposed to spilled oil, and must be so informed. Prior to handling a contaminated marine mammal, the Material Safety Data Sheet (MSDS) for the

spilled material should be reviewed and all recommended precautions followed. Workers and the rehabilitation facility shall be periodically monitored, using calibrated instruments and devices to determine exposure. Ventilation in all work areas should prevent the buildup of airborne contaminants.

A portion of the rehabilitation facility should be designated for the storage of contaminated clothing, equipment, and medical waste until the items can be decontaminated or disposed of properly in accordance with the site safety plan.

Volunteers

Wildlife response programs regularly use volunteers, particularly at the rehabilitation facility. Wildlife response managers need to ensure that volunteers are appropriately trained, supervised, and informed of all hazards. A comprehensive volunteer management program is an essential component of an efficient wildlife response. This management program needs to address, at a minimum, volunteer safety, training, supervision, scheduling, and liability.

Wildlife Recovery and Transportation

Agency Oversight

Wildlife Recovery and Transportation involves the collection/capture of dead and live oiled wildlife and their transport to processing centers. Under the proposed ICS Wildlife Operation structure presented in Figure 2, these activities are performed by the Wildlife Recovery and Transportation Group, in close coordination with the UC and the state and federal trustee agencies. Marine mammal collection by any agency or organization must be done under the direction of the UC and under the agreements/permits from the appropriate management agencies (i.e., NMFS, FWS). Recovery and Transportation usually include personnel from state and federal trustee agencies, approved contractors, and marine mammal stranding network and rehabilitation organizations. Trained, qualified volunteers can be used utilized as long as OSHA and other training requirements are met and adhered to.

Search and Collection Guidelines

Rescue Team: Teamwork is essential to safe, efficient collection of oiled marine mammals. Each team should consist of at least two people, and should be outfitted with the resources and equipment necessary to complete its assignment. A plan of action should be developed and discussed among all search and collection personnel and approved by the Wildlife Branch Director prior to entering the search area. Each capture site should be evaluated and strategies developed to suit the terrain and species involved. Capture of affected animals should not be attempted if adverse weather, sea conditions, cliffs, or other physical and chemical hazards in the "hot zone" are present. Communication between the Rescue and Transportation Group and the reconnaissance personnel (within the Operation Section or the Environmental Unit) is important to maximize the success of search effort.

Equipment: Prior to a response, ensure that all equipment is ready and in working condition. Capture materials should include communication equipment (portable phone or radio), specialized vehicles (4-wheel drive with lifting tailgate or crane, adequate floor space, easily cleaned, and good ventilation), boats (capture vessel and support vessel), aircraft (fixed wing or helicopter), SCUBA gear, nets (type varies by species and location of capture), cages and transport boxes (type varies by species), herding boards, personal protection equipment (PPE) and a first aid kit for humans. Any injuries to staff or volunteers should be treated immediately and reported to the site safety officer. In addition to PPE required by the Safety Officer to protect personnel from oil exposure, appropriate attire for capture teams includes closed-toed shoes or boots, long-sleeve shirts, long pants, rain gear, coveralls, and organizational identification (e.g., clothing labeled with insignia or logo).

Procedures: Record the details of the beach search effort on the appropriate Form (Search Effort Log, Appendix 1) and include data on the start and end of a search segment, observations of oiled animals, and detailed info on the stranding and/or collection (location of capture, GPS decimal degree coordinates, reason for capture). If oil or medical samples are collected from the animal prior to reaching the intake facility, make sure they are labeled properly with a unique field

identification number for each animal. For further details on oil sample collection consult Appendix 6, Evidence Collection Protocol.

Domestic animals should not be permitted near the capture location nor should they come into contact with marine mammals. Domestic animals should not be allowed in the transport vehicle, and if the vehicle has previously been used to transport domestic animals, it should be disinfected and cleaned prior to transporting marine mammals.

Capture: The potential benefits of capture must outweigh potential negative consequences. In general, no rescue should be initiated on free-swimming or beached pinnipeds in the vicinity of an oil spill unless the animal in question is in obvious distress. Also, no rescue should ever be initiated on free-swimming cetaceans in the vicinity of an oil spill, but a rescue should be attempted on a beached cetacean. A decision to capture should consider such factors as sex, age, reproductive state, and size of individual animal, and their location with respect to other marine mammals. Additionally, all captures must be approved by the appropriate trustee agency (NMFS, FWS) prior to initiation.

Capture and transportation of oiled mammals should be performed only by qualified personnel who have received the appropriate safety training as well as marine mammal handling and restraint training. Because recovery and transportation duties vary with each response and may involve more risk than other duties, the Safety Officer will communicate to the Wildlife Branch Director what level of training is appropriate for field response personnel; this training may include a 24-hour HAZWOPER training (Hazardous Waste Operations and Emergency Response), first aid/CPR, water safety, or boat safety courses (see Safety and Human Health).

The method of capture may vary according to species and situation. Captures should generally be considered for isolated individuals on beaches, spits, tide flats or other relatively flat surfaces, using herding boards and nets (brail, breakaway or steel frame pole). Less often, captures may be attempted from rock jetties, piers, docks or even in the water for severely debilitated animals. Long-handled dip nets, floating bag nets, and a net gun have all been used with some success. Depending on the species involved, aquatic captures may use tangle nets, float nets, or Wilson traps.

Unless specifically authorized by appropriate trustee agencies, no non-oiled animals will be collected during spill incidents. Preemptive captures to prevent the oiling of sensitive species may be considered only under dire circumstances at the direction of the UC and trustee agencies and when adequate transport and holding facilities exist. Beached cetaceans should not be pushed back out to sea without first being examined by a NMFS-approved marine mammal veterinarian and the action approved by the NMFS. Prior to being returned to the open ocean, cetaceans should be affixed with a NMFS approved tag or brand.

All wildlife captured during spill responses should if at all possible be retrieved and transported to the wildlife processing and care center(s), regardless of the status and condition (i.e. degree of decomposition, degree of oiling). In addition, all capture-related information (i.e. location, name of captor, GPS decimal degree coordinates, date, and time) must accompany the animal to the facility. The presence of such documentation must be verified when processing centers receive wildlife from the Wildlife Recovery and Transportation Group. All information necessary to

complete either the live or dead mammal log should be collected prior to the animal entering the rehabilitation process or storage respectively.

Transport Procedures

Prior to transport, field stabilization techniques may be used if it will be more than one or two hours until the animal reaches the rehabilitation facility. These techniques may involve assessing the animal for hypo- or hyperthermia and treating accordingly; administering oral electrolyte solution and subcutaneous fluids; removing large amounts of oil from the eyes and nares; and administering emergency medications (under the guidance of a veterinarian).

After capture and field stabilization, the oiled animal should be placed in a well-ventilated area on a stretcher or foam (for small cetaceans) or in a transport box, airline kennel, or cage (depending on pinniped species) for transport. Animals should be staged in a quiet, sheltered area or moved directly into the transport vehicle. The cage should be large enough to allow the animal to lie down in a comfortable position. Only one animal per transport cage is recommended for the safety of the animals and to prevent cross-contamination of oil. Females and their pups are most safely transported in separate cages, although they should be positioned so that they can hear, see, and smell each other. Pinnipeds less than 70 kg (145 lbs) can be transported in large airline sky kennels. Aluminum or other lightweight material is recommended to minimize weight of cages designed for larger animals. Each cage must be firmly tied or otherwise secured in the vehicle.

Sea otter transport kennels should be fitted with a raised bottom grate to avoid additional fur fouling. Shaved ice or any other form of fresh water ice (to combat dehydration) and chew toys (to combat tooth damage, e.g. plastic/rubber dental chews manufactured for large breed dogs) are usually provided for sea otters in transport kennels, but food should be offered if transport time is greater than four or five hours.

Animals must be monitored periodically on transports greater than one hour, as directed by a response veterinarian. In most cases, sedation during transport is not recommended. Critical cases (e.g., unstable, hypo- or hyperthermic animals) may require more frequent monitoring. Personnel transporting animals between the field and the rehabilitation center must maintain contact with their supervisor at all times so that departure and arrival times may be anticipated.

Hyperthermic animals may be sprayed gently with water, or ice cubes may be added to the top of the cage and allowed to drip onto the animal as it melts. In order to prevent inhalation and subsequent drowning by unconscious animals, do not allow water to accumulate in the bottom of transport cages. Hypothermic animals should be placed in a sheltered location out of the wind, although good ventilation must be maintained to prevent animals and humans from inhaling petroleum fumes. Keep in mind that oiled, stressed, or injured seals are not able to regulate their body temperature effectively, and their conditions can change within minutes. Animals are generally transported in either a pick-up truck or an enclosed van-type vehicle. Adequate ventilation must be maintained to protect both humans and animals from inhaling fumes emitted by freshly oiled animals. Unless hypothermia is observed or suspected, keep animals damp and cool. The preferred air temperature for pinniped transport is 50-68°F (10-20°C) but should not exceed 59°F (15°C) for sea otters (Geraci and Lounsbury, 1993; Benz and Britton, 1995). Fur seals or sea otters whose coats are oiled or saturated, neonates of all species, and animals with extensive wounds or severe emaciation may require higher temperatures compared to minimally oiled animals or non-oiled, stranded animals. Keep in mind that human comfort during transport

may not be synonymous with or sufficient for the temperature and ventilation needs of the transported marine mammals.

Beached Carcass Removal

Measures must be taken to ensure that dead animals are appropriately collected, identified, documented, and not disposed of until approved by the trustees. In addition, the prompt removal of disabled and dead oiled and unoiled animals from the environment can be critical to minimize the occurrence of secondary oiling, poisoning of predators and scavengers, and decreasing re-identification of carcasses on subsequent days. Since it is not feasible, reliable, or practical to attempt to discriminate between spill-related and non-spill-related casualties while conducting beach surveys, all carcasses must be collected. For example, scavenged carcasses, animals with dark plumage, wet carcasses, or carcasses with oil sheen or small amounts of oil that may be spill related are not always identifiable in the field as such. Because all carcasses found within a spill area are evidence, they must be handled according to established chain of custody protocols in accordance with spill incident-specific instructions (refer to the Data Collection section of this document). Each carcass must be labeled with the date, time, location, species (if known), and collector's name; taken to a designated morgue location; logged into the Dead Marine Mammal Log form and placed in a refrigerated unit until further processing can be accomplished. If a necropsy cannot be performed within 24hrs the carcass should be frozen (see Disposition Section for necropsy details).

Carcass removal, storage, and disposal expenses are considered a response activity cost that should be reimbursed to the Stranding Network Participant. It is the responsibility of the Participant to notify the Unified Command of current and future carcass storage and disposal expenses during the initial cost assessment of the response activity.

Intake Procedures

Initial Intake Procedures

While completing intake procedures, it is important to perform a thorough evaluation, collect all samples and data, be safe, and minimize the animal handling time. All personnel performing intake procedures should wear appropriate PPE including safety goggles, protective clothing, and nitrile gloves (or nitrile gloves inside leather gloves). It is best to work in teams of at least two (handler, examiner) or three (handler, examiner, recorder) in order to perform the intake in an efficient manner. For larger animals, more than one handler may be required. Physical restraint devices such as squeeze cages, otter restraint boxes, and stuff bags may be needed for larger pinnipeds and sea otters (Geraci and Lounsbury, 1993; Williams and Sawyer, 1995). Some animals (e.g., sea otters, adult sea lions) may require chemical restraint for safe handling and examination (Williams and Sawyer, 1995; Haulena and Heath, 2001).

Several different forms must be completed for every animal captured for rehabilitation during an oil spill. The animal must first be logged into a **Live Marine Mammal Data Log** (example in Appendix 2) and all of the boxes on that form must be completed**.** In addition, an **Oiled Marine Mammal Intake Form** (example in Appendix 4) must be completed for each animal. This form contains important questions about the extent of oiling, location and depth of oiling, as well as a place for documenting physical examination findings. In addition to the intake form, the rehabilitation facility's standard forms for stranded marine mammals can be used to record physical exam findings, laboratory values, treatments, and feedings, provided that all information is clearly documented and assigned to the specific animal.

A brief physical examination is performed upon admission of each individual oiled animal (see below). A veterinarian or animal care specialist should conduct the examination and treat any conditions that are considered to be life threatening. The capture, transport, and intake process is extremely stressful and an oiled animal's condition may be very unstable. The intake area should be as dark and quiet as is practical and animals must be monitored closely during the examination and intake process. If an animal's condition deteriorates and a veterinarian is not participating in the examination, seek veterinary advice immediately.

General Intake Procedure for Oiled Marine Mammals

1. Obtain and Complete Intake Forms
    - Live Mammal Data Log
    - Oiled Marine Mammal Intake Form
2. Physical Examination
3. Flipper tag application
4. Oil sample collection
5. Photograph

Animals need to be identified to species and, when possible, age class (pup, yearling, subadult, adult) and sex should be determined. Consult charts on age estimation for pinnipeds and sea

otters from marine mammal guides such as Geraci and Lounsbury (1993), Reeves et al., (1992) and Ainley et al., (1980) for species and sex identification. All animals should be tagged or marked for individual identification. This can be done with plastic livestock ear tags (e.g., Rototag, Temptag), by applying hair dye, colored livestock markers, and bleach marks to the pelage, or by clipping a small patch of pelage on the flank in a recognizable pattern (phocids and sea lions only). Dye marking and clipping is not advisable for fur seals or sea otters and may be difficult in other species depending on the location and extent of oiling. Sea otters and possibly other species may be identified using a commercially available pet microchip inserted subcutaneously at the inguinal region.

For legal purposes, it is necessary to collect an oil sample from each individual animal. A detailed protocol for the collection of evidence is provided in Appendix 6. Briefly, visible oil should be scraped from the fur with a clean wooden spatula and placed into a chemically cleaned glass jar. For animals with no visible gross oiling, an affected area is rubbed with a 4x4 piece of fiberglass cloth or cotton gauze with forceps or hemostats that have been cleaned with isopropyl alcohol. Precautions must be taken to collect the sample without allowing nitrile gloves to touch the oil sample or the cloth it is collected on. The oil sample should be placed in a glass container and labeled appropriately with the following information: the oil spill name, date, species, intake log number of that animal, animal capture location, and flipper tag color and number and then sealed with evidence tape and placed in secure freezer. Sampling supplies (glass jars and cloth) can be obtained through the trustee agencies.

It is also necessary to take a Polaroid photograph of the oiled animal. The photograph should include the entire animal, the oiled region, and if possible, show the flipper tag numbers. After the photograph develops, it should be labeled with the same information as the oil sample; the oil spill name, date, species, intake log number of that animal, animal capture location, and flipper tag color and number. The photograph and oil sample are both pieces of evidence and should be securely stored. If samples are to be sent for analysis, a completed Chain of Custody form is required and will be provided by the lead trustee agency.

Physical Examination

Animals are to be weighed and measured (standard length and axillary girth, xiphoid girth in sea otters) and their temperature measured with an electronic thermometer with a flexible thermister probe (e.g., Physitemp Model BAT-12 Digital Laboratory Thermometer) inserted 15 cm into the rectum. Standard thermometers can be used in sea otters, but do not accurately measure core temperatures in pinnipeds. Normal core temperature for sea otters is 99.5-100.6 °F (37.5-38.1 °C) and most pinnipeds range from 98-102 °F (Dierauf and Gulland, 2001). If the use of a thermometer is not possible, feel the flippers (e.g., icy cold or dry and hot) and observe the animal's behavior (e.g., shivering, agitation) in order to evaluate abnormally high or low body temperature. If an animal is dry and alert/active prior to the exam, assume it will overheat with handling.

A complete whole body examination should be conducted, making note of the degree and nature of oil contamination. Assess behavior, activity level and alertness; if possible, observe the animal in the transport cage prior to handling to evaluate locomotion and central nervous system status. Evaluate overall body condition and estimate the percent dehydration. Most stranded animals are at least slightly dehydrated (<5%, demonstrated by decreased tear production and subdued behavior). More severely dehydrated animals (5-10%, demonstrated by lack of tear production,

thick ocular mucus, "sunken" or crusty eyes, dry mucous membranes, skin tenting in otariids, curling of the vibrissae in harbor seals, and lethargic or depressed behavior) may need to be treated with fluids prior to continuing the examination and intake procedures; however, it is preferable to obtain blood samples prior to hydration treatments.

Due to the risk of being bitten, a thorough oral exam is possible only in anesthetized, dead, comatose, and young animals, but a visual inspection of the oral cavity is often possible during vocalization in alert animals. Palpate the neck and thorax for evidence of subcutaneous emphysema and the musculoskeletal system for fractures, wounds, or swellings. Subcutaneous emphysema is often found in the neck and axillary area in oiled sea otters and is an indicator of severe pulmonary damage. Palpate the abdomen gently to detect masses, pregnancy, or fluid accumulation and observe the urogenital area for urine, feces, or abnormal discharges.

Routine Blood Sampling

Following the general examination, blood samples should be drawn for hematology (collected in an EDTA anticoagulant, lavender-top tube, LTT) and chemistry panels (collected in a serum separator tube, SST, or red-top tube, RTT) and serum banking. In phocids, blood is generally drawn from the epidural sinus or ventral (plantar) interdigital veins (at the apex of the web between the inner digits) of the hind flippers (e.g., harbor seals, elephant seals). In otariids, the caudal gluteal vein and plantar network (dorsal or ventral surface of the hind flipper just medial to the lateral digit or just lateral to the medial digit) are used for blood collection (sea lions and fur seals). In sea otters, blood may be drawn from the popliteal (saphenous) or femoral vein on a non-anesthetized animal using a restraint box and/or stuff bag. Alternatively, the jugular vein can be used on an anesthetized otariid or sea otter.

Blood samples should be collected at least three times during the rehabilitation process: on admission/intake, immediately prior to washing, and prior to release. Repeat sampling may not be necessary for wash or release procedures, if preformed within 48hrs of previous blood sampling or at the discretion of the response veterinarian. At these times, baseline blood work should include a complete blood count and standard serum chemistry tests. Normal blood values for marine mammal species can be found in Bossart et al. (2001).

Standard Blood Tests

Complete Blood Cell counts (CBC): White cell blood count, red cell blood count, hemoglobin, hematocrit, mean corpuscular volume (MCV), mean corpuscular hemoglobin concentration (MCHC), mean corpuscular hemoglobin (MCH), a differential cell count, platelet and reticulocyte counts. One full lavender-top tube (EDTA) (1 or 3 ml) should be taken and refrigerated until analysis.

Chemistry Profile: Albumin, alkaline phosphatase, bicarbonate, bilirubin (total and direct), BUN, calcium, chloride, cholesterol, CK, creatinine, globulin, glucose, phosphorus, potassium, total protein, sodium, AST (SGOT), ALT (SGPT), GGT, and ratios of albumin:globulin, BUN:creatinine, and sodium:potassium. Blood should be placed in a serum separator tube or red top tube, allowed to clot, centrifuged, and refrigerated prior to analysis. Excess serum should be saved and banked (frozen) at the rehabilitation facility.

Special Biomedical Sampling Protocols

At times, additional protocols may be used that require additional blood samples for other tests (e.g., PAH estimation, immune function assays, serum protein electrophoresis, plasma chemistries, serological tests for infectious diseases). Other biomedical samples (e.g., urine sample, fecal sample, microbiological swab, blubber biopsy) may also be collected at the discretion of the response veterinarian.

Post-examination Intake Procedures

Initial Treatment

- Fluid therapy: oral, subcutaneous, intravenous
- Activated charcoal (ToxiBan) tubing if oil ingestion suspected

All animals are assumed to be at least 5% dehydrated. Administer isotonic fluids to animals that appear to have not ingested oil orally at a rate of 10-20 ml/kg once either orally (e.g., Pedialyte) or subcutaneously (lactated Ringer's solution, LRS). If the animal is alert and is likely to have ingested oil (e.g., fur seals during grooming, neonates during nursing), administer activated charcoal slurry (ToxiBan, 6 ml/kg) orally.

Animals that are chemically immobilized for intake procedures or are weak and obtunded should not be given oral fluids. Subcutaneous fluids (e.g., lactated Ringer's solution), may be administered instead at 20-40 ml/kg. If ingestion of oil is suspected, ToxiBan slurry (6ml/kg) can be administered via a stomach tube just prior to anesthetic reversal (Williams and Sawyer, 1995). Extreme care must be taken to prevent gastric reflux and aspiration during this procedure. The risks associated with passing a stomach tube must be weighed against the risks associated with continued exposure to ingested petroleum.

Severely depressed animals may require intravenous fluid administration and other medication in addition to isotonic fluids. Additional fluid therapy (maintenance fluids plus correction of fluid deficits) should be determined by the attending veterinarian, based on an evaluation of blood work, concurrent fluid losses, and continuing assessment of the animal's condition. The fluid deficit is calculated by multiplying an animal's mass in kg x 1000 ml fluid/kg x the percent dehydration (e.g., 5% = .05). This should be added to the animal's daily maintenance fluid requirement (at least 40 ml/kg/day) and administered within the first 24 hr if possible.

Monitoring

Animals should be regularly monitored during the rehabilitation process. Clinical observations, feeding observations (food consumption and/or preferences), and behavior should be written on the medical records. Body weight should also be monitored repeatedly during rehabilitation and recorded, at a minimum, upon admission, pre-washing, and prior to release. More extensive body weight monitoring may be required in critical cases. Physical examinations should be performed upon admission, prior to washing, and prior to release with all information recorded on individual medical records. Whenever medications are administered, the name of the drug, dose and route (oral, SQ, IM, IV) should be recorded as well as the initials of the person who administered the medication. Medical records are viewed as potential evidence by the law and should be carefully and completely filled out by animal caretakers.

Animal Washing and Continued Care

General Topics Associated With Cleaning

The facility where oiled animals will be cleaned should be designed to accommodate the variety of species that might be cared for at that facility. Each wash station must have adequate space for the animals, animal handlers, and restraint equipment that might be necessary. Water hardness should be tested before washing animals and adjusted to 3-5 grains of hardness (Clumpner, 1991). Dawn dishwashing liquid is the preferred washing product and has been shown to be safe and effective for removing oil from the coats of sea otters and harbor seals (Rash et al., 1990). Wastewater storage, containment, and removal must meet the requirements of the municipality, city, and county. A minimum team of two or three persons usually wash animals. Fur seals and sea otters may require teams of four or five persons because the density of their fur requires much greater effort. Large animals such as elephant seals may require a washing team with three or four persons to properly restrain the animal. Large animals, aggressive animals, fur seals and sea otters may require sedation and veterinary assistance for washing and cleaning.

General Washing Needs

- Softened water (3-5 gr)
- Temperature controlled warm water (80-98°F, 27-37°C)
- Pressured spray nozzles (30-40 psi)
- Dawn detergent
- Wastewater storage and removal

Pre-Wash Evaluation

Oiled marine mammals will require at least 24 hours of supportive care prior to being washed. Initial care is focused on addressing thermoregulatory problems, rehydration, and providing nutritional sustenance so animals are no longer in a negative metabolic balance. The washing procedure is very stressful; therefore, prior to the procedure, the animal needs to have regained strength. In the case of sea otters, they also need to be able to tolerate anesthesia and start to groom once recovered. A veterinarian should conduct a pre-wash evaluation that includes a physical examination, evaluation of alertness, strength and body condition, and blood parameters. If the animal passes the pre-wash evaluation, it is referred to the washing team.

Removing Tar Patches from Animals

If the oil present on an animal is a tar patch or very weathered, pretreatment may be necessary. This is accomplished by applying warmed (95-98°F or 35°C) olive oil, canola oil, or methyl oleate to the affected region. The pretreatment solution should be manually worked into the tarred areas for up to 30 minutes or until the tar loosens and can be wiped off using an absorptive pad or towel. While pretreating the animal, it is important to monitor the animal's body temperature and be prepared to treat the animal for hyperthermia or hypothermia. Tar removal is necessary for furred marine mammals and non-furred marine mammals if the patch(es) are large, potentially interfering with thermoregulation, or contribute to toxicity and result in clinical symptoms. Clipping away tar patches (with accompanying fur) is recommended unless molt is imminent

because the animal will have a bald patch that could cause reduction of heat retention. This procedure could have serious or life-threatening implications for fur seals, sea otters, or debilitated animals.

Washing Harbor Seals, Elephant Seals, Sea Lions

Sea lions, harbor seals and elephant seals rely on their thick blubber layer for insulation, making them less susceptible to hypothermia when they become externally oiled. These species are washed with Dawn detergent in thermal-neutral (~ 98°F or 37°C) water. Soap is applied and rubbed on the fur until the oil is visibly removed. The detergent can be made into a uniform solution by mixing it with water at a 1:1 ratio prior to applying thus making it easier to work into the hair and oil. Washing pinnipeds takes between 10-30 minutes depending on the extent and type of oil, species and health of the animal, and the proficiency of the staff. An initial quick rinse can be done at the wash station and then completed with the animal unrestrained in its pen using a pressure nozzle. This modified rinse procedure decreases the duration of manual restraint. In general, rinsing should be continued until there is no evidence of oil or detergent in the rinse water. Most pinnipeds are placed directly into their outdoor pens to dry.

General Guidelines for Washing Pinnipeds

1. Thermal neutral water (~ 98°F or 37°C)
2. Dawn detergent rubbed onto fur until oil is removed
3. Pressurized rinse in pen until oil and detergent removed
4. Air dry in pen

Washing Fur Seals

In contrast, fur seals possess a thin subcutaneous fat layer and a thick pelage that thermally insulates these animals (Reidman, 1990). Since they rely more heavily on their fur, fur seals are washed in a similar fashion to otters. Oiling 30% of a fur seal's coat will result in a 50% increase in heat loss (Geraci and St. Aubin, 1990), emphasizing the need for these animals to be closely monitored during the washing procedure. Fur seals are washed using a thermal-neutral (~98°F or 37°C), 5% diluted Dawn dish washing detergent solution. The diluted detergent solution is gently massaged into the fur and, as with other species, the washing duration depends on the extent and type of oil, the strength of the animal, and the proficiency of the staff. Fur seals are rinsed with fresh, soft (3-5 gr) water under moderate pressure (30-40 psi) with a spray nozzle. This process can require up to 40-60 minutes and animals are rinsed until no oil is visible in the rinse water and no petroleum odor is detectable on the fur (Davis and Hunter, 1995). For all pinnipeds, animals may become hyperthermic during washing in which case they may need to be washed and rinsed in cold water.

Fur seals, which depend on their coat for thermoregulation, may need to be placed in a drying enclosure that is warmed with an industrial pet dryer that blows room temperature air (68°F or 20°C). Animals in drying pens must be monitored for dehydration, hyperthermia, hypothermia, and alertness. Once dry and alert, fur seals can be returned to their outdoor pens.

Washing Sea Otters

Sea otters have the densest fur of any mammal, and, unlike most other marine mammals, replace their fur throughout the year instead of undergoing a seasonal molt (Tarasoff, 1974; Williams et al., 1992). Otters have guard hairs and many fine under-hairs that are microscopically interlocked to trap air, thus providing waterproofing, thermal insulation, and buoyancy. Oil contamination

causes fur clumping which leads to a loss of insulation and predisposes otters to hypothermia from the cold ocean water.

General Guidelines for Washing Sea Otters

1. Anesthesia/sedation
2. Diluted Dawn solution
3. Temperature controlled warm water
4. Pressurized rinse (40-60 minutes)
5. Dry with towels and blow dryers
6. Anesthesia reversal

Anesthesia

Due to their aggressive temperament, sea otters generally require sedation or anesthesia to be washed. A variety of anesthetics have been used, however, the current preferred drug combination in adult sea otters for nonsurgical procedures is fentanyl (0.22 mg/kg) and diazepam (0.07 mg/kg) used together intramuscularly. The opioid antagonist naltrexone at 0.44 mg/kg is recommended for reversal, but often 3 - 4 times the total dose of fentanyl administered is needed for complete reversal (Monson et al., 2001). While sedated, supplemental oxygen is routinely provided either via facemask, or, if the sea otter is immobilized enough to tolerate it, via endotracheal tube. During sedation and cleaning, the core temperature of the sea otter must be monitored continuously because otters can become hypothermic or hyperthermic very quickly. Whenever a sea otter is sedated, bags of crushed ice should be readily available and placed under the animal's neck and flippers if hyperthermia occurs.

Washing and Rinsing

Sea otters are washed with multiple applications of diluted (5%) Dawn dishwashing detergent. Ideally, washing tables are equipped with three or four well aerated nozzles dispensing temperature controlled (28-37 °C, 80-98 °F), softened (3-5 gr.) fresh water. The water temperature affects the body temperature and needs to be adjusted according to the otter's body temperature to prevent hyper or hypothermia (Davis and Hunter, 1995; Stoskopf et al., 1997). Four to six people are required per washing table, one (with heavy gloves) specifically to hold the head and forearms. The detergent is gently massaged into the oiled fur and then rinsed off under moderate pressure (30-40 psi) with a spray nozzle. Washing should consist of a wash, rinse, wash, rinse cycle until there is no indication of oil in the rinse water and no petroleum odor on the fur. Depending on the degree of oiling, washing will usually take from 40-60 minutes. A final rinse with a spray nozzle lasting an additional 40 minutes to one hour is essential to thoroughly remove the detergent and restore the furs' water repellency. Otters are initially hand dried with dry, clean, cotton terry cloth towels. Once the bulk of the water has been absorbed, the fur is dried with commercial pet dryers that deliver a high volume of temperature controlled air (Davis and Hunter, 1995). Sea otters become increasingly prone to hyperthermia as their hair is drying and cool (room temperature) air may be necessary for drying as the sea otter's body temperature increases.

Drying

Following drying, each animal is reversed from the anesthetic and placed in a large, slat-floor kennel with a sliding top or other easily accessible dry pen for intensive care monitoring. Animals in dry holding should be closely monitored for hyperthermia and fecal, urine, or food debris must be rinsed away immediately. When fully recovered from anesthesia, otters should be offered small blocks of ice to chew on and food (Davis and Hunter, 1995). Once the animal is stable and medical conditions allow, each otter should be moved to a pool with haulout(s) serviced by

abundant, clean, chlorine-free salt water (if available). Pools must have high seawater flow rates (e.g. 5 gallons per minute for 150 gallon pool) and drain skimmers at water level to collect debris from the pool. Fecal and food contamination of the pool water can cause fur fouling and prevent restoration of water repellency. Sea otters are not waterproof after washing and drying and must reintroduce trapped air into their fur by grooming.

Post-wash monitoring and care

During rehabilitation, sea otters need to be monitored around-the-clock by qualified personnel familiar with normal sea otter behavior and who are able to recognize clinical signs of distress. Sea otters often develop hypothermia post-wash due to lack of air insulation in washed fur and inadequate grooming. Otters that appear hypothermic, having difficulty hauling out, or experiencing seizures should be immediately removed from the water and evaluated by a veterinarian. As health and fur condition improve, otters may be moved to larger pools and/or floating holding pens. All pools should have abundant haul-out space. It will generally take a minimum of seven to ten days for the fur to recover its water repellency (Tuomi et al., 1995).

Common Problems Encountered While Washing Animals

1. Oil is not coming off with Dawn
    - Pretreatment with canola oil, olive oil, or methyl oleate is required.
2. The animal's coat is not clean
    - The animal may not have been washed or rinsed adequately. In either case, the animal may need to be re-washed or re-rinsed.
    - The wash or rinse water is too hard and mineral deposits are forming on the fur. Water hardness should be rechecked to make sure it is 3-5 grains.
    - The holding pool is not clean. Check whether the water is turbid or if there is fish oil or debris floating on the pool surface. Water flow may need to be increased or pool cleaned.

Nutritional Guidelines

The dietary requirements of stranded marine mammals are generally grouped into two categories according to age and nutritional needs: unweaned pups and weaned animals. Pups need special dietary formulas and feeding regimes based on species and age while free-feeding animals are generally fed a diet of good quality fish such as herring. Adult sea otters are usually fed a variety of fish and shellfish depending on their preference. Marine mammals also usually need to receive a supplemental multivitamin, vitamin E, and salt tablets (if housed in fresh water) with amounts based on species and weight. Monitoring fecal production and hydration status is especially important when beginning any formula, switching diets, or weaning animals. Recommended diets change with continued research and experience and stranding network participants should play an important role in the development of dietary protocols for each species and facility. More information can be obtained on marine mammal nutrition and energetics from Worthy (2001), and hand-rearing and artificial milk formulas from Williams and Davis (1995) for sea otters, and Townsend and Gage (2001) and Gage (2002) for pinnipeds.

Disposition

Release

The goal in rehabilitating oiled marine mammals is to release healthy animals back into their natural environment. Rehabilitators, in consultation with designated trustee representatives (NMFS/FWS) must prepare a release plan that is communicated to and authorized by the Unified Command through the Liaison Officer. Certain criteria must be met prior to releasing marine mammals back into wild populations. For those animals that do not meet release criteria, several options are available including additional rehabilitation, euthanasia, or placement in a long-term holding facility.

While little is known about optimal oiled marine mammal release criteria, current recommendations are based on information derived from the *Exxon Valdez* spill and husbandry practices at aquaria and rehabilitation centers in the United States. NMFS and FWS have developed guidance and criteria for release based on optimizing the chances for survival and minimizing the risk to wild populations (Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release, http://www.nmfs.noaa.gov/pr/health). The Standards for Release document describes how to characterize and assess animals using several parameters.

Standards for Release

1. Historical Assessment
2. Developmental and Life History Assessment
3. Behavior Assessment and Clearance
4. Medical Assessment and Clearance
5. Release Logistics
6. Post Release Monitoring

Current criteria require that animals show normal species-specific behavior (feeding, swimming, and diving), adequate body weight for age class and species, pelage proven to be in good condition, hematological and serum chemistry values within the normal range, no evidence of infectious diseases, and physical exam findings should be unremarkable. Other ancillary tests (e.g. *Leptospira* titer, morbillivirus titer, microbiological cultures, urinalysis, fecal examinations, etc.) may also be performed on a case-by-case basis depending on individual animal and population level concerns. The Unified Command will decide upon the location of the release with guidance from the trustee agencies

Upon approval for release by UC, an exit photo of each marine mammal must be taken and specifics of the release (location, time, personnel) recorded for Natural Resource Damage Assessment purposes.

Post-release monitoring, if at all possible, should be undertaken during marine mammal releases following oil exposure using radio or satellite telemetry. This effort should focus on survival rates, behavior, and reproductive success following oil contamination and rehabilitation, thus enabling

oiled marine mammal responders to evaluate the efficacy of oiled marine mammal care. Post-release monitoring is not usually considered a response activity expense and must be funded by the stranding network participate, trustee agency or NRDA.

Mortalities

All oiled dead marine mammals should be collected from beaches and taken to a designated morgue. Dead animals should be logged in at the morgue using a Dead Marine Mammal Data Log (example in Appendix 3). Under certain circumstances, an oiled animal may need to be humanely euthanized in order to alleviate suffering. Animals that die during an oil spill response must have this disposition information recorded on their individual animal record as well as on the Live Marine Mammal Data Log (Appendix 2). The carcass should be identified with a written tag including the species name, date of stranding and/or admission, date of death, and the flipper tag (if a tag was affixed prior to death). If a flipper tag is present, it should remain with the carcass until final disposition of the carcass. The carcass should be refrigerated or kept on ice until a necropsy is performed. If a necropsy cannot be performed within 24 hours of death, the carcass needs to be frozen.

Euthanasia

During an oil spill response, there are circumstances under which it may be necessary to humanely euthanize animals. For each spill where marine mammal rehabilitation is undertaken, the rehabilitator must prepare a written euthanasia plan in consultation with the trustee representative. Euthanasia is appropriate for oiled animals with injuries that will render it unable to survive in the wild or unsuitable for use in captivity. If animals are euthanized in the field, they are collected following the procedures outlined in the Recovery and Transportation section of this document. To prevent secondary contamination or poisoning, euthanized carcasses are never left in the field.

Necropsy

Necropsies may be performed concurrent with response activities to identify cause of death in order to differentiate between a natural versus pollution related mortality. Fatalities to apparently un-oiled wildlife may necessitate necropsies to determine if death was caused by human interactions or if sub-apparent oil exposure or ingested petroleum contributed to the mortality. Additionally, captivity-related diseases may necessitate necropsies be performed on animals that die during rehabilitation to identify potential pathogens or husbandry techniques that are detrimental to recovery.

Prior to performing a necropsy on an oiled marine mammal, specific permission must be obtained from Unified Command and the appropriate NMFS/FWS enforcement officer. The spill response veterinarian-of-record should conduct or supervise all necropsies, in consultation with the designated representative FWS or NMFS enforcement officer. In most cases, a veterinary pathologist with specialized training on marine mammals will be asked to perform the necropsy. Necropsy methods and techniques are diverse, but general procedures for marine mammal necropsies can be found in Rowles et al. (2001), Galloway and Ahlquist (1997), and Geraci and Loundsbury (1993). Specific protocols have also been developed for some marine mammals including phocids (Winchell, 1990), Killer whales (Raverty and Gaydos, 2004), Right whales (McLellan et al., 2004), and Hawaiian Monk seals (Yochem et al., 2004). These species specific procedures should be followed whenever possible in order to maintain consistency with previous data. Prior to conducting a necropsy, the trustee agency and veterinarian should agree on which forms to use; which samples to collect; how those samples will be prepared (e.g., formalin or

frozen), stored, and shipped; and where samples will be analyzed. Specific oil spill necropsy information and forms are detailed in Appendix 7-9. Tissue samples for standard histopathology, disease profiling, and petroleum hydrocarbon analysis should be collected. Sampling for oil exposure, must be performed under specific conditions detailed in Appendix 7, in order to prevent contamination of the sample. Necropsy reports are filed and all samples handled and stored using appropriate chain-of-custody protocols, as discussed previously (Data Collection) and provided by the trustee representative.

Laboratories performing the petroleum analysis must be contacted as soon as possible in order to verify that sampling protocols and sample sizes are consistent with that specific laboratory requirement. Considerations in choosing the lab should include details of forensic capabilities (ability to produce legally defensible results), quality assurance and quality control (QA/QC), and consistency with the analysis of other materials from the spill. Results can vary between labs and data should be comparable between the environmental and tissues of the different species sampled. Appendix 8 lists laboratories (not an exhaustive list), with expertise in petroleum hydrocarbon chemistry that can be contacted for oil spill sample collection and analysis information. Petroleum hydrocarbon analysis is a reimbursable response expenses if pre-approved by the UC. However, often the RP (responsible party) assumes ownership of the oil and analysis may not be preformed.

Petroleum and Polycyclic Aromatic Hydrocarbons (PAH) Analysis

In general, all crude oils are mixtures of the same hydrocarbon and non-hydrocarbon compounds, but vary in the percent composition of these compounds. Natural weathering of oil in the environment also results in highly variable compositions. Because of the continual dynamic changes in spilled oil, it can be difficult to identify and quantify all PAHs potentially present in or on an animal in the aftermath of an oil spill. Oil and tissue samples collected from marine mammals can be analyzed to determine the total amount of PAHs in tissues and identify and quantify dangerous PAHs that may have caused clinical and pathological effects. Samples can also be tested to characterize and fingerprint petroleum hydrocarbons to determine their source.

Determining source-dependent petroleum exposure during an oil spill using GC/MS or HPLC techniques on marine mammal tissues requires baseline knowledge of petroleum hydrocarbon levels and composition in the spill area and of the spilled oil. At present there are few data available on PAH levels in marine mammals inhabiting North American coastal waters. Studies have only measured PAH levels in seals and whales from the Eastern Canada (Hellou et al., 1990, Zitko et al., 1998) and Northeastern United States (Lake et al., 1995). Overall, the low concentrations of bioaccumulated PAHs in tissues from these marine mammals are fairly similar to those reported in atmospheric fallout PAHs from combustion sources (Zitko et al., 1998). Alkylated and heterocyclic PAHs are the predominant forms of PAHs in oil and coal products, and can be missed if tissues are tested only for the 16 traditionally-studied, parent PAHs listed as priority pollutants by the Environmental Protection Agency (EPA) and World Health Organization (WHO) (Means 1998). Different members of the isomeric alkylated PAHs exhibit differential toxicity, diffusion, and degradation rates, further emphasizing the importance of compound-specific analysis. With the lack of baseline PAH levels from marine mammals, control samples for comparisons were harvested at the time of *Exxon Valdez* oil spill from animals inhabiting nearby non-oiled areas (Mulcahy and Ballachey, 1994; Frost et al., 1994).

In experimental exposure studies (both immersion and ingestion) involving ringed seals (*Phoca hispida*), differences in detectability of PAHs in various tissues were noted (Engelhardt et al., 1977). In the immersion experiment, PAHs were highest in urine and bile, less elevated in blood and plasma, and lower in tissues (lowest in lung) at 2 days post-immersion. Tissue sampling in the ingestion study was limited with PAHs highest in blood, and higher in liver and blubber compared to muscle. These studies illuminate the importance of selecting appropriate tissues for PAH analysis. Specific tissue collection techniques are provided in Appendix 7.

Records

The importance of recording information cannot be over-emphasized. Record collection enhances individual animal care, response evaluations, and the ability to accurately characterize the best practices for appropriate care. In-house records are maintained at the rehabilitation facility and copies provided to the trustee agency. Final reports, including chain-of-custody and sample collection records, must be delivered to the trustee agency within 30 days of the date the Federal OSC declares the response closed.

Scientific Records

The following types of records are necessary to preserve vital information for scientific study, natural resource damage assessment, and improved rehabilitation practices and techniques:

- Oiled mammal sighting: records and maps for all reports of oiled mammals
- Search Effort Log
- Live Mammal Log
- Dead Mammal Log
- Marine Mammal Intake Form
- Rehabilitation Records: documents care for each animal, including feedings, treatments, medications, normal/abnormal activities.
- Lab Analyses Report: identifies all samples sent to labs, requested analyses, lab results.
- Marine Mammal Stranding Report - Level A Data (NOAA 89-864, OMB #0648-0178)
- Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)
- Human Interactions Form
- Necropsy Report

References

Ainley, D.G., G.W. Page, L.T. Jones, L.E. Stenzel, and R.L. LeValley. 1980. *Beached marine birds and mammals of the North American West Coast: a manual for their census and identification.* U.S. Department of the Interior, U.S. Fish and Wildlife Service, Biological Services Program, FWS/OBS-80/03. 207p.

Benz, C.T. and R.L. Britton. 1995. Sea otter capture. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*, T.M. Williams and R.W. Davis, eds., Fairbanks, AK: University of Alaska Press. pp. 23-37.

Bossart, B.D., T.H. Reidarson, L.A. Dierauf, B.A. Duffield. 2001. Clinical Pathology. In *CRC Handbook of Marine Mammal Medicine.* L.A. Dierauf and F.M.D Gulland, eds., Boca Raton, FL: CRC Press, Inc. pp. 383-436.

Clumpner, C. 1991. Water hardness and waterproofing of oiled birds: lessons from the Nestucca, Exxon Valdez, and the American Trader spills. In *The Effects of Oil on Wildlife: Research, Rehabilitation & General Concerns*, J. White, ed., Hanover, PA: The Sheridon Press. pp. 101-102.

Davis, J.E., and S.S. Anderson. 1976. Effects of oil pollution on breeding grey seals. *Marine Pollution Bulletin* 7, 2761-2767.

Davis R.W. and C.W. Davis. 1995. Facilities for Oiled Sea Otters. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*, T.M. Williams and R.W. Davis, eds. Fairbanks, AK: University of Alaska Press. pp. 159-175.

Davis, R.W. and L. Hunter. 1995. Cleaning and Restoring the Fur. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*, T.M. Williams and R.W. Davis, eds. Fairbanks, AK: University of Alaska Press. pp. 95-102.

Dierauf, L.A. and F.M.D. Gulland, eds. 2001. *CRC Handbook of Marine Mammal Medicine.* Boca Raton, FL: CRC Press, Inc. 1063p.

Duffy, L.K., R.T. Bowyer, J.W. Testa, and J.B. Faro. 1993. Differences in blood haptoglobin and length-mass relationships in river otters (*Lutra canadensis*) from oiled and nonoiled areas of Prince William Sound, Alaska. *Journal of Wildlife Diseases* 29, 353-359.

Duffy, L.K., R.T. Bowyer, J.W. Testa, and J.B. Faro 1994. Chronic effects of the *Exxon Valdez* oil spill on blood and enzyme chemistry of river otters. *Environmental Toxicology and Chemistry* 13, 643-6470.

Engelhardt, F.R. 1982. Hydrocarbon metabolism and cortisol balance in oil-exposed ringed seals, *Phoca hispida. Comparative Biochemistry and Physiology. C: Comparative Pharmacology* 72 (1), 133-136.

Engelhardt, F.R., J.R. Geraci, and T.G. Smith. 1977. Uptake and clearance of petroleum hydrocarbons in the ringed seal, *Phoca hispida*. *Journal of the Fisheries Research Board of Canada* 34, 1143-1147.

Frost, K.J., C.A. Manen, and T.L. Wade. 1995. Petroleum hydrocarbons in tissues of harbor seals from Prince William Sound and the Gulf of Alaska. In *Marine Mammals and the Exxon Valdez*, T. R. Loughlin, ed., San Diego: Academic Press. pp. 331-358.

Gage, L.J., ed. 2002. *Hand-Rearing Wild and Domestic Mammals*. Ames, IA: Iowa State Press. 279p.

Galloway, S.B., and J.E. Ahlquist, eds. 1997. *Marine Forensics Manual, Part 1 Marine Mammals*. National Marine Fisheries Service, Southeast Fisheries Science Center, Charleston laboratory, Charleston, SC, 90p.

Geraci, J. R., and T. G. Smith. 1976. Direct and indirect effects of oil on ringed seals (*Phoca hispida*) of the Beaufort Sea. *Journal of the Fisheries Research Board of Canada* 33, 1976-1984.

Geraci, J.R., and D.J. St. Aubin. 1988. *Synthesis of effects of oil on marine mammals*. Ventura, CA: Battelle Memorial Institute. Final report. MMS 88-0049

Geraci, J.R., and D.J. St. Aubin. 1990. *Sea Mammals and Oil: Confronting the Risks*. San Diego: Academic Press. 221p.

Geraci, J. R., and T. D. Williams. 1990. Physiologic and toxic effects on sea otters. In *Sea mammals and Oil: Confronting the Risks*. D.J. St. Aubin and J.R. Geraci, eds., San Diego: Academic Press. pp. 211-221.

Geraci, J.R. and V.J. Lounsbury. 1993. *Marine Mammals Ashore: A Field Guide for Strandings*. Galveston, TX: Texas A&M Sea University Sea Grant Publication. 305p.

Haulena, M. and R.B. Heath. 2001. Anesthesia. In *CRC Handbook of Marine Mammal Medicine*. L.A. Dierauf and F.M.D Gulland, eds., Boca Raton, FL: CRC Press, Inc. pp. 655-684.

Hellou, J., G. Stenson, I. H. Ni, and J.F. Payne. 1990. Polycyclic aromatic hydrocarbons in muscle tissue of marine mammals from the Northwest Atlantic. *Marine Pollution Bulletin* 21 (10), 469-473.

Lake, C.A., J.L. Lake, R. Haebler, R. McKinney, W.S. Boothman, and S.S. Sadove. 1995. Contaminant levels in harbor seals from the northeastern United States. *Archives of Environmental Contamination and Toxicology* 29, 128-134.

Lipscomb, T.P., R.K. Harris, R.B. Moeller, J.M. Pletcher, R.J. Haebler, and B.E. Ballachey. 1993. Histopathologic lesions in sea otters exposed to crude oil. *Veterinary Pathology* 30 (1), 1-11.

Loughlin, T. R., ed. 1994. *Marine mammals and the Exxon Valdez*. Orlando, Florida: Academic Press, Inc. 395p.

Lowry, L.F., K.J. Frost, and K.W. Pitcher. 1994. Observations of oiling of harbor seals in Prince William Sound. In *Marine mammals and the Exxon Valdez*. T. R. Loughlin, ed., San Diego, New York: Academic Press. pp. 209-225.

NRT, National Response Team. 2004. ICS/UC Technical Assistance Document. website: http://www.nrt.org/

Means, J.C. 1998. Compound-specific gas chromatographic-mass spectrometric analysis of alkylated and parent polycyclic aromatic hydrocarbons in waters, sediments, and aquatic organisms. *Journal of AoAC International* 81, 657-672.

McLellan, W.A., Rommel, S.A., Moore, M., Pabst, D.A. 2004. Right Whale Necropsy Protocol. Final report to NOAA Fisheries for contract #40AANF112525. 51p.

Monson D.H., C. McCormick, and B.E. Ballachey. 2001. Chemical anesthesia of northern sea otters (Enhydra lutris): results of past field studies. *Journal of Zoo and Wildlife Medicine* 32(2),181-189.

Mulcahy, D.M., and B.E. Ballachey. 1995. Hydrocarbon residues in sea otter tissues. In *Marine Mammals and the Exxon Valdez*. T. R. Loughlin, ed., San Diego: Academic Press. pp. 313-330.

Raverty, S.A., and J.K. Gaydos. 2005. Killer Whale Necropsy and Disease Testing Protocol. UC Davis Wildlife Health Center, Sea Doc Society. 61p. http://mehp.vetmed.ucdavis.edu/pdfs/orcanecropsyprotocol.pdf.

Rash, J.A., C.R. McCormick, R. Alexander, S.J. Nichol, and D.C. Perrollaz. 1990. Coat Gradation and Conditioning of Sea Otters at the Seward Rehabilitation Center. In Sea Otter Symposium: *Proceedings of a Symposium to Evaluate the Response Effort on Behalf of Sea Otters after the T/V Exxon Valdez Oil Spill into Prince William Sound.* Anchorage, AK: US Fish and Wildlife Service. Biological Report 90 (12).

Rowles, T.K., R.M. Van Dolah, and A.A. Hohn. 2001. Gross Necropsy and Specimen Collection Protocols. In *CRC Handbook of Marine Mammal Medicine*. L.A. Dierauf and F.M.D Gulland, eds., Boca Raton, FL: CRC Press, Inc. pp. 449-470.

Reeves, R.R., B.S. Stewart, and S. Leatherwood. 1992. *The Sierra Club Handbook of Seals and Sirenians*. Sierra Club Books, San Francisco. 359p.

Reidman, M. 1990. *The Pinnipeds: Seals, Sea Lions and Walruses*. Berkeley, CA: University of California Press, pp. 16-17.

Ridgeway, S.H. 1972. Homeostatis in the aquatic environment. In *Mammals at Sea: Biology and Medicine*. S.H. Ridgeway, ed., Springfield, Il: Charles C. Thomas

Smith, T.G., and J. R. Geraci. 1975. The effect of contact and ingestion of crude oil on ringed seals of the Bearfort Sea. *Bearfort Sea Project*, Tech. Rep. No. 5. Inst. Ocean Sci., Sidney, British Columbia.

Sparker, T.R., L.F. Lowry, and K.J. Frost. 1994. Gross and histopathological lesions found in harbor seals. In *Marine mammals and the Exxon Valdez*. T. R. Loughlin, ed., San Diego: Academic Press. pp. 281-312.

St. Aubin, D.J. 1990. Physiologic and Toxic Effects on Pinnipeds. In *Sea Mammals and Oil: Confronting the Risks*. J.R. Geraci and D.J. St. Aubin, eds., San Diego: Academic Press. pp. 103-125.

Stoskopf M.K., L.H. Spelman, P.W. Sumner, D.P. Redmond, W.J. Jochem, and J.F. Levine. 1997. The impact of water temperature on core body temperature of North American river otters (Lutra canadensis) during simulated oil spill recovery washing protocols. *Journal of Zoo and Wildlife Medicine* 28(4), 407-12.

Tarasoff, F.J. 1974. Anatomical adaptions in the river otter, sea otter, and harp seal with reference to thermal regulation. In *Functional Anatomy of Marine Mammals*. R.J. Harrison, ed., London: Academic Press, pp. 111-142.

Townsend, F.I. and L. J. Gage. 2001. Hand-rearing and artificial milk formulas. In *CRC Handbook of Marine Mammal Medicine*. L.A. Dierauf and F.M.D Gulland, eds., Boca Raton, FL: CRC Press, Inc. pp. 829-849.

Tuomi, P.A., S. Donoghue, and J.M. Otten-Stanger. 1995. Husbandry and Nutrition. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*. T.M. Williams and R.W. Davis, eds., Fairbanks, AK: University of Alaska Press. pp. 103-119.

Williams, T.D., D.D. Allen, J.M. Groff, and R.L. Glass. 1992. An analysis of California sea otter (*Enhydra lutris*) pelage and integument. *Marine Mammal Science* 8(1), 1-18.

Williams, T.M. and R.W. Davis, eds. 1995. *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*. Fairbanks, AK: University of Alaska Press Fairbanks. 279p.

Williams, T.D. and D.C. Sawyer. 1995. Physical and chemical restraint. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*, T.M. Williams and R.W. Davis, eds., Fairbanks, AK: University of Alaska Press. pp. 39-43

Williams, T.D., J.F. McBain, P.A. Tuomi, and R.K. Wilson. 1995. Initial clinical evaluation, emergency treatments, and assessment of oil exposure. In *Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur-bearing Marine Mammals*. T.M. Williams and R.W. Davis, eds., Fairbanks, AK: University of Alaska Press. pp. 45-57.

Winchell, J.M. 1990. Field Manual for Phocid Mecropsies (specifically *Monachus schauinslandi*). U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-SWFSC-146, 55p.

Worthy, G.A. 2001. Nutrition and energetics. In *CRC Handbook of Marine Mammal Medicine*. L.A. Dierauf and F.M.D Gulland, eds., Boca Raton, FL: CRC Press, Inc. pp. 791-798

Yochem, P.K., R.C. Braun, B. Ryon, J.D. Baker, and G.A. Antonelis. 2004. Contingency Plan for Hawaiian Monk Seal Unusual Mortality Events. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TMNMFS-PIFSC-2, 297p.

Zitko, V., G. Stenson, and J. Hellou. 1998. Levels of organochlorine and polycyclic aromatic compounds in harp seal beaters (Phoca groenlandica). *Science of the Total Environment* 221, 11-29.

Appendices

1. Search Effort Log
2. LIVE Marine Mammal Data Log Form

2b. LIVE Marine Mammal Data Log Form, page 2

3. DEAD Marine Mammal Data Log Form

3b. DEAD Marine Mammal Data Log Form, page 2

4. Oiled Marine Mammal Intake Form
5. Oiled Marine Mammal Daily Progress Form
6. Oiled Marine Mammal Evidence Collection Protocol
7. Petroleum Hydrocarbon Tissue Sampling Protocol
8. Oil Spill Response Laboratories and Supplies
9. Oiled Marine Mammal Necropsy Form
10. Chain of Custody Form

10b. Chain of Custody Form, page 2

Search Effort Log

Please record all beaches searched *even if no animals are found.*

Spill Name: _____ **Date:** _____
Searchers: _____

Note: Time should include all time spent on the beach, even when backtracking. North and south endpoints should be GPS pts. If not, please provide a good description of the area covered. For collected animals, put GPS location here.

	Beach Name	**Start Time**	**End Time**	**North/West Extreme (Lat/Long)**	**South/East Extreme (Lat/Long)**	**Total Distance Searched**	**Method (foot, ATV, scan)**	**Mammals Collected Note: (live/ dead, GPS, ID #)**
A								
B								
C								
D								
E								
F								
G								
H								
I								
J								
K								

Oiled Marine Mammal Data Log: LIVE Animals

Oil Spill Name:				Facility:					
Intake Log Number (L-xxxx)	Date Collected (m/d/y)	Time Coll'ted (24 hr)	First Initial & Last Name of Collector	Beach Search Number	Collection Location (Beach Name)	GPS Coordinates (N) GPS Coordinates (W)	Field Tag #	Date Arrived (m/d/y)	Time Arrived (24 hr)

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Appendix 2. Live Marine Mammal Data Log

Oiled Marine Mammal Data Log: LIVE Animals (continued from front side)

Oil Spill Name:				Facility:								
Intake Log Number	Date Processed (m/d/y)	Time Processed (24 hr)	First Initial & Last Name of Examiner	Species	Level A Field #	Tag Color/#	% Oiled	Sample/ Photo Taken? (Y/N)	Disposition Date (m/d/y)	Disposition Status (R,D,E,T)	Release Tag #	Morgue ID

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Oiled Marine Mammal Data Log: DEAD Animals

Oil Spill Name:					Facility:								
Intake Log Number (D-xxxx)	Date Collected (m/d/y)	Time Coll'ted (24 hr)	First Initial & Last Name of Collector	Beach Search #	Collection Location (Beach Name)	GPS Coordinates (N) / (W)	Tag # (Field or Temp w/ Color)	Date Arrived (m/d/y)	Time Arrived (24 hr)	Date Proc'ed (m/d/y)	Time Proc'ed (24 hr)	Name of Processor	Species

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Appendix 3. Dead Marine Mammal Data Log

Oiled Marine Mammal Data Log: DEAD Animals (continued from front side)

Oil Spill Name:							Facility:									
Intake Log Number (D-xxxx)	Condition	Scavenging	Oiling Signs	% Oiled	Depth Oiled	Sample/ Photo Taken? (Y/N)	Level A Field #	Tag #	Age	Sex	SL (cm)	AG (cm)	Morgue ID	Necropsy (Y/N)	Notes (any other observations, contamination by petroleum products such as plastic or another specimen)

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Appendix 4. Oiled Marine Mammal Intake Form

Oiled Marine Mammal Intake Form

Spill Name:			Level A Field #:	Log Number:
CAPTURE	Capture Date/Time:		Capture Location:	
	Field Band:		Collector:	
PROCESSING	Intake Date/Time:		Species:	
	Tag Color/#:		Examiner's Signature:	
EXT. OIL ID	Signs of Oiling	Oil Visible Skin Burns Smell	Area Oiled	Head Body Multiple Entire
	Oil Color	Black Brown Clear Other	Depth of Oiling	Deep Moderate Surface
	% Oiled	<2% 2-25% 26-50% 51-75% 76-100%	Samples	Hair Swab Photo
PHYSICAL EXAM	Weight/Temp.	grams °F	Age	Pup Sub-adult Adult Unknown
	Std Length/Girth	cm cm	Sex	Male Female
	Heart Rate	WNL beats/min.	Body Condition	Normal Thin Emaciated
	Resp. Rate	WNL breaths/min.	Attitude	BAR QAR Nonresponsive Seizing
	Dehydration	None Mild Moderate Severe	CRT/mm color	Sec. / Pink Pale White Purple
	Human Interaction	☐ Yes ☐ No Type: Boat Collision, Shot, Fisheries, Other:		
	Neurologic	NSF Other:		
	Head/Mouth	NSF Other:		
	Eyes/Ears	NSF Other:		
	Heart/Lungs	NSF Other:		
	Gastrointestinal	NSF Other:		
	Musculo-skeletal	NSF Other:		
	Integument	NSF Other:		
	Comments			
TX-DX	Blood taken? HCT LTT RTT GTT	Toxiban: yes no time:		
	Pre-wash Exam: _____ Veterinarian Signature	Date Washed :	Weight:	Bloodwork Attached ☐
DISPOSITION	Disposition Exam: _____ Veterinarian Signature	Exam Date:	Weight:	Bloodwork Attached ☐
	Disposition Date:	Disposition Location:		
	Disposition Status: RELEASED DIED EUTHANIZED TRANSFERRED RETAINED	Necropsied by:		
	Flipper Tag No.:	Location: RF LF RH LH		

TAG #: _____ SPECIES: _____

Oiled Marine Mammal Daily Progress Form

SpillName_____ Log# _____ Tag Color/# _____ Species_____

Date	Treatment and Progress Notes	Init.

Appendix 6. Oiled Marine Mammal Evidence Collection Protocol

The photograph and oil sample are both considered to be legal evidence therefore it is important that the following procedures are followed closely.

Photograph Evidence

1. Use a Polaroid camera (if possible).
2. Photograph should include the entire animal, highlighting the oiled region, and if possible, the tag number.
3. Label the photograph with Spill Name, Date, Species, Log #, Capture Location, and Tag # and Color.

Sample Collection Techniques for Visible Oiling

1. Scrape visible oil from fur/skin with wooden spatula (tongue depressor).
2. Place oil covered spatula in solvent-rinsed glass jar with a Teflon-lined lid (e.g. I-Chem) and break off the remaining un-oiled portion, allowing the lid to close. If jar is not available, wrap sample in aluminum foil (dull side to sample).
   Note: Avoid touching /contaminating oil sample with your nitrile gloves.
3. Label the glass jar (use waterproof labels).
   Label must include: Spill Name, Log #, Species, Tag #, Arrival Date, Sampling Date, and Capture Location.
4. Fill out Custody Seal and apply it across the lid of the jar and onto the sides of the glass.
5. Keep sample refrigerated or on ice until it can be stored.
6. Lock sample in a -20°C (or colder) freezer.

Sample Collection Techniques for No Visible Oiling

1. Rub an affected area with a 4x4 fiberglass or cotton cloth (or gauze) with sterile forceps or hemostats that have been cleaned with isopropyl alcohol.
   Note: Do not allow the nitrile gloves to touch the oiled area or the cloth.
2. Place the oiled covered cloth into a solvent-rinsed glass jar with a Teflon-lined lid.
3. Seal and fill out the information on the waterproof label (as above).
4. Fill out the Custody Seal and apply it across the lid of the jar and onto the sides of the glass.
5. Keep sample refrigerated or on ice until it can be stored
6. Lock sample in a -20°C (or colder) freezer.

All evidence should be securely stored and refrigerated/frozen until the Wildlife Branch Director provides further instructions. If samples are to be sent for analysis, a Chain of Custody Form is required.

Appendix 7. Petroleum Hydrocarbon Tissue Sampling Protocol

Supplies for sampling

All instruments used in handling (e.g. scalpels and forceps, cutting boards) or storing (e.g. jars, foil, sheets) samples must be made of a non-contaminating material consisting of stainless steel, glass, Teflon, or aluminum.

- Solvent-rinsed glass containers with Teflon-lined lids for tissues
- Solvent-rinsed Teflon sheets for tissues
- Aluminum foil (if Teflon sheets are not available) sample to the dull side
- Sterile syringes and needles
- Amber glass vials or glass vials covered with foil with Teflon lids (for bile, urine)
- Teflon screw top vials (for blood storage and urine)
- Stainless steel scalpels, knifes, forceps
- Isopropyl alcohol (99.9% pesticide free IPA) to rinse instrument
- Wooden tongue depressors (can be used to handle tissues if necessary)
- Whirl-pak bags or Zip-lock freezer bags
- 10% buffered formalin and appropriate containers for histopathology samples
- Permanent marker or pen
- Evidence/Custody tape and labels
- Sample Log/Chain of Custody forms

Sampling Protocol

Tissues to collect for petroleum hydrocarbon analysis in order of preference:

a. bile
b. urine
c. whole blood
d. stomach and intestinal contents
e. blubber/fat
f. liver
g. kidney
h. lung
i. intestine
j. brain
k. muscle

i. Samples taken for analysis should only be collected from **alive** or **freshly dead animals**. If a necropsy cannot be performed within 24 hrs after death, the carcass should be frozen for later examination.

ii. Recommended **minimum sample size** is **10-20 g of tissues** (approx. 1-2 tablespoons) and **5 ml for fluids** (blood, urine, bile, feces, stomach contents). However, analysis can be performed on as little as 100 μL of bile; therefore collect whatever amount is present.

iii. Fluids such as blood, urine, and bile should be collected using sterile syringes or pipettes and transferred to Teflon vials (blood) or amber glass vials (bile, urine).

iv. Use powder-free nitrile gloves. Vinyl gloves are an acceptable alternative. Avoid contact of gloves with samples.

v. Scalpels, knifes, and cutting tools used for tissue collection should be cleaned and rinsed with isopropyl alcohol between tissues. If heavily contaminated with oil, instruments can be cleaned with detergent (e.g. Dawn), rinsed with water, and then rinsed with alcohol.

vi. Samples are stored preferably in solvent-rinsed Teflon-lined glass jars, labeled, and secured with evidence tape/custody seal. If glass jars are not available, samples can be placed in Teflon sheets or aluminum foil (dull side to sample) and stored in whirl-paks/freezer bags.

vii. If samples/tissues have come in contact with a contaminating material (e.g. plastic bag), collect and store a representative example of that material (e.g. plastic bag) using the same method as for collecting tissues.

viii. Collect a representative sample of each tissue (< 1 cm thick) preserved in 10% buffered formalin for histopathology. Duplicate hydrocarbon and histology samples whenever possible.

ix. Each sample must be labeled with **Spill Name, Log #, Level A Field #, Species, Tag#, Arrival Date, Sampling Date, and Capture Location** and securely stored.

x. Samples for PAH analysis should be chilled immediately on ice/refrigeration and then frozen as soon as possible to -20ºC or colder in a locked freezer. Histopathology samples are stored at room temperature.

All evidence should be securely stored and refrigerated/frozen until the Wildlife Branch Director provides further instructions. If samples are transferred to a different location or sent for analysis, a Chain of Custody form is required. A Chain of Custody form can be found in this document, but are often provided by the laboratory.

Shipping:
Ship samples frozen on blue ice or with ~5 lbs dry ice according to laboratory specification using Federal Express (FedEx). FedEx follows IATA regulations for shipping hazardous materials and maintains chain of custody record by tracking packages.
Sampling supplies such as jars, label, and custody seals are often supplied by the analytical laboratory and are produced by:

I-Chem™ Brand, Certified 300 Series jars
Order: 1-800-451-4351, www.ichembrand.com

Appendix 8. Oil Spill Response Laboratories

Laboratories with tissue petroleum hydrocarbon analysis expertise

Northwest Fisheries Science Center 2725 Montlake Boulevard East Seattle, WA 98112-2097 Jon Buzitis, (206) 860-3309 Gina Ylitalo, (206) 860-3325	**Alaska Fisheries Science Center** Auke Bay Laboratory 11305 Glacier Highway Juneau, Alaska 99801-8626 Jeep Rice, (907) 789-6020
Petroleum Chemistry Laboratory Office of Spill Prevention and Response California Department of Fish and Game 1995 Nimbus Rd Rancho Cordova, CA 95670 (916) 358-2803	**TDI-Brooks International** 1902 Pinon College Station, TX 77845 (979) 693-3446 Thomas McDonald, (979) 220-3821
Alpha Woods Hole Laboratories 375 Paramount Drive Raynham, MA 02767 Peter Kane, (508) 822-9300	**Zymax Forensics** 71 Zaca Lane San Luis Obispo, CA 93401 (805) 544-4696 Alan Jeffrey, (805) 546-4693
Mote Marine Laboratory 1600 Ken Thompson Parkway Sarasota, Florida 34236 (941) 388-4312 Dana Wetzel, (941) 388-4441	**Geochemical & Environmental Research Group (GERG)** Texas A&M University 833 Graham Road College Station, Texas 77845 (979) 862-2323

The laboratory should be able to perform analysis of the 16 traditionally-studied, parent PAHs listed as priority pollutants by the Environmental Protection Agency (EPA) in addition to the 44 alkylated and heterocyclic PAHs.

Unified Command and Trustee Agencies will make final decision on laboratory use.

Appendix 9. Oiled Marine Mammal Necropsy Form

Oiled Marine Mammal

Gross Necropsy Report

Spill Name:			
Animal Log #			
Level A Field #	**Tag #**		
Species:			
Sex:	**Age:**		
Weight:	kg. (estimate/actual)		
SON:	emaciated 1 2 3 4 5 6 7 obese		
Measurements:		Blubber depth	mm
SL cm	AG cm	UG cm	XG cm

Form completed by:	Date:	
Enforcemnent Officer:		
Strand/Capture location:		
Collecters Name:		
Intake date:		Euthanasia
Death date:	Time:	☐ yes
Post mortem date:	Time:	☐ no
Carcass Classification:	**Frozen**: ☐ yes ☐ no	
2- fresh, 3-fair (organs intact), 4-poor, 5- mummified		
Photographs: ☐		
Radiographs: ☐		

Clinical signs/diagnosis	
Antibiotics given	
Pertinent lab results	

GROSS NECROPSY ABNORMALITIES:

HYDROCARBON ANALYSIS SAMPLES		
bile	kidney	blubber/fat
blood	muscle	other:
urine	lung	
liver	intestine	

MICROBIOLOGY	**SWABS: other**
Lung ☐	
Liver ☐	
other ☐	

HISTOLOGY SAMPLES

lung	thyroid	ileum	kidney	mammary gland	muscle
trachea	tonsil	colon	ureter	adrenal	gonad
heart	tongue	pancreas	urinary bladder	skin	prostate
aorta	esophagus	spleen	urethra	eye (L/R)	uterus
pulmonary artery	stomach	liver	blubber	fat--site:	vagina
thymus	duodenum	gall bladder	bone marrow		cervix
salivary gland	jejunum	brain	spinal cord	whole repro	penis
other:					

LYMPH NODES:	
colonic	gastric
sublumbar	hepatic
inguinal	mediastinal
axillary	submandibular
mesenteric	tracheobronchial

Cause of death (preliminary diagnosis):

Examiner: Examiner's signature: Date:

Appendix 10. Chain of Custody Form

CHAIN OF CUSTODY RECORD

Case Number:

DATE AND TIME OF SEIZURE:	DUTY STATION:	EVIDENCE/PROPERTY SEIZED BY:

SOURCE OF EVIDENCE/PROPERTY (person and/ or location) TAKEN FROM: RECEIVED FROM: FOUND AT:	DEFENDANT/COMPANY NAME AND REMARKS:

ITEM NO:	DESCRIPTION OF EVIDENCE/PROPERTY (include Seizure Tag numbers and any serial numbers):

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	

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APPENDIX M

SOCIOECONOMIC INFORMATION SUMMARY TABLES

Table 1: Summary of overall statewide information on veterinary services

State	Number of Establishments	Revenues and Receipts ($000's)	Annual Payroll ($000's)	Number of Paid Employees
Atlantic/Gulf of Mexico Region				
Alabama	470	215,658	66,007	3,647
Connecticut	308	278,984	101,581	3,555
Delaware	57	54,598	19,773	760
Florida	1,665	1,027,526	337,264	14,363
Georgia	721	456,376	157,582	7,242
Louisiana	393	191,983	58,361	3,231
Maine	149	96,997	34,837	1,298
Maryland	466	350,277	129,439	5,218
Massachusetts	448	374,325	145,196	5,371
Mississippi	238	104,586	31,209	1,642
New Hampshire	155	109,833	36,762	1,467
New Jersey	548	487,464	185,615	6,126
New York	1,130	934,481	321,104	12,124
North Carolina	720	510,742	180,959	8,000
Pennsylvania	940	618,142	205,655	8,884
Rhode Island	75	56,751	20,800	766
South Carolina	326	189,719	61,557	3,060
Texas	2,010	1,224,701	389,384	17,405
Virginia	684	503,041	191,682	8,221
Puerto Rico	85	23,846	4,257	302
Virgin Islands[1]	9	3,330	845	35
Pacific Region				
Alaska	60	40,411	15,051	621
California	2,445	1,948,390	660,464	24,733
Oregon	464	306,031	105,358	4,624
Washington	685	439,702	139,487	6,041
Pacific Islands Region				
Hawaii	77	51,308	16,447	656
Guam	4	2,078	595	37
American Samoa[1]	4	59	1	2
Commonwealth of the Northern Mariana Islands[1]	8	1,780	450	34

2002 Economic Census
North American Industry Classification System (NAICS) code 541940
[1] NAICS code 5419 which includes veterinary services as well as other sub-industries

Table 2: Summary of overall statewide information for all zoos, aquariums, and botanical gardens

State	Number of Establishments	Revenues and Receipts ($000's)	Annual Payroll ($000's)	Number of Paid Employees
Atlantic/Gulf of Mexico Region				
Alabama	6	9,815	4,884	257
Connecticut	7	28,102	9,156	346
Delaware	1	D	D	a
Florida	56	123,503	43,203	2,448
Georgia	16	45,331	16,489	692
Louisiana	13	D	D	f
Maine	8	3,965	1,548	44
Maryland	8	D	D	f
Massachusetts	17	55,603	18,742	776
Mississippi	2	D	D	b
New Hampshire	1	D	D	a
New Jersey	10	12,567	5,587	276
New York	48	266,257	83,410	2,457
North Carolina	13	7,992	2,409	95
Pennsylvania	26	98,672	32,665	1,365
Rhode Island	1	D	D	b
South Carolina	11	34,679	8,493	419
Texas	37	140,819	44,071	2,232
Virginia	11	8,584	4,438	247
Puerto Rico[2]	18	13,690	3,714	218
Virgin Islands[2]	5	3,583	973	48
Pacific Region				
Alaska	3	D	D	b
California	46	272,488	105,438	3,687
Oregon	11	15,067	6,075	255
Washington	16	29,801	5,670	204
Pacific Islands Region				
Hawaii	20	27,701	7,994	390
Guam	N/A	N/A	N/A	N/A
American Samoa	N/A	N/A	N/A	N/A
Commonwealth of the Northern Mariana Islands[2]	1	D	D	a

2002 Economic Census
NAICS code: 712130
D = Information withheld by Census to avoid disclosing data for individual companies
a = 0-19 employees
b = 20-99 employees
f =500-999 employees
[2] NAICS code 712 which designates museums, historical sites, and similar institutions. This category includes zoos and aquariums.

Table 3: Summary of statewide information on zoos, aquariums, and botanical gardens with federal tax-exempt status

State	Number of Establishments	Revenues and Receipts ($000's)	Annual Payroll ($000's)	Number of Paid Employees
Atlantic/Gulf of Mexico Region				
Alabama	6	9,815	4,884	257
Connecticut	6	D	D	e
Delaware	1	D	D	a
Florida	22	60,756	22,323	979
Georgia	11	D	D	f
Louisiana	6	D	D	f
Maine	6	D	D	b
Maryland	6	D	D	f
Massachusetts	13	50,387	17,125	676
Mississippi	2	D	D	b
New Jersey	7	D	D	e
New York	34	237,360	75,523	2,219
North Carolina	6	D	D	b
Pennsylvania	18	95,617	31,483	1,314
Rhode Island	1	D	D	b
South Carolina	5	10,703	3,793	165
Texas	22	131,268	41,775	2,102
Virginia	5	6,737	3,807	185
Puerto Rico	N/A	N/A	N/A	N/A
Virgin Islands	N/A	N/A	N/A	N/A
Pacific Region				
Alaska	2	D	D	b
California	32	268,086	104,104	3,622
Oregon	7	12,822	5,289	210
Washington	12	D	D	c
Pacific Islands Region				
Hawaii	12	D	D	c
Guam	N/A	N/A	N/A	N/A
American Samoa	N/A	N/A	N/A	N/A
Commonwealth of the Northern Mariana Islands	N/A	N/A	N/A	N/A

2002 Economic Census
NAICS code: 712130
D=Information withheld by Census to avoid disclosing data for individual companies
a= 0-19 employees
b= 20-99 employees
c=100-249 employees
e=250-499 employees
f=500-999 employees

Table 4: Summary of overall information on coastal food and lodging services

State	Number of Establishments	Revenues and Receipts ($000's)[1]	Annual Payroll ($000's)[1]	Number of Paid Employees[1]
Atlantic/Gulf of Mexico Region				
Alabama	956	713,581	202,919	18,299
Connecticut	4,502	4,979,638	1,454,704	80,017
Delaware	1,576	1,231,595	355,458	26,972
Florida	23,742	20,991,636	5,847,116	460,330
Georgia	1,113	1,040,073	300,917	24,583
Louisiana	3,384	3,408,930	972,762	76,709
Maine	2,446	1,346,224	393,600	25,814
Maryland	5,139	4,322,393	1,189,482	95,547
Massachusetts	8,572	7,172,834	2,103,016	139,707
Mississippi	723	1,701,789	472,684	27,523
North Carolina	1,626	997,181	277,497	26,059
New Hampshire	751	498,076	152,805	10,857
New Jersey	9,923	10,596,279	2,933,489	165,618
New York	22,802	19,302,622	5,535,678	309,156
Pennsylvania	4,045	2,742,606	734,949	54,681
Rhode Island	2,701	1,731,799	502,394	38,573
South Carolina	2,608	2,741,304	771,157	55,853
Texas	9,002	7,626,398	2,100,395	178,631
Virginia	2,695	2,125,937	556,374	52,167
Puerto Rico	4,133	3,360,226	732,147	63,810
Virgin Islands	313	331008	92,357	5,639
Region Total	112,752	98,962,129	27,681,900	1,936,545
Pacific Region				
Alaska	1,598	1,178,807	354,615	20,379
California	45,609	40,169,743	11,522,595	800,742
Oregon	1,909	1,058,286	305,453	25,221
Washington	9,212	6,275,983	1,874,094	139,301
Region Total	58,328	48,682,819	14,056,757	985,643
Pacific Islands Region				
Hawaii	3,138	5,551,380	1,604,706	85,641
Guam	392	629,672	168,623	11,199
American Samoa	99	21,335	3,598	536
Commonwealth of the Northern Mariana Islands	151	197,187	47,275	4,304
Region Total	3,780	6,399,574	1,824,202	101,680

2002 Economic Census

NAICS code: 72 (combined food and lodging industry category)

[1]The following coastal counties were excluded since information for these counties were withheld by the Census to avoid disclosing data for individual companies: Camden County, NC; Perquimans County, NC; Kenedy County, TX; Kleberg County, TX; Mathews County, VA; Surry County, VA; Aleutians East Borough, AK; Lake and Peninsula Borough, AK; Northwest Arctic Borough, AK; Wade Hampton Census Area, AK; and Kalawao County, HI.

APPENDIX N

DRAFT PEIS PUBLIC COMMENTS AND NMFS RESPONSES

UNIVERSITY OF HAWAI'I AT MĀNOA
Hawai'i Institute of Marine Biology

David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
NOAA
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Dr. Cottingham,

I am responding to the Draft Programmatic Environmental Impact Statement that I received for review on 19 March 2007 on the issuance of the "*Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation and Release*, and future biomonitoring and research activities". I think that the permit is a fine idea and I also believe that the research under that permit should be done correctly. I believe that the section under **APPENDIX H – General Descriptions of Research Methodologies Under the ESA/MMPA Permit** *requires* modification in its section **1.1.15 Auditory Brainstem Response/Auditory Evoked Potential.**

First of all, I believe that it is an error to not include the mysticete cetaceans in the research measuring hearing that can be measured using evoked potential procedures. There has been a previous Marine Mammal Permit issued to Dr. Sam Ridgway allowing Auditory Evoked Potentials to be measured on mysticete whales, and to exclude this sort of research now cuts off a very important and necessary source of information on this group of animals. There is no apparent justification for excluding this group of animals and they should be included in future efforts to measure the hearing of whales using auditory evoked potentials.

2. The first paragraph of 1.1.15 indicates that "sounds are presented through a jawphone attached to the lower jaw". That method of sound presentation is not the best method. While we are assured that bottlenosed dolphins hear well through their lower jaw, (Mohl et al 1999), many other species of odontocetes may not use this same pathway. One can be assured that sound is traveling through the best natural path, and that sound can be best measured in the free field, if it is presented in the water around the animal rather than through a jawphone. Sound presentation to all odontocetes in all Auditory Evoked Potential experiments for stranded animals should certainly not be limited to a "jawphone attached to the lower jaw". The lower jaw would also certainly not be the best place to present sounds to a mysticete.
3. The next sentence indicates that..."Recording, ground and reference suction cup electrodes are attached along the dorsal midline". That is also not necessary or required. Most animals held in water do not require a ground electrode. Only two electrodes are necessary. A suction cup electrode attached to the dorsal fin is certainly an excellent place to secure it with a suction cup. There is little myogenic electrical noise within the dorsal fin.
4. Many odontocetes that have been examined hear frequencies from 1 to 160 kHz. Some, like the harbour porpoise and the white beaked dolphin, hear as high as 180 kHz (Nachtigall et al, 2000). Some mysticetes, because of the frequency of their emitted signals, are thought to hear as low as 20 Hz. The written range of "Frequencies used for testing range from 5 to 120 kHz" written in section 1.1.15 severely, and unnecessarily, limits the hearing range tests of cetaceans.

Coconut Island, P. O. Box 1346, Kāne'ohe, Hawai'i 96744-1346
Telephone: (808) 236-7401, Facsimile: (808) 236-7443
An Equal Opportunity/Affirmative Action Institution

I believe that the Stranding Response Program should be permitting the testing of hearing of stranded cetaceans and other marine mammals by qualified and trained professionals. These tests both allow the measurement of new species and the diagnostic evaluation of the hearing of beached and stranded animals. This knowledge serves to benefit both the individual animals and their species. I do not believe that qualified scientists should be limited by the Auditory Evoked Potential guidelines currently presented in Section 1.1.15.

Sincerely,

Paul E. Nachtigall

References

Møhl, B., Au, W.W.L., Pawloski, J.L. and Nachtigall, P.E. (1999) Dolphin hearing: Relative sensitivity as a function of point of application of a contact sound source in the jaw and head region. *Journal of the Acoustical Society of America.* 105, 3421-3424

Nachtigall, P.E., Lemonds, D.W., and Roitblat, H. L. (2000) Psychoacoustic Studies of Whale and Dolphin Hearing. In: Au, W.W.L, Popper, A.N. and Fay R.J. (eds) Hearing By Whales, Springer-Verlag, New York pp. 330-364.

April 25, 2007

David Cottingham, Chief,
Marine Mammal and Sea Turtle Conservation Division, Office of Protected Resources,
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

RE: Environmental Impact Statement (EIS) on the Marine Mammal Health and Stranding Response Program (MMHSRP)

Dear Chief Cottingham,

I am strongly against the release of rehabilitated seals to the wild! I believe that the risks from virus' or diseases that released seals may have, and that may be transferred to the wild stocks, greatly outweighs the potential benefit, if any, of releasing a few individual animals.

Sincerely,

John Goodwin
Ice Seal Committee Member
Subsistence Hunter

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Native Village of Kotzebue
Kotzebue IRA

April 25, 2007

David Cottingham, Chief,
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources, National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Knowledge of Language
Knowledge of Family Tree
Sharing
Humility
Respect for Others
Love for Children
Cooperation
Hard Work
Respect for Elders
Respect for Nature
Avoid Conflict
Family Roles
Humor
Spirituality
Domestic Skills
Hunter Success
Responsibility to Tribe

RE: Environmental Impact Statement (EIS) on the Marine Mammal Health and Stranding Response Program (MMHSRP)

Dear Chief Cottingham,

The Native Village of Kotzebue, a federally-recognized Tribe representing 3,000 persons living in northwest Alaska, would like to express serious concern on the specific issue of rehabilitation and release of pinnipeds into Alaska waters. The Inupiaq people continue to have strong cultural and utilitarian attachments to pinniped stocks in Alaska waters. The health of these stocks is of utmost importance and of late an increasing number of threats have come to the fore; climate change, persistent organic pollutants, large scale trawling operations, increased shipping, oil and gas exploration and development. In light of these, and other activities that currently pose risks to healthy populations of marine mammals, it would seem irresponsible to allow for the continuation of release of individual animals at the risk of entire populations. For coastal areas outside of Alaska, where the cultural context and the roles that marine mammals play in societal priorities and values may be able to accommodate the risks involved, such a policy may be tenable. However, even in those places, unless you are dealing with populations that are at low enough levels where the importance of each individual is magnified, the policy of release should also be called into question.

Specifically, for Alaska, we suggest that an alternative policy should be in place to recognize the different societal values at play and also the federal responsibility to Tribal peoples and their cultural prerogatives which are necessary to sustain their livelihoods. If the Office of Protected Resources wishes to continue the policy of releasing rehabilitated pinnipeds into Alaska waters we believe that they should have to justify their position in relation to the benefits accrued outweighing the risk potential. Considerations in such a cost benefit analysis should give significant weight to the trust responsibility the federal government has to indigenous peoples and their cultural economies and any policies the federal government may implement that endangers those economies.

We suggest creating a new alternative under the **Release of Rehabilitated Animals** section that would *prohibit release of rehabilitated pinnipeds into Alaska waters*.

Thank you for your consideration and we look forward to your response in the Final EIS.

Sincerely,

Linda Joule

Linda Joule
Executive Director

333 Shore Avenue • P.O. Box 296 • Kotzebue, Alaska 99752
Phone: (907) 442-3467 • Fax: (907) 442-2162

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NATIONAL AQUARIUM IN BALTIMORE

Pier 3 / 501 East Pratt Street
Baltimore, Maryland 21202-3194
410 576-3800
410 576-8238 FAX: Aquarium
410 576-8641 FAX: Candler Offices

April 26, 2007

David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
NMFS 1315 East-West Highway, Room 13635
Silver Spring, MD 20910-3226

Dear Mr. Cottingham,

This letter, submitted on behalf of the National Aquarium in Baltimore (NAIB), addresses proposed alternatives as outlined in the Programmatic Environmental Impact Statement (PEIS) on the Marine Mammal Health and Stranding Response Program (MMHSRP). The NAIB supports the decision of the National Marine Fisheries Service (NMFS) to standardize the MMHSRP through the issuance and implementation of the Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release guidelines. We believe that NMFS has not only a need, but also an obligation to develop and implement national standards for marine mammal stranding response, rehabilitation, release, and disentanglement activities. The MMHSRP provides a vital service by facilitating the response to stranded marine mammals, as well as the collection of samples and data essential for effective management and conservation of these species and their habitats.

Staff from the Marine Animal Rescue Program (MARP) of the National Aquarium in Baltimore had the privilege of attending the PEIS public hearing in Silver Spring, MD, on April 6, 2007, where the preferred alternatives were presented. Following are specific comments relating to each preferred alternative.

1. Stranding Agreements and Response Preferred Alternative (A4): *Under this alternative, NMFS would implement the final Stranding Agreement evaluation criteria. Stranding Agreements would be issued on a case-by-case basis to those entities meeting the criteria (including renewals and new applicants), utilizing the new template. New Stranding Agreements would include current and future stranding response activities.*

The NAIB supports the alternative for implementing a National Template for Marine Mammal Stranding Agreements. Our Marine Animal Rescue Program has always strived to maintain high standards and excellent written protocols, and we fully support measures that will further advance our own operations and Stranding Network goals. However, providing the scope and volume of information required in the General Evaluation Criteria for Stranding Agreement renewal will take many weeks of dedicated effort — a task that many organizations that rely on volunteer services, including ours, may

be unable to achieve in the foreseeable future. We urge NMFS to develop a simpler process, particularly for Stranding Agreement renewals. One possibility would be to reduce the written component and rely more on NMFS inspection teams to conduct onsite evaluations. It would be highly regrettable to implement a process so burdensome that it would impede the ability of network members in good standing to continue to participate in this important program.

2. Carcass Disposal Preferred Alternative (B3): *Under this alternative, NMFS would advocate the removal of chemically euthanized animal carcasses off-site for disposal by incineration, landfill, or other methods, such as composting. Animals that die naturally or are euthanized by other means may be disposed of by whatever means feasible and allowed.*

The NAIB understands the potential negative impacts that chemically-euthanized carcasses may have on the natural environment and other animals, and supports the alternative to transport these carcasses off-site for disposal when possible. The NAIB also understands that every situation involving chemically-euthanized carcasses is unique (site location, size of animal, proximity to other federally protected lands/species, etc.), and that relocation of these carcasses is not always feasible. Incidents involving large whales and mass strandings are particularly problematic: the volume of euthanized animals can be great and the costs of removal even greater. The costs related to carcass removal in such events should be shared by local landowners or local/state agencies. This would require advanced development of cost-sharing agreements with these parties, particularly in areas where strandings are common.

"Other methods" of disposal, as listed above, should be further defined and a list of specific, approved disposal methods should be listed in detail. There is the potential for individuals or facilities to loosely interpret "other methods" as a means of disposal; for example, "composting" could be interpreted as burial at the stranding site, which contradicts the intent of the recommendation. The NAIB also recognizes the need to identify alternative disposal methods for non-euthanized carcasses.

Guidelines are also needed for euthanasia, particularly of large whales. Research should be funded to identify or develop methods of euthanasia that are humane, efficient, and pose minimum risks to human safety and environmental health.

3. Rehabilitation Activities Preferred Alternative (C3): *Under this alternative, NMFS would continue the current rehabilitation activities of the stranding network, with the ability to designate new rehabilitation facilities and modify rehabilitation activities, if necessary. The final Rehabilitation Facility Standards would be implemented.*

The NAIB supports the Rehabilitation Facility Standards and agrees that guidelines for live animal response, rehabilitation, and release should be directed by NMFS with input from regional stranding coordinators and local Stranding Agreement holders.

Public display of animals in rehabilitation should be investigated and defined. The Marine Animal Rescue Program recognizes the value of public outreach on marine mammal health and stranding response. Our outreach efforts are more effective when the public can make a personal connection to an animal, especially one that strands due to a human-related injury (marine debris ingestion, boat strike injury, gunshot, etc.). We believe a middle ground can

be achieved, through technology and facility design, that will allow public viewing with no adverse effects on the animals. These opportunities increase public awareness and support for the stranding network and the MMHSRP.

Finally, financial assistance must be made available for rehabilitation facilities, and we strongly support the continuation of the John H. Prescott Marine Mammal Rescue Assistance Program. Priority funding should be awarded to organizations that seek to achieve or exceed minimum standards.

4. Release of Rehabilitated Animals Preferred Alternative (D3): *Under this alternative, NMFS would continue the current release activities of the stranding network, with the ability to modify release activities, when necessary. The final release criteria would be implemented.*

The NAIB supports the implementation of the Release Criteria. However, there are several topics that are not addressed in the current release guidelines. The criteria for immediate release, relocation and release, and post-rehabilitation release should be clarified, as each scenario requires a different type of health assessment. Also, post-release monitoring of animals should be encouraged or strongly recommended when appropriate, and funds to support these activities should be made available.

5. Disentanglement Activities Preferred Alternative (E3): *Under this alternative, NMFS would continue the current activities of the disentanglement network, with the ability to add new participants and modify disentanglement activities and technologies, when necessary. Current and future Stranding Agreements would continue to allow disentanglement of pinnipeds and small cetaceans. The new ESA/MMPA permit would be issued and would authorize the current and future disentanglement activities of ESA-listed species. The East Coast network would continue their current activities. Modifications would be made to the West Coast network to coordinate the structure and training with the East Coast network. The Disentanglement Guidelines and training prerequisites for network participants would be implemented nationwide.*

The NAIB supports the implementation of an effective and coordinated national disentanglement network. Good training is essential to improve human and animal safety. Stranding network participants should receive basic disentanglement training for response to local pinniped and small cetacean entanglements.

6. **Biomonitoring and Research Activities Preferred Alternative (F3):** *Under this alternative, NMFS Office of Protected Resources, Permits, Conservation and Education Division would issue the MMHSRP a new ESA/MMPA permit that would include the current and future biomonitoring and research activities.*

The NAIB supports the issuance of a new permit for current and new research projects. Stranded marine animals provide an excellent opportunity to monitor not only individual and species health, but ocean health in general.

In closing, we would like to thank the National Marine Fisheries Service for giving members of the stranding network and the public the opportunity to respond and comment on the preferred alternatives. We commend and applaud the efforts put forth by MMHSRP staff to draft the Programmatic Environmental Impact Statement and would like to thank you for the opportunity to participate in the EIS process. We have enjoyed being a member of the Northeast Region Stranding Network for nearly 16 years, and look forward to continuing our cooperative relationship with the network and NMFS.

Sincerely,

Brent R. Whitaker M.S., D.V.M.
Deputy Executive Director for Biological Programs
National Aquarium in Baltimore

Jennifer Dittmar
Stranding Coordinator
Marine Animal Rescue Program
National Aquarium in Baltimore

North Slope Borough

OFFICE OF THE MAYOR

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Edward S. Itta, Mayor

April 26, 2007

David Cottingham
Chief
Marine Mammal & Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service, NOAA
1315 East-West Highway
Silver Spring, MD 20910

RE: Draft Programmatic Environmental Impact Statement for the Marine Mammal and Stranding Response Program

Dear Mr. Cottingham:

The North Slope Borough appreciates this opportunity to comment on the Draft Programmatic Environmental Impact Statement for the Marine Mammal and Stranding Response Program, specifically with respect to the sections pertaining to the release of rehabilitated animals. The borough's Department of Wildlife Management more detailed comments are provided in an attachment to this letter.

The North Slope Borough is in agreement with the Ice Seal Committee, the Alaska Nanuuq Commission and the Eskimo Walrus Commission in their opposition to activities that may be harmful to our residents or the subsistence wildlife on which we depend. The reintroduction of rehabilitated marine mammals into the waters surrounding the borough conveys risks to our subsistence species through the possible introduction of transmissible wildlife diseases. Additionally, our residents could potentially be at risk if these diseases were zoonotic.

We are highly dependent on our wildlife, both nutritionally and culturally. The positive effects of reintroducing one animal into our surrounding marine mammal populations are small to non-existent, while the risks are potentially very large.

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It is our desire that NOAA will address our concerns in its revised MMHSRP SEIS document. We would like NOAA to recognize these risks and make an exception to its reintroduction rule by prohibiting the reintroduction of rehabilitated marine mammals into subsistence populations of marine mammals.

Again, thank you for the opportunity to comment and we appreciate your consideration of our request. For further information, please feel free to contact our Department of Wildlife Department.

Sincerely,

Edward S. Itta

Edward S. Itta
Mayor

cc: Taqulik Hepa, Director NSB Department of Wildlife Management
Johnny Aiken, Director NSB Planning Department
Ice Seal Commission
Alaska Nanuuq Commission
Eskimo Walrus Commission

#5

NORTH SLOPE BOROUGH
Department of Wildlife Management
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Taqulik R. Hepa, Director

April 27, 2007

David Cottingham
Chief
Marine Mammal & Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service, NOAA
1315 East-West Highway
Silver Spring, MD 20910

RE: Draft Programmatic Environmental Impact Statement for the Marine Mammal and Stranding Response Program

Dear Mr. Cottingham:

The North Slope Borough Department of Wildlife Management (NSB-DWM) wishes to comment on NOAA's Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program, specifically with respect to the sections pertaining to the release of rehabilitated animals.

The North Slope Borough Department of Wildlife Management facilitates sustainable harvests and monitors populations of fish and wildlife species through research, leadership, and advocacy from local to international levels. We specifically focus on subsistence species, including marine and terrestrial mammals, birds and fish.

Subsistence species are critical to the residents of the NSB, both culturally and nutritionally. We do not feel that the full range of potential adverse effects related to release of rehabilitated animals into subsistence species populations has been adequately addressed in the EIS.

As noted in the EIS, there are potential adverse effects associated with the release of rehabilitated animals back into the wild. The specific danger noted is:

04/30/2007 12:59PM

"*Released animal could carry a zoonotic disease and infect wild population*" (ES-10).

This point needs to address subsistence concerns (as does the EIS in general). It also should be expanded to include both zoonotic and non-zoonotic diseases, as both could affect population status and the subsistence users that consume reintroduced subsistence species or animals that come in contact with them. This concern is specific to Alaska.

With respect to population effects: there are no known endangered pinniped populations along the coasts of the North Slope Borough. The situation is similar for small cetaceans. It is reasonable to say that the reintroduction of one or even several rehabilitated animals into this region is unlikely to have a positive effect on the population status of a given species. The point that we would like clarified in this document is that there are several potential *negative* effects that may occur.

Animals under rehabilitation are potentially exposed to pathogens (both common and novel) introduced into the facility by other sick animals from different geographic areas/species groups. Regardless of the amount of care taken to avoid this by the rehabilitation facility, the possibility exists. In addition, animals admitted to these facilities are generally ill and are subsequently subjected to the additional stress of capture, transport and captivity. These additional stressors are likely to be immunosuppressive and therefore make the animal more susceptible to pathogens that it has previously been exposed to or carries, as well as pathogens it is "naïve" to. Stress-induced, sub-clinical activation of pathogens may also occur. Latent pathogens may pose an important infectious disease risk to marine mammals involved in rehabilitation. The risk likely increases as the rehabilitation duration increases. Risks associated with most bacterial, fungal, viral, and parasitic pathogens can potentially be *reduced* by a suitable quarantine period before release and by appropriate medical care. However, latent viruses are unaffected by such actions. Immune stress resulting from captivity/transport/handling may allow increased reactivation of viruses and may increase the incidence and duration of viral shedding. Such a result may increase the concentration of viruses in the rehabilitation facility environment, increasing the odds of transmission.

Increased susceptibility to disease may have several consequences for the residents of the NSB. The subsistence culture is dependent upon these species for survival. Any pathogen that directly threatens or affects the population health of a given subsistence species, in turn, affects the subsistence user. Population decline leading to decreased hunting success may be the most direct effect. Diseased or undesirable subsistence hunted animals unfit for consumption are other potential outcomes. Additionally, the species affected may not be the one reintroduced into the environment. A rehabilitated animal exposed to a pathogen (i.e., a viral disease), latent or non-latent, may function normally or adequately enough to allow for release. This pathogen may not affect this species directly, but may be transmitted to and have devastating effects on other species that share habitat with this animal.

#6

Of utmost concern are the potential effects of the introduction of a zoonotic disease into populations of any subsistence species, directly or indirectly. The real or perceived infection of subsistence species with a disease transmissible to humans would be disastrous to the communities of the NSB. We have already dealt with this on a smaller scale with respect to avian influenza (AI): after the large amount of media attention given to AI last spring, many residents of the NSB were reluctant to hunt waterfowl, even though the highly pathogenic strain of the disease had not been found in Alaska. The consequences of a confirmed zoonotic disease in a marine mammal population are likely to be much more serious, from economic, cultural and nutritional perspectives.

The average income of NSB residents is $20,540 and 12 % of NSB residents live at a living standard below poverty level. The vast majority of residents depend upon subsistence resources for a large proportion of their food. This is of economic significance, as store-bought food alternatives are very expensive in the NSB. It is also important nutritionally, as the Inupiat diet has been subsistence-based for thousands of years and this is what this culture is adapted to consuming. It has been shown in several different studies that store-bought, Western foods are detrimental to the health of the Inupiat, therefore, any threat that renders subsistence foods undesirable to eat or less/un-available is a direct threat to this culture.

Thus, in keeping with resolutions passed by the Ice Seal Committee, Alaska Nanuuq Commission and the Eskimo Walrus Commission, we oppose the reintroduction of rehabilitated animals into waters that are habitat for subsistence species. We urge NOAA to add these subsistence concerns into this EIS and to recognize these risks by prohibiting the reintroduction of rehabilitated marine mammals into subsistence populations of marine mammals.

We thank you for this opportunity to comment on these issues that are so important to the residents of the North Slope Borough. We are happy to provide any additional clarification that may be needed.

Sincerely,

Taqulik Hepa

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Provincetown Center for Coastal Studies
30 years of discovery and commitment

David Cottingham, Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

April 30, 2007

Dear Mr. Cottingham:

Re: Draft Programmatic Environmental Impact Statement on the Marine Mammal Health and Stranding Program

The Provincetown Center for Coastal Studies (PCCS) supports all the preferred alternatives proposed for Marine Mammal Health and Stranding Response Program (MMHSRP) in the Draft Programmatic Environmental Impact Statement (DPEIS). The MMHSRP is a vital program that enhances conservation of marine mammals. We are encouraged by the steps taken toward consolidating and strengthening national standards and guidelines in these fields. PCCS would particularly like to express strong support of alternative E3 relating to disentanglement activities conducted under the MMHSRP and also offer comments specifically addressing aspects of the DPEIS related to disentanglement of large cetaceans which PCCS has considerable experience with over the past 23 years.

Evaluation of the need for disentanglement response alternative E3

In the 1994 reauthorization of the Marine Mammal Protection Act (MMPA) of 1972, Congress and the President charged the National Marine Fisheries Service with the task of reducing the serious injury and mortality of all marine mammals to "insignificant numbers approaching zero" by April 30, 2001. We are now almost six years beyond the Zero Mortality Rate Goal deadline of the MMPA and the large whale entanglement rate has shown no signs of abatement. Endangered whales continue to die in unsustainable numbers from entanglement in commercial fishing gear regulated by U.S. and Canadian law.

Most large whale entanglements are an unintended consequence of commercial fishing operations that are regulated by state and federal governments. Whales become entangled in every part of fixed fishing gear systems, such as is found in trap/pot fisheries and gillnets fisheries. Entanglements in both derelict and mobile gear are also reported. So while it is correct to call entanglements "incidental" it is incorrect to refer to them as

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"accidental." Entanglements will kill and injure large whales as long as we continue to fish with current techniques – it is no accident.

Entangled whales, even when they survive the initial risk of drowning, often succumb to complications from their injuries or to starvation over time. These whales may travel thousands of miles dragging gear with them and death can occur months or even years after becoming entangled. Emaciated whales sink quickly upon death. As a result, most large whale entanglement deaths go unreported and no reliable mortality statistics exist. The most credible estimates of large whale entanglement rates come from photographic analysis of the scars on whales that survive. Approximately 3 out of every 4 North Atlantic right whales and at least 1 out of every 2 humpback whales in the Gulf of Maine population bear scars from becoming entangled in fishing gear. At least 10% of both these populations will acquire new entanglement scars each year. Although the entanglement problem may be best documented along the Atlantic coast of North America, it is a world wide problem with numerous documented cases in U. S. Pacific waters of Hawaii, Alaska, and the continental states.

Under the auspices of the MMHSRP, the Provincetown Center for Coastal Studies coordinates the emergency responses conducted by the Atlantic Large Whale Disentanglement Network (Network) that benefit the welfare of individual whales in distress from entanglement and collects scientific information about the causes and effects of entanglement. For populations or species with extremely low numbers of individuals, such as the North Atlantic right whale, saving any females may help tip the balance toward survival rather than extinction. The Network disentangles ~72% of the entangled whales that well-trained and equipped disentanglement teams can actually get to on the water, giving those whales a better chance to heal, recover, and hopefully reproduce. Disentanglement activities conducted under the MMHSRP improve the scientific understanding of entanglement by providing opportunities to collect critical data from affected animals.

Despite any benefits for individuals, disentanglement efforts should not be regarded as a long term conservation strategy to save endangered whale populations. It is important to understand that disentanglement cannot reverse injuries whales sustain during entanglement. These injuries are "takes" under the MMPA and may have health and reproductive consequences for the whales. Furthermore, more than two decades of experience suggests that only a small fraction of whales that become entangled will be reported. This is because reports of entangled whales depend largely on seasonal research survey efforts and opportunistic sightings. Even when an entangled whale is seen and reported, it is sometimes impossible for disentanglement teams to respond because of the distance, weather, time of day, or other factors. The greatest benefits for whale populations will ultimately rely on applying information gathered during disentanglement activities to designing and implementing effective regulations that prevent entanglements.

Until adequate take reduction measures are in place to achieve the Zero Mortality Rate Goal of the MMPA, disentanglement activities will remain an essential

method to respond to animals in distress and to collect detailed documentation of all aspects of whale entanglements and the health of animals involved. Disentanglement activities will continue to be needed to document that any take reduction measures enacted are actually having the desired effect. Setting national standards and guidelines for disentangling large whales and for collecting quality data is a critical step in ensuring that disentanglements are carried out as safely as possible and the necessary data are consistently gathered.

In that regard alternative E3 is a step in the right direction. This alternative allows for adding new disentanglement responders, and could benefit human safety by setting national standards for training in proven techniques and encouraging development of new disentanglement techniques as needed. Better and more uniform training across the nation will help all responders understand the need and reasons for documenting entanglements. Furthermore, implementing a network structure for disentanglement activities in all U. S. waters similar to that now utilized in Atlantic waters off the East coast will help ensure operational efficiency, maximizing the benefits of these opportunistic events and making the best use of limited resources for response.

Specific Comments

We cannot emphasize enough that disentangling large whales is very dangerous. The fact that PCCS has not had an injury during 23 years of disentanglement activity is testimony to the development of safety protocols and extensive training of Network members. The definitions, responsibilities, and training criteria used by PCCS have been the foundation on which the Network protocols and safety record have been built. A copy of current definitions of key disentanglement roles and training levels used by PCCS is attached for consideration.

PCCS has some concerns about the "Draft NMFS criteria for disentanglement roles and training levels" contained in the Interim Policies and Best Practices for Marine Mammal Response, Rehabilitation and Release section at the end of Appendix C. We realize that setting and implementing national standards takes time and this draft is to be used as a set of "Interim Disentanglement Guidelines". We believe there is room for improvement in the criteria and training levels set forth in this document.

The definitions, responsibilities, and criteria should be realistic if they are to be realized. The definition of Primary Disentanglers states that they "must have the experience, training, support and proper equipment at the time of the event to conduct a full disentanglement with a high likelihood of success." The "likelihood of success" for any given disentanglement event depends on a combination of many variables, such as the nature of the entanglement, whale behavior, and weather conditions, that are beyond the control of a Primary Disentangler. The fact that "Primary Disentanglers must have the experience, training, support and proper equipment at the time of the event to conduct a full disentanglement" is sufficient. We recommend that the words "with a high likelihood of success" be deleted.

There is no substitute for the give and take interactions that live training opportunities provide. PCCS encourages that two certified national training centers, one on the Atlantic coast and one on the Pacific coast, be established to accomplish the goal of implementing the national standards and guidelines. Having clearly designated certified training centers will greatly facilitate implementation of standardized training so that the full benefits to human safety of Alternative E3 can be realized. Training would not occur exclusively at these training centers; rather those conducting disentanglement training would come from the certified training centers. This model has proven to be very effective on the Atlantic coast where PCCS has hosted trainees in an apprenticeship program and also sent staff to train Network members at various locations.

The training video referred to in Level 1 and 2 criteria was created by PCCS specifically for distribution to U. S. Coast Guard stations to present Level 1 information to Coast Guard personnel. While much of the information is still relevant and accurate, the video is somewhat dated. Viewing this video is not a substitute for on-water experience or training and should be deleted as an "or" criteria listed for Level 2 certification.

Definition of criteria for certification should be improved. Requiring completion of Level 1, Level 2, and Level 3 classroom or on-water training without some indication of the objectives of the training is vague. It should also be recognized that some people have extensive skills and experience that is applicable. We suggest the following objectives be incorporated to help clarify the criteria:

Level 1

- Level 1 classroom training covers definition of entanglement with examples, information on species usually involved, need for standby, documentation, overview of basic assessment and disentanglement objectives and techniques.

Level 2

- Documented whale experience or at-sea training, including species and individual ID, visual tracking (standing-by), disentanglement operation protocols, basic understanding of equipment (including telemetry), and disentanglement strategy.

Level 3

- Demonstrated understanding of Network protocols and authorizations.
- Demonstrated understanding of, and ability to use specialized tools including telemetry equipment.
- Demonstrated understanding of disentanglement strategies, planning, and techniques.

There are inconsistencies between the responsibilities and certification criteria for some of the Levels. For example, Level 2 personnel are tasked to "provide a thorough assessment of the nature of the entanglement and the species, condition and behavior of the whale", but specific knowledge of species ID and behavior is not required until Level 3 certification. The Level 2 criteria suggested above should help rectify this discrepancy. Level 3 personnel are critical to the success of Network response. In some areas they are the only Primary First Responders available. The stated objectives of training above will

help ensure that Level 3 personnel will be able to safely fulfill the responsibilities listed, especially disentanglement operations.

Level 3 responders may be authorized to disentangle whales under supervision. We suggest striking the words "a minor entanglement with potential to adversely affect" in the last bullet point under responsibilities for Level 3 responders. The bullet point would then read:

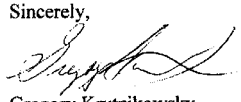
- May be asked (depending on experience) to disentangle any whale other than right whales under the supervision/authorization of Level 4 or 5 network members. Authorization and supervision may be given over the phone or radio depending on the circumstances and level of experience.

In our experience the severity and complexity of the entanglement does not correlate with the difficulty and dangers involved in disentanglement. A "minor entanglement with potential to adversely affect" a whale may be far more difficult and dangerous to disentangle, from a human safety aspect, than a severe entanglement deemed to be life-threatening to the whale. The suggested change will allow greater flexibility to take into account the specifics of the situation and personnel involved. PCCS has used the criteria "to prevent the imminent death of the whale or when it is determined that waiting for a Primary Disentanglement Team is unnecessary and/or tagging is a poor option" with Level 3 responders. We rely heavily on the assessment of the specific situation by the team on scene, take their experience into consideration and define the "circumstances" as being "relatively low risk to personnel with a high likelihood of success".

Finally, while listing the Primary First Responders (Level 3-5) in Appendix F is useful, listing Level 2 Network members may not be necessary. Level 2 is a large category and the associated responsibilities under the permit are far more limited. The list of active Level 2 Network members changes continually as new people are trained and trained people move, change jobs or move on to other endeavors. It also appears that the list of Level 2 personnel in Appendix F may be more complete for some regions than for others. Less than 5% of the Level 2 personnel in the NMFS Northeast and Southeast regions are listed. We can provide a more complete list if needed.

Thank you for the opportunity to comment on the DPEIS for the MMHSP. We believe that incorporating the recommendations made here will benefit operational efficiency, data quality, and human safety.

Sincerely,



Gregory Krutzikowsky
Director, Large Whale Disentanglement Program
Provincetown Center for Coastal Studies
5 Holway Ave.
Provincetown, MA 02657

DEFINITIONS OF KEY DISENTANGLEMENT ROLES AND TRAINING LEVELS

Provincetown Center for Coastal Studies

What follows is a set of definitions and guidelines for Network members that are applicable to the entire U.S. Atlantic Large Whale Disentanglement Network. Specific training curricula are not presented here.

Levels of Participation in the Disentanglement Network - Definitions

First Responder is a general term that is used to describe anyone in the Network with any level of training who may respond to an entanglement report under Network protocols and authorization. At a minimum a First Responder will voluntarily attempt to **standby** with an entangled whale and, depending on training, experience, authorization, and equipment available, may also **assess** and perhaps **tag** the whale. In certain cases individuals with higher Network responsibilities (Levels Three, Four, and Five) will serve as **Primary First Responders** in local areas. Primary First Responders are the principal local contacts for the Network. They typically organize efforts locally, have access to vessels and specialized equipment, and are on call full-time (may be seasonal). Primary First Responders may attempt disentanglements during first response only under certain conditions and authorization (described below).

Any **First Responder's** anticipated range of tasks is generally dependent upon Network classification. Member classifications are determined on an individual basis using a variety and combination of factors including, but not limited to:

- Preexisting experience and skills
- Training
- Opportunity and available resources
- Location
- Commitment and ability to respond as appropriate.

Primary Disentanglers are individuals who can perform all of the responsibilities of a first responder, but who also meet the criteria used by NMFS for selecting individuals who may undertake the very dangerous activity of disentangling (i.e. attaching to an entanglement, stopping, and cutting a whale free). Primary Disentanglers must have the experience, training, support and proper equipment to conduct a full disentanglement with a high likelihood of success. **Primary Disentanglers are those rated at Level Four and Five in the network.**

Authorization note
Only PCCS holds blanket standing authority to conduct disentanglement activities along the U.S. Atlantic coastline under federal authorization; no blanket authority is granted to individual Network members. Therefore all activities that may require federal authorization must be done under the supervision and permission of the Provincetown Center for Coastal Studies.

Personal risk
All responders are responsible for making their own judgment in regard to personal risk and must always work within their level of confidence regardless of its bearing on a mission's outcome.

Network Training and Response Levels

All training and authorization is limited to those with prerequisite professional marine experience - (i.e. fishermen, whale watchers, Marine Patrol Officers, marine scientists)

LEVEL 1

Responsibilities
Report, standby, assess (within experience)

- Rapidly alert Network with first-hand and/or second-hand knowledge of local entanglements
- If possible, initiate contact with vessel reporting an entanglement and the Coast Guard with offer to stand by entangled whale, as needed

Level 1 training criteria

- Preexisting skills and experience (this could come from professional fishing, field biology, marine law enforcement, whale watching, etc.)
- Completed Level 1 classroom training and provided contact information

LEVEL 2

Level 2 responsibilities

- All Level 1 responsibilities
- A higher expectation of commitment and participation
- Dedicated response for confirmation and stand-by, if requested
- Coordinate or assist the local management of first response (crowd control, contact info, etc.)
- Provide local knowledge, transportation, and assistance to Primary First Responders, as needed, on a voluntary basis
- On call, as available, to assist in planned disentanglement operations on telemetry tagged whales

Level 2 training requirements

- Level 1 qualification
- Documented whale experience or at-sea training, including species and individual ID, visual tracking (standing by), disentanglement operation protocols, basic understanding of equipment (including telemetry), and disentanglement strategy.

LEVEL 3

Level 3 responsibilities

- All Level 1 and Level 2 responsibilities
- Responsible for local readiness
- On call - must be reachable and prepared to respond if conditions allow
- Initiate and maintain preparedness with local fishing industry, Coast Guard, and other resources.
- Prepare local disentanglement preparedness plan (first response).
- Provide entanglement assessment, documentation, recommendations during first response
- Attach telemetry equipment to whale if needed and authorized
- Disentangle any whale, <u>except right whales</u>, under supervision (phone or radio) of PCCS and only to prevent the imminent death of the whale or when it is determined that waiting for a Primary Disentanglement Team is unnecessary and tagging is a poor option (low risk, high likelihood of success)

- Directly assist primary disentanglers aboard inflatable during disentanglement operations if requested

Level 3 requirements

- Level 2 qualification
- Demonstrated understanding of Network protocols and authorizations
- Demonstrated understanding of, and ability to use, specialized tools, including telemetry equipment
- Demonstrated understanding of disentanglement strategy, planning, and technique
- Direct experience in disentanglement under Network protocols (assisting, documenting, etc.)
- Rapid access to tools and vessels, as available
- Strategic location
- Willing and committed to providing full-time on-call service (coverage may be shared among other local Level 3 members)
- Determination of qualification by PCCS and NMFS based on, but not limited to, assessment of all of the above criteria
- Insurance required, preferably through member's organization

LEVEL 4

Level 4 responsibilities

- Report, stand by, assess, document, attach a telemetry buoy, consult on an action plan
- Direct on-site disentanglement operations of any whale, <u>except right whales</u>.
- Commitment to Consultation to include:
  - Immediate Consultation: when possible, use satellite/cell phones to bring in additional expert ideas/experience while on scene with an entangled whale
- On a case by case basis after consultation certain cuts on entangled right whales may be permitted at level 4 ***if the proposed action is first approved by a Level 5 member and NMFS authority (Rowles).***

Level 4 requirements
All Level 3 qualifications plus advanced experience and proven competence

- Determination of qualification by PCCS and NMFS based on assessment of, but not limited to, all of the above criteria
- Positive evaluation from NMFS using information provided by PCCS/Network Coordinators and documentation (e.g. video)

LEVEL 5

Targeted Individuals: Level 4 Responders

Level 5 responsibilities

- All Level 4 responsibilities in response to all species including North Atlantic right whales
- Commitment to Consultation to include:
  - Immediate Consultation: when possible, use satellite/cell phones to bring in additional expert ideas/experience while on scene with an entangled right whale
- Action Plan consultation participant for active entangled whale cases along with NMFS managers and other disentanglement, and whale experts.

Level 5 Requirements

- Extensive large whale disentanglement experience under Network strategies and protocols
- Extensive experience operating vessels around right whales
- Documented participation in a right whale disentanglement

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David Cottingham, Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

May 9, 2007

Re: Draft Programmatic Environmental Impact Statement on the Marine MammalHealth and Stranding Program

Dear Mr. Cottingham:

Many of our comments have come up in the process; however, we have several additional minor comments/ recommendations to submit.

First, under Appendix F, we see no need to list level 2 or lower level responders under the Marine Mammal Disentanglement Network table. While it is important to have a list of the different responders and their levels, for the sake of standardization (mirror the listing for the Northeast Region), only level 3 and higher should be listed in this particular table within Appendix F.

It has been noted by several people involved in the Marine Mammal Disentanglement Network that the level designation should be reversed to coincide with designations standard in the Incident Command System structure (lower numbers actually represent the higher risk, greater experience roles). This is a minor point that might help integrate disentanglement response with other agencies' ICS response efforts.

Also under Appendix F, we noticed that the following responders, along with their level designations, were missing from the Alaska Region:

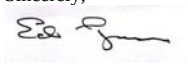
Steve Lewis, Tenekee Springs, AK – level 3 *
Chris Gabriele, Nat. Park Service, Glacier Bay National Park, Gustavus, AK – level 4 *
Pieter Folkens, Alaska Whale Foundation, Petersburg, AK – level 3 *
Sean Hanser, Alaska Whale Foundation, Petersburg, AK – level 3 *
Sara Graef, Alaska Whale Foundation, Petersburg, AK – level 3 *
Jan Straley, University of Alaska, Sitka, AK – level 4
Fred Sharp, Alaska Whale Foundation, Petersburg, AK – level 4
Dan Vos, Anchorage, AK - level 3

* Have been listed under other regions.

Within Appendix H, on page 6 (H-4) a description of the general disentanglement procedures for large whales should include at least the use of sea anchors and perhaps the drag of small boats, in addition to floats to slow, provide some control, and maintain at surface large whales during disentanglement efforts. This would better mirror what is written within the body of the DPEIS.

The DPEIS has strong ramifications regarding marine mammal response efforts of the MMHSRP, and we appreciate the opportunity to comment.

Sincerely,



Edward Lyman
Marine Mammal Response Manager
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Kihei, HI 96753

Cc: David Mattila, Research and Rescue Coordinator for HIHWNMS

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Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Md. 20910

24 May 2007

Re: Draft Programmatic Environmental Impact Statement on the Marine Mammal Stranding and Health Response Program (MMSHRP)

Dear Mr. Cottingham, David

On behalf of the more than 9 million members and constituents of The Humane Society of the United States (The HSUS), I am writing to comment on the Draft Programmatic Environmental Impact Statement on the Marine Mammal Stranding and Health Response Program (the DEIS). We appreciate the National Marine Fisheries Service's (NMFS) effort to evaluate the impacts of response to strandings of marine mammals and evaluation of information that leads to a better understanding of their health and that of the environment in which they live. I am, not only a former member of a stranding network, but also an emeritus member of the Working Group on Marine Mammal Unusual Mortality Events (WGMMUME). I know first hand of the effort and expense involved in stranding response and health assessments and the critical nature of coordination and support from the NMFS.

The HSUS has no overarching concern with the sufficiency of the DEIS, and we find that it takes a much more thorough and appropriately systematic and in-depth look at the program than did another recent Draft Programmatic Environmental Impact Statement for Research on Steller sea lion and Northern fur seal research. These two DEIS's stand in stark contrast to one another. This DEIS provides a more appropriate specificity and acknowledgement of what is known and unknown, with a more appropriate evaluation of impacts. Further, this DEIS more appropriately provided a number of options for various aspects of the program (e.g., stranding agreements, carcass disposal, rehabilitation activities, etc) whereas the Steller sea lion DEIS did not allow for disparities in species status and greater need for conservatism in choice of alternatives for some species. The approach taken in the Stranding DEIS allows for different alternatives to address disparate aspects of the program. This is a helpful approach.

Promoting the protection of all animals
2100 L Street, NW, Washington, DC 20037 ▪ 202-452-1100 ▪ Fax: 202-778-6132 ▪ www.hsus.org

General Comments

The HSUS has a number of specific comments on chapters and appendices but we wish to raise some general concerns that are overarching across many sections before providing comments on particular chapters and appendices.

There is research proposed under this DEIS. We have noted previously in our comments on the Steller sea lion EIS, that the NMFS does not have an Institutional Animal Care and Use Committee (IACUC) for its own researchers. We also note that it is not a signatory/ subscriber to standards published under the Interagency Review Animal Committee (IRAC), although other government agencies are (e.g. Department of Interior). It is imperative that research undertaken or funded by the federal government adhere to standards of the Animal Welfare Act and that government agencies uphold the same standards required of other institutions engaged in research (i.e., IACUC oversight and adherence to IRAC principles). The DEIS should contain an explanation of whether and how the federal government is complying with these standards and if its research does not have this type of oversight and adherence to standards, why not.

We are gratified that the NMFS has taken the step of putting guidance into writing, but these are only guidelines, not regulations. It would seem important to consider providing regulations with additional minimal facility standards, personnel qualifications, staffing patterns and other aspects of facility-based rehabilitation to assure that animals are properly cared for and that the care is uniform nationally and not variable depending on where the animal has the misfortune to strand. Regulations also facilitate enforcement of standards of care.

We are concerned that the stranding response program should make every effort to facilitate beach release of newly stranded animals. While we understand the desire to, and need for the ability to, test animals on the beach; taking time to gather blood samples and do extensive monitoring should not detract from the mission of getting animals back into the water in the case of mass strandings of small cetaceans (e.g. dolphins, pilot whales). We have seen instances in which beach coordinators specifically instruct responders not to return small cetaceans to the water until all biological sampling that can be done is completed. This delay in returning them to the water may compromise the animal's condition. Releases in other countries (e.g., New Zealand) are usually accomplished expeditiously and they should be here as well, since most studies have indicated that mass stranded animals are generally healthy. It is not clear from the protocols described in the DEIS that this is the goal or priority. It should be.

Further, we believe that animals should not be taken into rehabilitation facilities if they are poor candidates for release. This has happened with some regularity with small cetaceans (i.e., neonates being taken in, animals missing or with necrotic body parts, seriously ill animals). It is also not clear that the protocol described in the DEIS and its appendices will prevent this current problem from occurring in the future.

The DEIS does not discuss in any detail what investigation should be undertaken determine whether human interaction has occurred nor how best to document it in dead animals. Increasingly take reduction teams mandated by the Marine Mammal Protection Act (MMPA) are relying on stranding data to provide evidence of interactions that may be occurring in times, areas or fisheries that are not monitored by observer coverage aboard fishing vessels. Further, the only evidence of large cetacean interactions with ships and commercial fishing gear comes from thorough necropsy. Some specificity might be provided with regard to standards for accurate determination and documentation of human interaction.

Finally, we are concerned with unfunded mandates. The NMFS must assure that it requests adequate funding to ensure that the standards of stranding response and rehabilitation are uniform and sufficient to the important task laid out in portions of the DEIS.

Chapter 3 The Affected Environment

Section 3.2.2.6 discusses impacts of the MMSHRP on marine mammals. Clearly, stranding response is intended to have a positive impact on marine mammals. There is a statement made on page 3-13 that "[o]f the live-stranded small cetaceans, few are taken into a rehabilitation facility and very few are released." The wording in this sentence should be clarified. It is not clear whether this sentence means to inform readers that, of the animals taken into rehabilitation facilities, very few are released; or whether it is stating that few are taken into rehabilitation facilities and, of the remainder who are not, "very few" stranded small cetaceans are released alive from the beach where they stranded. Each of these quite different interpretations has implications that should be addressed in different ways by NMFS.

If "very few" of those taken into facilities are released, then the NMFS program should address the reasons for this (e.g., are poor candidates being chosen, are facilities unable to cope with needs of wild caught animals, etc.) and remedy them. If it is the latter scenario (that very few are released from the beach and die or are euthanized if not taken into rehabilitation facilities) then we believe that this too should be addressed. If the low release rate is because most are single-stranded and likely ill animals, then this would make sense. If most strandings of small cetaceans are mass strandings, then it is not clear why "very few" are successfully returned to the ocean. Other countries (e.g., Australia and New Zealand) have had an historically good success rate of beach releases of mass stranded animals. The reason for this discrepancy in successful beach releases should require further investigation to improve the successful beach release rate for stranded animals in the U.S. One would hope that this is not simply due to a different philosophical approach to stranded animals (i.e., "an animal on the beach should be presumed unlikely to survive even if released from the beach in short order" versus "an animal on the beach should be presumed to survive if released expeditiously").

We would have appreciated a brief discussion of the likely reason for discrepancies in release of animals shown in charts depicting the fate of stranded pinnipeds and cetaceans shown in figures 3-2 and 3-3 of this chapter and in regional sections such as 3-4 and 3-5. There are virtually no releases of cetaceans shown. If this means that virtually all stranded animals are euthanized, we question this approach. If the "released" portion of each column only refers to animals taken into facilities for rehabilitation and subsequently released, this should be made clear. Similarly, if the "yellow" portion of the bar showing "alive" stranded animals includes animals that were returned to the water from the beach and thus not counted as "released," then it should be so noted, with percentages provided in a separate color to help readers better determine a success rate for stranded animals. As noted in our comments above, if the tiny rate of "released" animals is in fact an indication that live stranded cetaceans are almost always euthanized, then is not the case elsewhere in the world at least for mass stranded animals. A discussion of the reason behind this phenomenon would be helpful and the guidelines presented in the appendix might provide guidance for improving this rate.

Chapter 5

Page 2 discusses procedures and safeguards for use of euthanasia including referring to the AVMA guidance. However, determining whether or not an animal should be euthanized becomes and individual decision. This decision can be guided by a philosophical underpinning which the NMFS needs to provide. For example, NMFS should provide general guidance on situations or types of animals who are clearly not good candidates for release and should be considered for euthanasia and/or when animals might be released from the beach rather than euthanizing them. This sort of guidance has been lacking and has led to situations in which animals that were clearly poor candidates for release were taken into rehabilitation facilities, necessitating the expenditure of resources for their ultimately unsuccessful care or to find placement for non-releasable animals. Contrarily, if most mass stranded small cetaceans are euthanized, as appears to be the case in the previous chapter, then the NMFS should give guidance as to when to give animals the "benefit of the doubt" prior to considering euthanizing them. It would be helpful if NMFS provided guidelines to this end (e.g., in the draft appendices) or provided directed training to holders of letters of authorization.

Mitigation for tagging, described under this chapter's alternatives, as well as in the permit in Appendix G and H should include a stipulation that the tags being used should be the smallest and least intrusive available that has been proven effective to meet the purpose. Further, there should be a stipulation that if any death occurs during capture or tagging of animals, research should be halted pending review by experts as to the reason for the mortality and to recommend means of avoiding additional mortality.

Chapter 6 Cumulative Impacts

Section 6.1.1 and Table 6.1 discuss the possibility of amending regulations under the MMPA to allow public viewing of animals being rehabilitated. Although we understand

the utility of raising this possibility in the DEIS, we would strongly oppose such a measure if it is raised in the future, as it has been in the past. Because captive display is a lucrative industry, allowing animals to be viewed by the public for a fee simply encourages facilities to retain animals for the public to view even if an animal may be ready for release. Further, even if no fee is charged, it is difficult to completely isolate the public from animals. This exposes animals to noise, stress, habituation to excessive human presence and risk of disease transmission. Animals should only be viewed if seen from closed circuit TV. This also allows facilities to play tapes of previously rehabilitated animals when none are in residence.

Comments on Appendices

Appendix C. National Template for Best Policies and Practices

Again, we wish to emphasize our hope that this document will address in some manner that the goal of stranding response is to return animals to their natural habitat if at all possible. This should be done to the greatest extent possible from the stranding site (or nearby), but if taken into captivity, then as soon as possible after rehabilitation.

Page 13, Article IV, has a typo. It says under "B. 1. c" [acronym] shall tag any animals that are immediately release to their natural habitat using..." should say "released."

Article V. A. (page 16) states that "live stranded marine mammals" may be taken for "rehabilitation and release which specifically includes the following activities: 1. Transferring marine mammals to another NMFS approved rehabilitation facility with the [region] for a. release back to the wild, b. temporary placement in a scientific research facility holding [NMFS and APHIS permits], c. for permanent disposition at an authorized facility (i.e., holds and APHIS "exhibitors" license after consultation with NMFS." This language concerns us.

Transferring an animal for "permanent disposition at an authorized facility" does not meet the purpose of this paragraph, which was stated to relate to "rehabilitation and release." Permanent display is not release as we understand the concept of release (and the term is not defined in the glossary) which implies release back to the wild. We are also concerned that this language in a section on the appropriate disposition of stranded animals may encourage animals to be taken from the beach for display rather than releasing them to the wild, particularly if they are from a species that is novel or otherwise desirable to a captive display facility. Clause "c" should be omitted from the section dealing with "release" and the possibility of keeping stranded animals for permanent display should be considered elsewhere.

Page ES-1 says one of the categories is "conditionally non-releasable" (manatees only). The definition of this term does not occur until page 5-22. Nowhere is it explained why this term applies only to manatees. It appears unnecessary or else this category should

apply to other species as well. The discussion in section 5 simply states that it's applicable when the animal has a condition that would threaten the well-being of the animal or wild populations, but may change over time. Why is this term not used for cetaceans and/or pinnipeds? Why only manatees. The DEIS should explain the unique circumstances that require this extra category here and in section 5.

Page 2-2 and others have a discussion regarding determinations of suitability for release of animals in rehabilitation facilities. This page requests forwarding dissenting opinions of assessment team members for animals deemed "conditionally releasable." This does not address the concern about facilities taking into rehabilitation animals with a very poor prognosis for release. Although page ES-3 discusses what to do with non-releasable animals (i.e. euthanize or send to public display) there is no discussion of how to prevent this outcome by choosing animals that are good candidates for rehabilitation. As we noted above, the NMFS should provide clearer guidance.

Page 2-9 and following pages provide questions to guide the decision regarding suitability of animals for release. Similar questions should be provided elsewhere to guide a determination of the suitability of an animal for transfer from the beach to a rehabilitation facility (versus either euthanasia or beach release). This can prevent situations that have arisen in the past with animals who are marginal or poor candidates being taken into facilities for rehabilitation. Similarly section 3 provides very specific guidance for evaluating the releasability of animals. There should be similar specificity as to what makes an animal a good candidate for removal to a rehabilitation facility (particularly in the case of small cetaceans).

Page 5-2 defines "conditionally non-releasable as it applies to manatees. As we note above, there should be a discussion of why this category is unique to manatees and not appropriate for other species.

Appendix H. General Description of Research Methodologies

As we noted above in our comments on Chapter 5, conditions of the permit and mitigation measures should include a stipulation that tags should not be experimental in design, and should be of a design that is the smallest and least intrusive available that has been proven successful to achieve the purpose of the tagging. There should also be a stipulation that the death of any animal during capture and/or tagging should result in immediate halt to the activity pending review by experts and possible modification of procedures to prevent future mortality.

Section 2.1.3 states that use of auditory evoked potential (AEP) studies on mysticetes is not permitted at this time. But it also states that "if mysticete procedures are approved within the timeframe of the permit (five years), the MMHSRP would use these to conduct research. All protocols would be provided to NMFS PR1 for approval prior to any

research activity." The meaning of this is not entirely clear, but allowing the permit to be used to conduct auditory evoked potential studies on mysticetes should be considered a major amendment of the permit and require publication of the intent to amend the permit in the Federal Register with an opportunity for the public to comment on the methodology and magnitude of the research.

Section 2.1.4 states that the section on vaccination is not completed. The National Environmental Policy Act requires that reviewers be allowed to review and comment on all aspects prior to approval of any procedure.

Appendix I. Required Take Tables for the ESA/MMPA Permit Application

We do not see tables describing impacts of stranding response, other than the very general mention of Project 1, which we assume to be emergency stranding response. All impacts from all possible activities are lumped together. We would expect to see greater detail for stranding response that included, for example, estimates of the number of animals taken by intentional lethal take (i.e., euthanasia) and numbers of animals projected to be taken into/transferred to permanent captive display.

With regard to the tables for the NMFS permit, we note in the tables provided that 50 small cetaceans animals would be subject to study with a requested mortality of up to 3 animals per year. This is 6% mortality for cetaceans, which seems high based on capture and study-related mortality observed in studies by Mote Marine Lab in Sarasota. Further 100 pinnipeds would be taken with a requested mortality of 3. This represents a mortality rate much higher than the rates projected for mortality under the Steller sea lion EIS and in other permits for study of pinnipeds. These mortality rates should be explained. If they are accurate, then NMFS should reconsider the mortality rate allowed to other permit holders and/or question the accuracy of their reporting of mortality.

Conclusion

This DEIS is very thorough, though we would like to see it supplemented in the sections we have identified above. We wish to stress, as stated in our general comments at the beginning, that we believe additional regulations will be necessary to ensure parity in facility standards, personnel qualifications and treatment of animals. We also believe that the NMFS must adhere to the same standards for research as non-governmental entities such as having an IACUC in place. It should also join other government agencies in subscribing to IRAC principles. We also believe that the Stranding Response portion of the program should emphasize the imperative of returning mass stranded animals to the water expeditiously. Further, the NMFS should provide more specific guidance as to which animals make the best candidates for facility-based rehabilitation to prevent on-going problems of animals being taken in who are poor candidates for release (e.g. infant cetaceans, animals with severe damage or fulminating disease processes)

Thank you for the opportunity to comment of the Draft Programmatic Environmental Impact Statement for this very important NMFS program.

Sincerely,

Sharon B. Young
Marine Issues Field Director

STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPARTMENT OF FISH AND GAME

DIVISION OF WILDLIFE CONSERVATION

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May 25, 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910

ATTN: MMHSRP PEIS

I appreciate the opportunity to comment on the Draft Programmatic Environmental Impact Statement (DPEIS) titled "Rehabilitation and Release of Marine Mammals" on behalf of the Alaska Department of Fish and Game (ADF&G).

The State of Alaska has the longest coastline of any state and is surrounded by four oceans that provide habitat for eight species of pinnipeds, 17 species of cetaceans, as well as sea otters and polar bears. Many of these species are important to coastal Alaska Natives for food, clothing, boat skins, and material for cultural and art objects. Although the State of Alaska has no formal responsibility for the harvest management of marine mammals it does have an obligation to the residents of Alaska to keep marine mammal populations and their ecosystems healthy.

The following are the ADF&G comments on the DPEIS addressing the activities of the Marine Mammal Health and Stranding Response Program (MMHSRP), which includes: the National Marine Mammal Stranding Network, the Marine Mammal Disentanglement Program, the Marine Mammal Unusual Mortality Event and Emergency Response Program, the Marine Mammal Biomonitoring and Research Program, the John H. Prescott Marine Mammal Rescue Assistance Grant Program, the National Marine Mammal Tissue and Serum Bank, and the MMHSRP Information Management Program. Our comments pertain specifically to the release of rehabilitated marine mammals.

As stated on page 4-17 of the DEIS (lines 7–11) "Any pathogen with a rehabilitation "hospital" setting has the potential to mutate or evolve into a novel organism (including those with drug resistant properties), creating a new (or drug resistant) disease which could then be introduced into the naïve wild population upon the release of an infected animal following rehabilitation, particularly if the animal is not thoroughly evaluated prior to release." Although the DEIS specifies (pg 4-23, lines 8–12) that release criteria would include a "medical assessment with a hands-on physical examination and a review of the animal's complete history, diagnostic test results, and medical and husbandry records," these precautions can only minimize the risk, not eliminate it. Testing is not possible for new diseases as tests are not developed until the disease is known. Many

tests used for marine mammals are developed for domestic animal use and the effectiveness for marine mammals is not known. False negatives from theses tests are common.

In considering the effects of the release of rehabilitated marine mammals on cultural resources (Section 4.4.4.3, pg 4-47) we believe you need to consider that the ability to obtain marine mammals for food, boat covers, rope, clothing, artwork, and cultural objects could be severely affected by the release of a rehabilitated marine mammal that carries an undetected disease or parasite that infects wild populations.

In considering socioeconomics (Section 4.6.4.3, pg 4-61) we believe you need to consider the cost to families in coastal Alaska if they cannot obtain food from the marine mammal resources and must purchase it in local stores. Food costs are extremely high in remote villages due to fuel costs for air transportation.

The benefit to releasing a small number of rehabilitated marine mammals into healthy Alaskan populations does not come close to outweighing the risk to Alaskans dependent on marine mammal resources. Due to the importance of marine mammals to residents of Alaska and the risk to the wild populations, we recommend that the release of any translocated marine mammal (i.e., one that has been transported and placed into captivity for any length of time) into marine waters adjacent to Alaska be prohibited. To the extent that marine mammals can be rehabilitated or assisted in situ and released, we have no objection.

Please contact Dr. Robert Small (907-465-6167), ADF&G's marine mammal program leader, if you require further clarification.

Sincerely,

Matt Robus
Director

cc: R. Small – ADF&G Division of Wildlife Conservation

Subject: WA McLellan comments on MMHSRP Draft
Date: Tue, 29 May 2007 16:26:27 -0400
From: "McLellan, William" <mclellanw@uncw.edu>
To: mmhsrpeis.comments@noaa.gov
CC: "McLellan, William" <mclellanw@uncw.edu>, "Pabst, D. Ann" <pabsta@uncw.edu>

29 May 2007

Dr David Cottingham

Chief, Marine Mammal and Sea Turtle Conservation Division

Attn: MMHSRP DPEIS

Office of Protected Resources

National Marine Fisheries Service

1315 East-West Highway

Silver Spring, MD 20910

Dear Dr. Cottingham.

Please find below a series of comments, or suggestions for the MMHSR document.

In general, I agree with all of the preferred options identified by NMFS in this document. I am sorry that I was not able to clean up these comments and form a more complete document, but even with the extension of deadline, time has a habit of disappearing. Should you require any clarification or additional comments, please do not hesitate to contact me.

Should the $4 million specific figure be dropped from the text. I wouldn't want it to look like that is the final figure and can never go up (or down).

3-20 Add striped dolphins to the list of mass strandings in the SER.

I question the comment on page 3-21 that right whales and humpback strandings occur during the winter "migratory period from Nov – Apr". To begin that period described is six months long and therefore describes

half of the year. Additionally, there is evidence from a number of aerial survey efforts off the mid-Atlantic and SE Atlantic Bight (reference documents as contract reports to the SER) of right whales and especially young humpbacks in the region from Sept to June. I would suggest some language like "southern component of their home range".

Why is there a specific section on "marine mammal population change" only for the Alaska region?

4-8 Direct cardiac injection of euthanasia solution on sedated animals has proven to be effective and relatively safe fro the responding team.

4-13 It is worth mentioning that euthanised animals generally concentrate fluids in the heart, brain and liver (?). These organs could be removed and dealt with separately while the remainder of the carcass was then safe to burry.

4-25 I would like to commend the statement regarding potential injury to entangled animals may be intentional by responders. I believe strongly that we need to be developing more invasive techniques for working with life threatening entanglements. A small injury to the animal, say a quick tissue cut, should not stop teams from going in and actually cutting heavily entangled animals. The faster gear can be cut loose, the better the potential outcome for the animal.

Sincerely

WAM

William McLellan

Biology and Marine Biology

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David Cottingham
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Attn: MMHSRP DPEIS
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mmhsrpeis.comments@noaa.gov (MMHSRP EIS)

Re: Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program (MMHSRP).

29 May 2007

Dear Dr. Cottingham:

On behalf of the Whale and Dolphin Conservation Society- North America (WDCS-NA), I would like to offer the following comments regarding the Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program (MMHSRP).

WDCS appreciates the efforts by the NMFS to pursue, standardize and implement standards for the stranding response programs. We believe the stranding and disentanglement response programs are essential to the continued protection and conservation of marine mammals and recognize the need for standardized practices throughout these programs. We also believe there is a need, and there should be mandated requirement, for the continued collection and assessment of data and development of innovative, noninvasive response, rescue and research techniques.

Stranding Agreement and Response Alternatives

While WDCS supports the need for standardizing the program and issuing Stranding Agreements (SA) on a case-by-case basis, we believe that the Preferred Alternative (A4) must be stronger than is currently proposed.

The Preferred Alternative, as written, does not specify the need to respond to floating carcasses. As stated in our previous comments [submitted on February 28, 2006 regarding Docket No. [I.D. 120805B]) on the Notice of Intent to Prepare an EIS for the stranding program, the MMPA includes, in its definition of "stranded" as any marine mammal floating in waters under U.S. jurisdiction. Both humpback and right whales takes are known to exceed the designated Potential Biological Removal rate (PBR) for

Whale and Dolphin Conservation Society

these species yet floating carcasses of these species are not always retrieved for necropsy. Carcasses of other species of large whales are even less likely to be retrieved and necropsied resulting in limited information on the causes of death of these species.

We believe that NMFS must respond to reports of all floating large whales, regardless of whether external signs of human interaction are noted on the carcass, but having due regard to the operational conditions that may be limit or constrain such attempts. Vessel strikes are frequently determined by necropsy, and not by external signs of trauma and, according to Moore et al. 2004, post mortem examinations are necessary to ensure better understanding of mortalities that are due to human interaction. We believe that floating large whales should be retrieved and thoroughly necropsied with a draft necropsy report made available within 14 [working] days of when the carcass is examined.

Because there are areas where beaching a carcass for necropsy is difficult, we recommend NMFS funds the research, design and construction of a number of mobile necropsy stations or barges. These would be located along the length of the east coast, with sufficient funding available to allow for the stations or barges to be utilized thus ensuring these data are collected in all US waters and our knowledge increased.

Carcass Disposal Alternatives:

We support Alternative B3 recommending that chemically euthanized carcasses are transported offsite. While this Alternative alleviates many of the concerns of bioaccumulation resulting from scavengers preying on carcasses, we also believe that NMFS must support research into methods of euthanasia which are both humane and environmentally safe.

Rehabilitation Activities Alternatives:

We generally support Alternative C3 which would implement improved Rehabilitation Facility Standards, but we also strongly believe that the NMFS must be clear that the primary objective of the SA holder is to release or refloat an animal immediately from the stranding site and moving a stranded animal into a rehabilitation facility is a last resort.

We are concerned that animals may be taken into rehabilitation with the express intent of supplying a captive facility. Data presented by NMFS in this document appear to substantiate these concerns. For instance, section 3.2.2.6 states that "up to 50% of the rehabilitated seals and sea lions are released back into the environment" and "of the live-stranded small cetaceans, few are taken into a rehabilitation facility and very few are released". It is unclear as to what happens to the other 50% of pinnipeds that are not released- are they retained as captive animals, euthanized or die in rehab? Similarly, for cetaceans, it is unclear as to why "very few" are released. Figure 3-3, Cetacean Strandings Nationwide appears to demonstrate that there is a substantially higher number of cetaceans taken into rehab versus the number released. The document offers no

explanation for the discrepancy nor does it indicate what is the fate of those that are not released.

Furthermore, while we acknowledge that, as stated in 4.6.3.3, the cost to facilities resulting from upgrades necessary to meet new standards may be significant, we do not support the proposition that these additional funds can be raised by allowing these facilities to charge visitors to view animals in rehabilitation.

Disentanglement Alternatives

We fully support Alternative E3 which would require the West Coast Disentanglement Network to adhere to the training standards and techniques currently employed by the East Coast Network. This would include the on-going monitoring of animals through scar analyses.

We are concerned, however, that in section 4.2.5, NMFS indicates that "North Atlantic right whales would be greatly affected if disentanglement efforts ceased, as entanglements are known to be a significant source of mortality". While we support the disentanglement program, we do not support the notion that this is an appropriate solution for right whale entanglements. Disentanglement is, at best, a stop-gap measure and should not be viewed as responsible or appropriate mitigation when other risk mitigation measures have already been held up for a number of years.

Biomonitoring and Research Activities Alternatives

While the Preferred Alternative F3, appears the most appropriate, we believe that the number of take permits on wild populations should be minimized and suggest that NMFS establish a sampling archive bank for unused portions of tissue, fecal matter, exhalation, fluids, etc. obtained by stranding networks. Future permit requests requiring these types of samples should be required to utilize archived materials prior to authorization of additional takes from the wild.

We also believe that while all species should be checked for signs of human interaction, it is particularly critical that strategic and/or depleted stocks be thoroughly examined for signs of human interaction (a.g. necropsy rather than external examination only).

General Comments regarding the PEIS

In section 3.3.2.6, subsection, Northeast Region- Human Interaction, the PEIS notes ship strikes to right whales but not to other species. While the issue of ship strikes is a significant contributing factor to the potential demise of the critically endangered North Atlantic right whales, all large whale species are at risk.

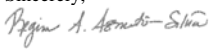
In the subsection, Northeast Region- Temporal Changes, it states that "ship strikes and entanglements are frequent in summer". While we do not dispute the accuracy of this statement, we do question why documented entanglements and ship strikes that occur outside of summer are not considered, and have been excluded. Documenting human interaction throughout the year is critical in determining whether seasonal exemptions, as proposed in management schemes, are sufficient or appropriate.

Conclusion

We appreciate efforts by NMFS to increase standards throughout the Marine Mammal Health and Stranding Response Program. While we largely support the Proposed Alternatives within the PEIS, we believe that the document does not sufficiently consider response to reported individual animals from strategic/depleted stocks. Additionally it must increase mandates for thorough examination of carcasses for human interaction.

We thank you for the opportunity to comment and for your time and consideration.

Sincerely,



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Moore, MJ, AR Knowlton, SD Kraus, WA McLellan, and RK Bonde. 2004. Morphomentry, gross morphology and available histopathology in North Atlantic right whale (Eubalaena glacialis) mortalities (1970-2002). J. Cetacean Res. Manage. 6(3):199-214.

Subject: ATTN: MMHSRP PEIS
Date: Tue, 29 May 2007 15:25:43 -0400
From: "Shilling, Lauren" <LShilling@dnr.state.md.us>
To: mmhsrpeis.comments@noaa.gov

To whom it may concern:

The Maryland Department of Natural Resources (MD DNR) is authorized to respond to all dead stranded marine mammals under 109(h) of the Marine Mammal Protection Act. MD DNR's Marine Mammal and Sea Turtle Stranding Network have been responsible for stranding response efforts since 1990 and is located at the Cooperative Oxford Laboratory and will be hereinafter COL Network. The purpose of this letter is to comment upon the Draft Programmatic Environmental Impact Statement (DPEIS) on the activities of the Marine Mammal Health and Stranding Response Program.

After reviewing the proposed document, MD DNR has the following comments.

1. National Template, Article II, section c, part 4: While the participant organization is responsible for most costs incurred during a stranding event, this responsibility is unfair and impractical in the case of an Unusual Mortality Event. Sampling protocols are extensive during a UME and shipping costs to diagnostic labs can be an encumbrance to an organization. NMFS **must**, not may, support costs associated with UMEs, particularly supplies and shipping and diagnostic costs. A pot of money should be set aside to provide monetary support for UMEs around the country. It is unlikely that a Prescott grant could cover additional costs associated with a UME.
2. National Template, Article III, section B, part 1 a: If NMFS is going to implement the ICS structure in certain circumstances and expect the responding stranding organization to follow that structure, then NMFS needs to provide ICS training to all participants.
3. National Template,Article III, section B, part 2 a: The need for completed data such as Level A form is imperative, however, having a set schedule for when the data are due is a cause for concern. A set schedule suggests rigidity and does not allow for flexibility for organizations that have limited available personal or mitigating circumstances. It is a concern that organizations will be penalized if this inflexible schedule is not met.
4. Article III, section B, part 2 c: The ability to contact NMFS [Region] Regional Stranding Coordinator when there is a possible or confirmed human interactions, suspected unusual mortalities, extralimital or out of habitat situations, mass strandings, mass mortalities, large whale strandings, and any other involving endangered or threatened species of concern within 24 hours seems to be very time constraining. Many facilities within the region get several hundred stranded animals a year; it would be a huge additional time commitment to those facilities to report each of the scenarios listed above, particularly human interaction cases, within 24 hours. A larger time interval for this information should be taken into consideration as well as the importance of this information (does NMFS need to know about every human interaction case when that information will be submitted through the National Database via the Level A form?). This information will be entered in Level A data forms and other stranding/necropsy data sheets, so the need to also separately report this information seems to be double duty for the responder(s).
5. Article III, section B, part 2 d: To require additional information, expedited reports (written and or verbal) of Level B and C data such as analytical results and necropsy reports within 24 hours is also another time restrictive issue. It is not feasible to ask organizations to turn over completed reports and analytical data within 24 hours of the stranding(s). The need to have this information within 24 hours of a stranding is a concern especially for smaller organizations that have limited staff and resources or for organizations that are inclined to have several animals strand simultaneously including mass strandings. It often takes weeks, if not months, to get analytical results, therefore a 24 hour frame is impractical.
6. Article III, section B, part 3 a: The retention or transfer of any parts of marine mammals is filled out under the “Specimen Disposition” section on the Level A data sheet. It is redundant to also have to report this information to the NMFS Regional Stranding Coordinator within 30 days of the stranding(s)
7. Interim: Policies and Best Practices, section 3.1, part 2: Is NFMS going to provide required equipment lists that outline what they feel is necessary to collect Level A data? It is a concern that facilities may be penalized for not meeting the required equipment list. Throughout the NER facilities and organizations differ in size, number of staff and geographic area as well as in the quantity and variety of species of animals that strand. As a result the equipment needed to respond to strandings in one area may differ from another.

On behalf of MD DNR, thank you for the opportunity to comment on this document. If you have any questions or need clarification about any of the comments provided above, please contact Lauren Shilling at lshilling@dnr.state.md.us or Tricia Kimmel at tkimmel@dnr.state.md.us. We can also be reached at 410-226-5193.

Sincerely,

Lauren Shilling and Tricia Kimmel

Lauren N. Shilling

Marine Mammal and Sea Turtle Stranding Coordinator

Cooperative Oxford Lab

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P.O. Box 1329, Seward, AK 99664
Fax (907) 224-6360
Telephone 1-800-224-2525 OR (907) 224-6300

Alaska SeaLife Center

Fax

To: NMFS

Attn: MMHSRP PEIS **From:** Annie Madsen, Husbandry Assistant

Fax: 301-427-2584 **Phone:** 907.224.6358

Phone: **Pages:** 10

Re: EIS for MMHSRP Comments

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Please contact Carrie Goertz at 907-224-6326 or Lee Kellar at 907-224-6364 if you have questions or require further information.

Alaska SeaLife Center®
windows to the sea

May 30, 2007

David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Dear Mr. Cottingham,

Thank you very much for the opportunity to comment on the Environmental Impact Statement (EIS) on the Marine Mammal Health and Stranding Response Program (MMHSRP). Attached, please find a list of comments.

If you have questions regarding this document, please contact Carrie Goertz, Associate Veterinarian and Stranding Program Manager or myself at 907-224-6364.

Sincerely,

R. Lee Kellar
Husbandry Director

Attachment: 1

301 Railway Avenue • P.O. Box 1329 • Seward, Alaska 99664
Phone (907) 224-6300 • Fax (907) 224-6320
www.alaskasealife.org

#14

Environmental Impact Statement (EIS) on the Marine Mammal Health and Stranding Response Program (MMHSRP) Comments

National Template Comments:

Page 1

Having an stranding agreement number would make it easier to reference, or please specify how this agreement should be referenced.

Having an abbreviated (1 page) version to present when transporting animals would be helpful.

Page 5, Section B.

Additional bullet for NMFS responsibility to read: 9. Coordinate regional activities to ensure appropriate division of responsibilities based on geography as well as institutional responsibilities.

Page 5, Section C.

What should an organization do if financial constraints require limiting its efforts? Financial difficulties can come up quite suddenly and may not permit the requested notification time for changing the agreement.

Is an organization still allowed to request payment for reasonable recovery costs for samples transferred to authorized persons or labs?

Page 10, Section B., Number 2, Bullet (e.)

In regards to bullet point (e.), forms or instructions should be provided by the NMFS office.

Page 11, Section A., Number 1, Bullet (b.) & (c.)

In regards to bullet point (b.), it is recommended that AVID chips and satellite tags be added to this list.

In regards to bullet point (c.), there is a formatting problem within the paragraph.

Page 13, Section B., Number 1, Bullet (c.)

In regards to bullet point (c.), it is recommended that AVID chips and satellite tags be added to this list.

Page 16, Section A., Number 3

In regards to number 3, it is recommended that AVID chips and satellite tags be added to this list.

Page 18, Section B., Number 1, Bullet (f.)

In regards to bullet point (f.), we object to a blanket prohibition as public display is possible without impacting the rehabilitation of these animals. Language used in another document concerning distance viewing with no impact is preferred.

Page 18, Section B., Number 2, Bullet (a.)

In regards to bullet point (a.), professional Husbandry staff is in a better position to assess the behavioral readiness and should either also sign or coordinate with the release determination paperwork.

Evaluation Criteria Comments:

Word choice sometimes implies requirements for 'new' applicants only, but doesn't always specify. Please clarify differences between new and existing organizations throughout the document.

Page 2-1, Section 2.1, Number 2.

Organizations will need time to develop the documentation described in 2.1 2. It would be best if the agency would provide examples or templates to work off of. Alternatively, could the organizational summary used for Prescott Grant applications suffice? Perhaps the requirements for both this document and the organizational summary for Prescott grants application be unified.

Page 2-1, Section 2.1, Number 3., Bullet (a.) & (b.)

Bullet (a.) should read: Brief summary of the existing or proposed scope of the stranding program (e.g., all species of cetaceans, pinnipeds), and whether the request is for response to dead animals only, live and dead animals, and/or rehabilitation.

Bullet (b.) should read: Justification and description of the existing or proposed geographic area of coverage and why the area of response is appropriate for the organization (e.g., the amount of personnel/volunteers and resources available, relative to shoreline covered,

Page 2-2, Section 2.1, Number 5.

It would be helpful if NMFS could generate a complete list of items and the level of detail ("102 1" x 19G needles" or "a supply of various sized needles" or even just misc. sampling supplies) they are interested in. Otherwise, organizations may not cover what the agency is looking for. Again, an example or template would help.

Page 2-3, Section 2.1, Number 8. & 9.

In regards to number 8, resumes are also required under 2.1 4. b. Pick one place to cover this requirement.

In regards to number 9, this should apply to new Stranding Agreements only.

Page 2-3, Section 2.2

The first paragraph should read: NMFS will evaluate existing and prospective participants based on their demonstrated track record and their capabilities in the following areas as described in their request.

Page 3-1, Section 3.1, Number 1.

In regards to number 1, what is the difference between representative and responder?

Page 4-2, Section 4.2, Number 3.

The paragraph should read: The prospective Participant should demonstrate knowledge of national, state, and local laws relating to live animal response.

Page 5-1, Section 5.1, Number 1.,Bullet (a.), Sub-bullet (iii.)

The maximum holding capacity depends upon the species. For facilities that receive a number of different species and have flexible holding options, how would the agency determine max capacity? For example, a facility might have a pool that can hold several small animals (i.e. harbor seals) but only a couple large animals (i.e. Steller sea lions). Also, some organizations are limited more by staff and not space, how will NMFS take this into account?

Page 5-1, Section 5.1, Number 1.,Bullet (b.), Sub-bullet (ii.)

The sentence should read: Human health and safety throughout the rehabilitation facility.

Page 6-1, Section 6

What is the policy for when the agency is proposing a designee for an existing organization?

Standards for Rehabilitation Facilities Comments:

Page 2-1, Section 2.1, Paragraph 4

The last sentence reads: Pinnipeds with evidence of infectious disease must be quarantined (See Sections 2.4 Quarantine).

Does this mean that Pinnipeds with infectious diseases should be quarantines from other rehabilitating animals? How many isolation areas is expected?

Page 2-3, Section 2.1.2, 3rd Bullet Point

Sentence should read: The facility must have a plan to manage adult males.

Page 2-4, Section 2.1.5

Paragraph should read: Animals housed at rehabilitation facilities must be provided with shelter to provide refuge from extreme heat or cold. Pinnipeds held in rehabilitation facilities may not have normal activity levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from cold temperatures or inclement weather. Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions. Except during the pre-release conditioning phase, ensure adequate refuge from extremes.

Page 2-5, Section 2.1.7, 4th Bullet Point

Is the structure referenced in the paragraph meant to be a separate building? Or can it be separate rooms/holding areas that prevent exchange of water and bodily fluids as well as prevent 'nose-to-nose' contact with other animals?

This requirement is stricter than the requirement listed on page 2-15.

Page 2-7, Section 2.1.10, 1st Bullet Point

Addition of the following sentence: Dependant pups are more labor intensive and require more staffing.

Page 2-10, Section 2.2.1, 2nd Bullet Point

Sentence should read: Drain water from pools as often as necessary to keep the pool water quality within acceptable limits.

Page 2-12, Section 2.3.2, 1st Bullet Point

Sentence reads: Measure water temperature, pH, salinity (if applicable), chemical additives (if applicable) daily in all pools.

Does this apply to open flow through systems with natural sea water?

Page 2-15, Section 2.4.1, 1st Bullet Point & 5th Bullet Point

In regards to the 1st bullet point, the use of dividers, tarps, or physical space is very different from the structurally separate facility referenced on page 2-5. The description listed here is much more reasonable.

In regards to the 5th bullet point, the sentence should read: Maintain equipment and tools strictly dedicated to the quarantine areas or thorough disinfection.

Page 2-21, Section 2.6.1, 3rd Bullet Point

In regards to the 3rd bullet point, it is excessive for a public display aquarium to have a nutritionist on staff.

Page 2-23, Section 2.7.1, 8th Bullet Point

Sentence reads: Have contingency plan for veterinary backup.

This should be the responsibility of the facility and not the veterinarian who may be a volunteer

Page 2-25, Section 2.7.2, 6th Bullet Point & Reports Bullets

It is not appropriate to assign human health plans to the veterinarian. A human health plan should be developed by the Human Resource personnel with the help of a human medical professional. This should be the responsibility of the facility, not the veterinarian.

The following reports should be the responsibility of the facility and not the veterinarian:

Health and Safety Plan reviews
Animal acquisitions and dispositions
NOAA Form 89864, OMB#0648-0178 (Level A data)
NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report)

Page 2-26, Section 2.8, 10th Bullet Point

Sentence reads: Serological assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations.

What does validation constitute? What labs are these? Will NMFS keep up with validations?

Page 2-30, Section 2.13

The verbiage in this paragraph differs from what is in the Stranding Agreement Template. This is a better version.

Standards for Release Comments:

NMFS & USFWS should take into account the recommendations of the stranding facility and the AZA Taxon Advisor or Studbook Keeper for the species before making a decision as to placement.

Page 2-9, Section 2.4, Number 1

When taking an animals history, does mouthing qualify as a bite or does the word bite pertain to an animal breaking the skin of a human?

Page 2-12, Section 2.4, Number 4, 5th Paragraph

The third sentence of this paragraph refers to microbial culture. Other than the obvious wounds, what would the 'routine' samples come from? Fecal? Nasal?

Page 2-13, Section 2.4, Number 5., Bullet (a.)

The paragraph should read:

Required Identification Prior to Release. Marine mammals must be marked prior to release for individual identification in the wild (see 50 CER Sec 216.27 (a)(5) for species under NMFS jurisdiction). Examples of pre-approved identification systems include flipper roto tags, flipper All-Flex tags, Flipper Temple tags, passive integrated transponder tags (PIT tags) radio tags, and freeze branding (Geraci and Loundsbury 2005). **(Satellite tags should be included in this list.)** Invasive procedures such as…should be done under the direct supervision of the attending veterinarian and will need prior approval from NMFS and FWS and may require a monitoring period following the procedure. Proper photo identification can also be considered part of this protocol. Standard indentification protocols exist for various groups of marine mammals that detail the methods and procedures for marking for future identification in the wild, and are included in the appropriate section for each taxonomic group. Contact the Agency stranding coordinator for more direction on tagging.

Page 2-14, Section 2.4, Number 5., Bullet (b.)

First preference is releasing the animal in the same general/geographical area where the animal was stranded. The second choice, especially if the animal was stranded outside of its normal range, is to release the animal closer to or within its normal range. This is implied later but should probably also be referenced here.

NOTE: Section 4.3 beginning on page 4-4 is formatted differently than 4.4, 4.5 and 4.6, using the number subsections that more or less correspond to the checklist. 4.5's Behavioral subsections are given paragraph numbers. Recommend you standardize the style.

The organization for section 4.3 should mesh with the checklist presented later in the document. Each point on the checklist should be described here and each point here should have a corresponding question on the checklist.

Page 4-5, Number 4.

The last sentence should read: Consultation with NMFS or FWS is thus required for pinnipeds that have a known history of exposure to terrestrial animals.

Note: You can never know for sure what happened before an animal was reported and brought in.

Page 4-5, Number 5.

In regards to the first sentence, you might want to more precisely define bite to specify breaking of skin. "Bites" may occur without a breach of protective gear. Also, when tubing an animal," bites" may occur without breach of protective gear.

In regards to rabies among pinnipeds, there is only one documented case.

Page 4-5, Number 6.

This sentence is confusing. Perhaps more detail can be added.

Page 4-5, Number 7.

We assume that just because an animal was at 2 places, does not mean it isn't releasable.

Page 4-9, Section 4.6, 2nd Paragraph

In the first sentence, list desired parameters. What does Chem-12 include? Also in the first sentence, delete blow hole as a sampling site for pinnipeds.

In the third sentence, 3ml of Serum is recommended but another document recommends **1ml** per draw. Please clarify.

Page 4-10, Section 4.7

Recommend structuring this checklist as a stand alone document for greater usability. Recommend keeping it < 2 pages and reduce font size as needed.

Page 4-11, Section 4.7

New Point, History: The environmental conditions are considered acceptable (e.g. prey available, no lingering contamination).

7. Please define "bite" somewhere.

17. Is this the release determination exam? Don't you have to submit release paperwork 2 weeks prior?

19. Is this the exam to be done within 72 hours of release? 17 and 19 seem to overlap.

22. Change visual to in vision.

25. 3ml total or each? Note, elsewhere this document mentions 1ml per blood draw and that only 2 blood draws are required.

New Point, Medical Clearance: The veterinarian has received and reviewed all records on this animal from other facilities that held this animal.

Appendix E

Explain how the agency will keep this list and testing requirements up to date so that facilities can easily stay informed.

Appendix G

Some formatting issues took place after Appendix G. Unclear of the titles of some pages.

Appendix H

This appendix could use an up front description/summary of how this information should be used in the stranding context (verses the research context).

At points this document seems to refer only to one taxon or species in many places without specifying which and then does not discuss the other taxa/species. Bottom-line, it is not always clear what species is being included and if all other species are excluded.

Appendix H, page H-1, Section 1.1.2 & 1.1.3

Sections 1.1.2 and 1.1.3 are not typical activities for a stranding organization.

Appendix H, page H-2, Section 1.1.4

The first sentence reads:

Capture of marine mammals may be necessary during research activities to collect specimens, perform an examination, or attach tags or scientific instruments.

This appendix should address stranding scenarios, not research, or there should be a pre-amble to discuss how it applies in stranding situations

Appendix H, page H-4, Section 1.1.4

Chemical restraint should require veterinary input.

Appendix H, page H-5, Section 1.1.5

Sedation of large pinnipeds should require veterinary input.

Appendix H, page H-7, Section 1.1.6

Instruments should be attached to the coat of an animal, not to the skin.

Appendix H, page H-8, Section 1.1.7

Restrictions concerning hot branding should be specifically addressed.

Appendix H, page H-10, Section 1.1.9

The second paragraph refers to dolphin biopsy sites. What about other cetaceans and pinnipeds?

Appendix H, page H-10, Section 1.1.10

Some folks prefer 19G or even 20G, some prefer butterflies to straight needles. A4cm needle is longer that needed for some sites/animals and maybe too short in some cases. Recommend this be changed to read 'of appropriate size.'

Appendix H, page H-11, Section 1.1.10

Again, I would leave the precise needle size up to the discretion of the veterinarian. The extradural vessel is not a sampling site in otariids. Otariids and some phocids can be sampled from flipper web veins.

Appendix H, page H-12, Section 1.1.13

The second paragraph refers to extracting the #15 tooth of the lower jaw. What species is this for? Pre-molars are extracted in pinnipeds.

Appendix H, page H-13, Section 1.1.13

Catheterization is also possible in pinnipeds.

The fourth paragraphs last sentence reads: The samples are sent to a diagnostic laboratory for culturing and species identification.

Does species refer to the parasite species? Prey analysis?

Appendix H, page H-14, Section 1.1.13

Please site the source of the thermal probes. There are other deep rectal probes available.

In the last paragraph of Section 1.1.13, change brevetoxin to any toxin.

Appendix H, page H-14, Section 1.1.14

Veterinarian involvement should be required.

MARINE MAMMAL COMMISSION
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BETHESDA, MD 20814

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FACSIMILE TRANSMISSION

Date: 30 May 2007

Total pages including cover 7

To: David Cottingham

Facsimile Phone #: 301-427-2584

Telephone #: 301-713-2322

From: Jeannie Stevenson

Subject: MMHSRP DEIS

Comments: See MMC letter, attached. Second transmission - please ignore earlier version sent 17:44.

05/30/2007 6:47PM

MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814-4447

30 May 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle
Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Mr. ~~Cottingham~~ David:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Draft Programmatic Environmental Impact Statement (DPEIS) on the National Oceanic and Atmospheric Administration's Marine Mammal Health and Stranding Response Program (MMHSRP) with regard to the goals, policies, and requirements of the Marine Mammal Protection Act and the National Environmental Policy Act. We offer the following comments and recommendations.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service revise the DPEIS to—

- provide an update on the status of final reports of unusual mortality events, explore ways to promote completion and circulation of final reports more promptly, and identify actions that the Service can take to improve the synthesis and use of data from unusual mortality events;
- discuss the criteria that the Service intends to use in its review and approval or disapproval of recommended releases of marine mammals, and plans for such releases, by rehabilitation facilities;
- identify the types of information that would be included in protocols for monitoring released animals;
- specify actions that the Service plans to take to ensure that rehabilitation facilities are in compliance with the Interim Standards for Rehabilitation Facilities;
- elaborate on the Service's plans for developing draft guidelines to govern when public display of marine mammals undergoing rehabilitation will be authorized, including opportunities for the Commission, the affected facilities, and the public to review the draft guidelines before their adoption; and
- discuss alternatives for addressing overcrowding at rehabilitation facilities, issues associated with the placement of non-releasable marine mammals in public display facilities, and criteria for making on-site evaluations of the likelihood that a stranded marine mammal can be successfully rehabilitated and released.

#15

RATIONALE

The MMHSRP has been instrumental in coordinating responses to stranding events nationwide, providing care for stranded marine mammals, and examining carcasses and tissue samples to collect background information on the possible causes of morbidity and mortality. The Marine Mammal Commission commends the Service and stranding network participants for these efforts. The Commission also commends the Service for its efforts in developing the DPEIS, which we generally believe provides a thorough analysis of the relevant issues. There are, however, certain areas where we think that the discussion in the DPEIS needs to be expanded or clarified or where additional issues need to be considered. We offer the following comments and recommendations to assist the Service in improving the stranding response program and the DPEIS.

Collection and Synthesis of Data from Unusual Mortality Events

As indicated in the DPEIS, Title IV of the Marine Mammal Protection Act requires, among other things, that the MMHSRP "facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild" and "correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters." The National Template Marine Mammal Stranding Agreement (p. 4) states that one of the Service's responsibilities, pursuant to section 402 of the Marine Mammal Protection Act, is to "collect and update periodically and make available to stranding network participants and other qualified scientists, existing information on…strandings by region to monitor species, numbers, conditions, and causes of illness and death in stranded marine mammals." The Commission notes, however, that of the 26 unusual mortality events that were officially declared by the Working Group on Marine Mammal Unusual Mortality Events between 1991 and the end of 2005,[1] final reports have been completed for only six events. Draft reports have been prepared on three other unusual mortality events and papers have been published on seven additional events. This means that the circumstances and consequences of 10 events have not been reported. Such reports are of potential value to stranding network participants and to researchers who are responding to and seeking to understand such events. The Commission believes that it is important that these reports be completed in a timely fashion. The Marine Mammal Commission therefore recommends that the Service (1) provide an update on the status of final reports of unusual mortality events and (2) explore ways to complete and circulate final reports more promptly. In this regard, the Commission points to and endorses the recommendations made in Gulland (2006) (enclosed; see pages 23 and 24), which identified several actions that the Service could take to improve the utility of data collected during unusual mortality events.

Those recommended actions are consistent with the Service's mandate under Title IV and would enhance the Service's Marine Mammal Unusual Mortality Event Response Program. The

[1] See Gulland 2006. Dr. Gulland noted that there have been 29 unusual mortality events since 1992. We included only 26 in our discussion because the other events are currently ongoing or were closed only recently.

Marine Mammal Commission therefore recommends that the Service revise the DPEIS to discuss actions the Service has taken or plans to take to improve the synthesis and use of data collected during unusual mortality events.

Interim Standards for Release

The Interim Standards for Release appended to the DPEIS include several safeguards for ensuring that marine mammals are not released prematurely or in situations where they might pose a threat to wild populations. For example, the interim standards require that stranding network participants prepare "release determination recommendations" and release plans and to obtain the Service's concurrence prior to release. These requirements recognize that facilities may have incentives to promote inadvisable releases. The interim standards do not, however, recognize that, for some species, there may be a countervailing incentive to retain marine mammals for long-term maintenance in captivity and, perhaps, eventual placement at a public display facility. For such circumstances, protocols need to be established to ensure that the rehabilitation of animals and their preparation for eventual release to the wild are pursued diligently and with suitable agency oversight.

The Commission notes that incentives to retain stranded animals for long-term captive maintenance likely are greatest for species with commercial value, such as bottlenose dolphins, or for depleted species for which public display permits are not available. With only a few exceptions, these are species listed under the Endangered Species Act as threatened or endangered. Thus, this may be an issue best addressed in the context of the new MMPA/ESA permit being contemplated in the DPEIS.

Page 2-2 of the Interim Standards for Release states that "[t]he Regional Administrator (i.e., NMFS staff) will review the recommendation and release plan [submitted by a stranding facility] and provide a signed written notification to the Stranding Network participant indicating concurrence and authorization to release or direct an alternate disposition…." The DPEIS does not, but should, discuss the criteria that the Service will use to review and approve or disapprove the recommendations and plans. The Commission's concern is underscored by the Service's Southeast Regional Office's authorization in August 2003 of the release of five pilot whales, despite objections from experts in the fields of cetacean biology, behavior, and veterinary medicine and contrary to the Service's own release guidelines. The animals in question included a dependent calf and a juvenile animal exhibiting aberrant behavior, prompting the outside experts to conclude that release of these animals would be inhumane. Under the Service's own guidelines, the release of dependent calves and animals exhibiting aberrant behavior is precluded. Nine days after the animals' release, scientists tracking the whales observed sharks attacking the calf, and the fate of two other animals was unknown. In that case, the Service chose not to follow its draft release criteria and the advice of the majority of experts it consulted—with adverse consequences. The Marine Mammal Commission therefore recommends that the Service clarify the procedures and substantive criteria, other than those that facilities would need to consider under the Interim Standards for Release, that it will follow in reviewing and approving or disapproving a stranding network participant's recommendation and release plans.

The Interim Standards for Release (pages 3-12 and 4-14) note that "[p]ost-release monitoring provides essential information to develop and refine marine mammal rehabilitation and release practices." On page 2-14 it states that standardization of data collection protocols for monitoring released animals may be helpful in comparing individual cases, and that the Service "will provide the stranding network with the desired format for receipt of tracking data in reports." However, the Service does not elaborate on what that format might be. We concur that standardized data collection protocols would be useful, and the Marine Mammal Commission recommends that the DPEIS be revised to identify the types of information that would be included in protocols for monitoring released animals.

Interim Standards for Rehabilitation Facilities

The introduction to this section (page iv) notes that the Interim Standards for Rehabilitation Facilities establish minimum standards for the temporary care of animals undergoing rehabilitation and that it is the Service's intent to provide a reasonable process for facilities to be upgraded to meet or exceed those standards. However, there is no indication of what the Service intends to do to ensure that rehabilitation facilities are, in fact, meeting the minimum standards (e.g., whether inspections will be conducted, how often, and by whom). The Marine Mammal Commission recommends that this information be provided.

Pages 1-4 and 2-4 state that shade structures or shelters must be provided when local climatic conditions could otherwise compromise the health of the animal. This standard is subjective and allows for broad interpretation. The Service should better define the conditions under which shade must be provided to animals that are undergoing rehabilitation, recognizing that, if such animals are unable to thermoregulate or swim and dive normally, protection from the sun is essential.

Public Viewing of Marine Mammals Undergoing Rehabilitation

Page 6-3 of the DPEIS states that "[c]urrently, public viewing of animals in rehabilitation is not allowed under MMPA regulations…." The discussion goes on to indicate that the MMHSRP "would like to establish guidelines to allow public viewing that would protect the animals as well as the general public…."

Contrary to the statement in the DPEIS, the cited regulation (50 C.F.R. § 216.27(c)(5)) does not establish a complete prohibition on the public display of marine mammals undergoing rehabilitation. Rather, such displays are not allowed unless the Regional Director or the Director of the Office of Protected Resources has specifically authorized them and unless they are conducted in a manner consistent with the requirements applicable to public display. This being the case, regulatory changes are not needed.

The Commission concurs that establishing guidelines for when and under what conditions public display should be allowed is a good idea. However, the DPEIS does not sufficiently describe the types of guidelines being contemplated by the Service, except to note that those guidelines

would be designed to protect the animals and the general public, including animal and human health. It would be helpful if the final EIS expanded on the Service's plans for developing the guidelines and identified other factors that need to be considered before public display of animals in rehabilitation facilities is authorized. For example, public display should only be allowed in situations and in ways in which it would not interfere with the MMHSRP's goal of eventually returning rehabilitated marine mammals to the wild (e.g., precautions should be taken to ensure that viewing opportunities do not acclimate animals to the presence of humans). The Marine Mammal Commission therefore recommends that the DPEIS be revised to elaborate on the Service's plans for developing draft guidelines to govern when public display of marine mammals undergoing rehabilitation will be authorized, including opportunities for the Commission, the affected facilities, and the public to review the draft guidelines prior to their adoption.

A possible complicating issue is whether placing marine mammals undergoing rehabilitation on public display triggers Animal Welfare Act care and maintenance standards that might not otherwise be applicable. Compliance with these standards might place additional financial burdens on rehabilitation facilities and could deflect attention away from achieving the rehabilitation goals of the Marine Mammal Protection Act. The Marine Mammal Commission therefore urges the National Marine Fisheries Service to work closely with the Animal and Plant Health Inspection Service in developing the guidelines for public viewing to ensure that the requirements of the two statutes are met and that the potential for successful rehabilitation is not compromised.

Stranding Network Issues

Over the years, three separate stranding-related issues have generated ongoing concern: insufficient space at rehabilitation facilities, particularly in light of the potential for increased numbers of strandings in the future as a result of climate-related changes; difficulties associated with placing non-releasable marine mammals (particularly pinnipeds, neonates, and animals with chronic health problems [e.g., neurological problems and skin conditions]) in public display facilities; and criteria for determining when stranded marine mammals should be removed from the wild for treatment and rehabilitation (i.e., making on-scene evaluations of the likelihood of a stranded marine mammal being successfully rehabilitated and released). Clear and specific standards also are needed for determining when euthanasia of a stranded animal is appropriate. We understand that this and related issues are discussed in depth by Moore et al. (in press) and suggest that the Service contact the authors for a copy of that paper if it does not already have one. The Commission believes that an in-depth examination of these problems and of potential solutions is warranted. The Marine Mammal Commission recommends that the National Marine Fisheries Service revise the DPEIS to discuss these issues and possible strategies for addressing them.

Please contact me if you have any questions concerning the Commission's comments and recommendations.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Enclosure

References:

Gulland, F. M. D. 2006. Review of the Marine Mammal Unusual Mortality Event Response Program of the National Marine Fisheries Service. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-OPR-35, 32 pp.

Moore, M., G. Early, K. Touhey, S. Barco, F. Gulland, and R. Wells. In press. Marine mammal rehabilitation and release in the United States, costs and benefits. Marine Mammal Science.

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Subject: comments
From: Charles Johnson <CJ.AKNanuuq@alaska.com>
Date: Wed, 30 May 2007 16:06:33 -0800
To: mmhsrpeis@noaa.gov

301 427 2584

David,

The Ice Seal Committee at its annual meeting of Oct, 06 passed a resolution against the reintroduction of rehab seal into the wild, feeling the potential risks of introduced pathogens far outweigh the benefits of a few reintroduced animals to populations that are healthy. Attached are the fminutes and the resolution. The Alaska Nanuuq Commission at its Dec, 05 annual meeting also passed a resolution against the reintroduction of rehab seals.

Charles Johnson, Executive Director
Alaska Nanuuq Commission

the emails keep coming back

Charles

see p 5 of minutes

 5/30/2007 4:24 PM

05/30/2007 8:33PM

May 1, 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Division (F/PR2)
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Charles D.N. Brower
Chairman, Ice Seal Committee
PO Box 946
Nome, Alaska 99762

Subject: Rehabilitation and Release of Arctic Ice Seals

Dear Mr. Cottingham,

The Ice Seal Committee is opposed to the release of rehabilitated ice seals in the Arctic back to the wild due to the threat of spread of disease. Current regulations and policy require the release of marine mammals that are deemed healthy to return back to the wild. We wish to have this practice stopped for ice seals. We have passed resolution, as have the Eskimo Walrus Commission and the Alaska Nanuuq Commission to oppose the release practices for ice seals.

We are willing to work with the National Marine Fisheries Service and other partner organizations to find ways to address the laws, regulations, and policies regarding this issue. We hope to have and exemption for the release of Alaska Arctic ice seals that requires the release stipulations. We do not intend to affect other species within United States jurisdiction.

Sincerely,

Charles D.N. Brower
Chairman, Ice Seal Committee

05/30/2007 8:33PM

Minutes of the

Ice Seal Committee

Alaska Nanuuq Commission

24-25 October 2006
Meeting
Captain Cook Hotel, Anchorage, Alaska

List of Participants:

Name	Organization	Contact
Members		
Charles D.N.	Brower North Slope Borough	CBrower@Ukpik.com
Molly Chythlook	Bristol Bay Native Assosication	mchythlook@bbna.com
Austin Ahmasuk	Kawerak Inc./Bering Straights	sub.rec@kawerak.org
Jennifer Hooper	Assoc. of Village Council Presidents	jhooper@avcp.org
John Goodwin	Maniilaq	JGoodwin@otz.net
Staff		
Rex Snyder	Alaska Nanuuq Commission	harpoon907@yahoo.com
Charles Johnson	Alaska Nanuuq Commission	cj.aknanuuq@alaska.com
Federal Agency		
Peter Boveng	National Marine Mammal Lab	peter.boveng@noaa.gov
Michael Cameron	National Marine Mammal Lab	Michael.comeron@noaa.gov
Barbara Mahoney	National Marine Fisheries Service	Barbara.mahoney@noaa.gov
Guest Presenters		
Brendan Kelly	University of Alaska Southeast	brendan.kelly@uas.alaska.edu
Lori Quakenbush	Alaska Department of Fish & Game	lori_quakenbush@fishgame.state.ak.us
Bob Small	Alaska Department of Fish & Game	bob_small@fishgame.state.ak.us
Paul Stang	Minerals Management Service	paul.stang@mms.gov
Lee Kellar	Alaska SeaLife Center	lee.kellar@alaskasealife.org
Carrie Goertz	Alaska SeaLife Center	
Monica Riedel	Indigenous Peoples' Council Marine Mamls	monicariedel@gci.net
Other Guests		
John Reynolds	Marine Mammal Commission	
Cheryl Rosa	North Slope Borough	
Tim Liebling	Alaska SeaLife Center	
Ann Hoover-Miller	Alaska SeaLife Center	
Pam Tuomi	Alaska SeaLife Center	
Mitch Simionoff	Alaska Native Harbor Seal Commission	
Vera Metcalf	Eskimo Walrus Commission	
Chris Perkins	Eskimo Walrus Commission	
Donna Willoya	Alaska Sea Otter and Sea Lion Commission	
Chandra Meek	University of Alaska Fairbanks, Student	

Call to Order: Chairman Charles Brower called the meeting of the Ice Seal Committee (ISC) to order at 8:43am.

Roll Call: Rex Snyder recognized present Charles Brower, Austin Ahmasuk, Jennifer Hooper, John Goodwin, and Molly Chythlook. Quorum Established.

Approval of Agenda: *Motion to approve agenda by Jennifer Hooper, 2nd Molly Chythlook, passed unanimously.*

Approval of Minutes: *Motion to approve January 2006 and February 06 Meetings minutes by Austin Ahmasuk, 2nd by John Goodwin, passed unanimously.*

Charlie Johnson suggested that in order for the ISC to be consistent with other commissions it should change its bylaws to be representatives from tribal entities not tribal governments.

John Goodwin mentioned that he does not work for Maniilaq but went to the board and asked them to appoint him because he was a seal hunter. He did not want to send an interior person to be on the ISC and they appointed him.

Charlie Brower suggested that an amendment to the bylaws be put forth at the next meeting and he would discuss the issue with Inupiat Community of the Arctic Slope.

Regional Reports:

North Slope: Charles Brower- good hunting in all villages this summer. Mr. Brower personally had an excellent harvest. Lost much dried seal meat from seagulls. Some seals unhealthy and unedible but not a bad season.

Maniilaq: John Goodwin- a good harvest season. Stated that his region is losing old hunters. Subsistence Coordinator for Maniilaq region connects families in need with hunters. A warm fall season. While out tagging ugruchaq noticed more ringed seals this year. The ringed seals were fatter and healthier looking too. Harvested ugruk were not as fat this year. Usually it is the bigger ugruks with rusty faces but some of the young ones had it too. John wants to know more about the red faces and what causes it.

Kawerak Inc./Bering Straits: Austin Ahmasuk reported on comprehensive survey that included questions on seal harvest. Survey is in cooperation with ADFG and North Pacific Research Board funding and is 80% complete. Official report should be available soon. Ice conditions were very good – though trend in weather has been generally warm. Have not heard much in terms of diseases or unhealthy seals. Salmon on increase with record runs – will help spotted seals mostly. A 2002 survey will compliment the 2005 survey. Harvest seems normal from informal discussions. This fall is warm and seems a bit behind in freeze-up; a little late.

Association of Village Council Presidents: Jennifer Hooper reported on not hearing any village concerns. Late Spring break-up with grey summer and fall. Freeze-up is late. AVCP-IUM submitted a joint request for funding with other Indigenous Peoples' Council on Marine Mammals

for line item funding. Jennifer was approached by a museum wanting an ugruk specimen for display. She was uneasy about asking a hunter to catch food to send out and fill with plastic for display. However, request was retracted due to expense of such a display.

Bristol Bay Native Association: Molly Chythlook has replaced Ralph Andersen as the ISC representative. Molly Chythlook described her affiliation with harbor seal surveys with Alaska Native Harbor Seal Commisison and ADFG in 13 communities. Numbers of sea lions harvested declined as numbers of animals declined. Bearded seals are less numerous and timid. Mukluk seal's oil is yellow and must not get warm because it spoils easily. Togiak and Twin Hills reported skinny seals. Lot of sea ice this year making open water skiff use difficult. Ice departed in time for normal herring harvest date. Raining and unpredictable summer weather made hunting difficult such as Round Island walrus hunt. February – April is the peak seal harvest and the harvest stops after the salmon come in because the seals taste too fishy then. Hunting starts again in October. Conditions of skins seems to be degrading – cutting through skin easier when flensing blubber.

Austin Ahmasuk said he has heard of thinner skins too. As a trapper he knows it could be a difference in the timing of the harvest because skins are thinner at certain times of year. Skins may be thinner when seals are molting too.

Indigenous Peoples' Council on Marine Mammals
Monica Riedel gave an update and provided a handout titled "Alaska Native Co-Management and Consolidation of IPCoMM" dated 18 October 2006. She said that the document was the result of meetings and discussion and was initiated by IPCoMM members. She urged support from the Marine Mammal Commission and acknowledged support from others. She asked for a resolution of support and letters to Senators and the President. John Reynolds from the Marine Mammal Commission said that she should discuss her request with Tim Ragen, the new Executive Director, but that the MMC planned a fall 2007 Co-management workshop, which may help.

Monica said that IPCoMM's message has already been delivered to Congress but no commitments have been received. They are still optimistic because the 07 spending bill has not been signed. She gave a copy of IPCoMM's agenda for next meeting to Rex.

Staff Reports

Rex Snyder gave an update on activities, funding requests, and ice seal sampling efforts in North Slope villages. Rex Snyder handed out a copy of an Arctic Sounder Article about seal hunting and emphasized the use of Alaska newspapers to get information out to communities. He also passed out an organizational chart for the ISC. Rex also made a plea for a better process for getting money from NMFS for ISC operations. He has been turning in receipts for reimbursement but often he has no money to work with. NMFS responded that they could assist with that.

Charles Johnson, Executive Director of the Alaska Nanuuq Commission (ANC) presented a report on activities of ANC. The primary focus has been the treaty with Russia and the Administrations hesitation to support congressional enactment due to language mandating the assignment of joint commission members as "Alaska Native"; that the President may assign anyone he or she pleases. Highlighted other projects ANC is involved with: Chukotka Traditional Knowledge Study, Annotated Bibliography of Russian research, Treaty enactment, FWS research on population and polar bear village patrols.

BREAK

Unfinished Business:

National Marine Mammal Lab (NMML)- Peter Boveng and Mike Cameron with Polar Ecosystems reported on seal capture and satellite tracking project from the *Thomas Thompson* research cruise vessel at the leading edge of pack- ice in the Bering Sea during April. John Goodwin and Charles Saccheus also participated and felt that having Alaska Natives as research team members was vital and made for a very successful and advantageous for the program. NMML also gave an update on the Kotzebue satellite tagging project.

LUNCH

Unfinished Business Continued:

Austin Ahmasuk gave a presentation on draft results from a Kawerak Inc. ballistics project on the effectiveness of .17 cal. and .22 cal. for seal hunting. Project provides information for hunters and could be transformed into a handbook or other useful tool.

Dr. Kelly gave an update on ringed seal population movements and genetics that are useful for understanding population structure. Warm weather is affecting seal habitat with reduced ice and snow cover as well as limited denning seasons for pups. So far 338 ringed seal DNA samples are being analyzed so far from known breeding sites.

Lori Quakenbush gave and update on ice seal biomonitoring in villages – working with hunters and users to get full suite of tissue samples and information. Program has sampled 1,102 seals. Alaska ice seal contaminant loads appear nearly 10 times lower than the average of three sites in Canada. She also introduced Mark Nelson, ADFG, and a newly funded effort to collect ice seal harvest information. The funding includes money for workshops and meetings to determine the best way to collect the information. The harvest calendars will also be a focus.

Paul Stang with the Minerals Management Service provided information on Outer Continental Shelf oil and gas lease programs. Mr. Stang informed Committee on MMS's Five Year Lease Program for Beaufort and Chukchi sea lease sales. Chairman Brower suggested more wildlife monitors on board seismic vessels.

New Business:

Alaska SeaLife Center (ASLC), National Marine Fisheries, and Ice Seal Committee discussed strengths and weaknesses of rehabilitation and release of arctic seals. Charlie Brower referred to the Resolutions passed by several ANOs, including ISC, but releases are still continuing. ISC members reiterated concerns about introduction of parasites and diseases to the wild population and that the benefit of release of a few seals does not out weigh the huge potential risk.

Lee Keller of the ASLC explained that their stranding agreement with NMFS requires the ASLC to release rehabilitated seals meeting the release criteria. The current stranding agreement and policies between NMFS and ASLC require release of seals that meet requirements. ASLC gave a review of their rehabilitation program and what types of things they can learn from live but sick animals. ASLC doesn't know how to honor the stranding agreement with NMFS and ISC resolutions. The short-term solution appears to be for ISC to continue to promote local actions as laid out by the posters and pursue a long-term solution such as an exemption in the MMPA for release of ice seals in Alaska.

Motion by Austin Ahmasuk to make exemption for Alaska under the MMPA to the release requirements of stranded and rehabilitated ice seals, 2nd by Molly Chythlook. Discussion: wording must be clear and strong for exemption. Passed unanimously.

October 25, 9:10am

Co-management Agreement discussion on any additions or missing elements. Rex Snyder recommended the agreement address some enforcement issues, especially the concerns with border crossings wearing traditional marine mammal clothing. Barbara Mahoney suggested the ISC approach the Custom Agents for their next meeting. NOAA Enforcement would also be able to attend the next ISC meeting to answer questions on ice seal enforcement issues. No changes to Agreement.

Motion by Austin Ahmasuk to sign Agreement, 2nd by Jennifer Hooper. passed unanimously. Signed by Charles Brower and Barbara Mahoney. Members of Co-management Committee appointed are: All 5 members of Ice Seal Committee and Peter Boveng, Barbara Mahoney, and Kaja Brix.

Back to Unfinished Business:

Technical Committee: Peter Boveng took lead on discussion to review and update Ice Seal Research Plan as a guide and tool for fiscal proposals to Congress and reviewing ice seal work. Discussion on introduction to reflect emphasis on promoting needs for funding – with a clearer voice for broad audience. Charles Johnson will be in D.C. in mid November and would like updated introduction of the research plan for his trip.

Motion by Austin Ahmasuk to table elections for next meeting, 2nd by John Goodwin, passed unanimously.

Adjournment: Next meeting at the call of the Chair. *Motion to adjourn by Austin Ahmasuk, 2nd by John Goodwin, passed unanimously.*

Resolution Against the Release of Rehabilitated Seals to the Wild

Ice Seal Committee Resolution # 01-2006

WHEREAS	a stated purpose of the Ice Seal Committee is to preserve and enhance the marine resources of ice seals (ringed, bearded, spotted, and ribbon), and
WHEREAS	healthy ice seal populations are important for the subsistence of coastal Alaska Native people of the Bering, Chukchi, and Beaufort Seas, and
WHEREAS	the practice of transporting a sick ice seal from its Arctic environment (Bering, Chukchi, or Beaufort Sea), nursing it back to health in waters from the Gulf of Alaska, and releasing it back into the Arctic creates great potential risk of introducing diseases and/or parasites into the wild ice seal populations, and
WHEREAS	there is no population crisis for any of the ice seal species that would justify the potential risk of releasing a few individuals back to the wild, then
BE IT RESOLVED	that the Ice Seal Committee is opposed to this practice and will act locally to prevent sick ice seals from being transported for the purposes of rehabilitation and release.

31 January 2006
Date

_____
Charles D. N. Brower

Sarasota Dolphin Research Program
A Collaborative Effort of the
Chicago Zoological Society and Mote Marine Laboratory
c/o Mote Marine Laboratory
1600 Ken Thompson Parkway Phone: (941) 388-2705
Sarasota, Florida 34236 USA Fax: (941) 388-4223
www.sarasotadolphin.org

30 May 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division,
Office of Protected Resources,
National Marine Fisheries Service,
1315 East-West Highway, Room 13635,
Silver Spring, MD 20910 mmhsrpeis.comments@noaa.gov

Re: MMHSRP PEIS

Dear David,

Thank you for the opportunity to comment on the MMHSRP PEIS. My familiarity with the issues addressed in this document come from many years of experience as a member and now chair of the Working Group on Marine Mammal Unusual Mortality Events, a long-time participant in stranding response and cetacean rehabilitation along the Florida and central California coasts, a principal investigator for long-term bottlenose dolphin health assessment research, a researcher responsible for follow-up monitoring of released rehabilitated cetaceans, and a member and past-chair of the Atlantic Scientific Review Group. The views expressed in the following comments are strictly my own, however, and do not necessarily reflect those of any organization or group with which I work.

The activities of the Marine Mammal Health and Stranding Response Program should be considered essential to responsible management of marine mammals in the United States. I am continually impressed by the dedication and productivity of the members of this small team of experts, and by the vision of their leader, Dr. Teri Rowles. In spite of: 1) the small size of the program in terms of staffing, 2) ongoing resource limitations, and 3) expectations that they "fight fires" as they occur unexpectedly, program staff members have been able to accomplish a great deal. If the "preferred alternatives" identified in the PEIS (and listed below) are realized, then the program should be able to operate even more effectively and efficiently. I support the implementation of the preferred alternatives.

Stranding Agreements and Response
Alternative A4 (Preferred) Final SA criteria would be implemented, new SA template would be utilized, current and future activities included.

The national stranding network is far too valuable a resource to allow to disintegrate or to not be coordinated in such a fashion as to optimize its information potential. There needs to be greater consistency across regions in terms of how stranding network participation is managed, and the

expectations for participant involvement. Many stranding-related issues cross regional boundaries (e.g., Unusual Mortality Events), and lack of consistency in terms of stranding response, data collection, and data access detracts from our ability to understand the causes of strandings, and potentially the expeditious detection of UMEs. More centralized oversight and management of national stranding response, through Headquarters, would be beneficial.

Carcass Disposal
Alternative B3 (Preferred) Recommendation to transport chemically euthanized animal carcasses off-site.

Carcass disposal has been an ongoing issue with stranding response, especially with large whales and with Unusual Mortality Events. It is important that chemically-euthanized animals not remain in areas where the chemicals can be released to the marine environment as the animals decompose.

Rehabilitation Activities
Alternative C3 (Preferred) New SAs would be issued, rehabilitation activities continue. Final Rehabilitation Facility Standards would be implemented.

While there is increasing recognition that many stranded animals may not be appropriate candidates for rehabilitation (Moore *et al*., in press), there currently is public pressure for rehabilitation of at least some stranded marine mammals. In addition, rehabilitation of endangered species has the potential to provide conservation benefits that are more difficult to identify with non-endangered species. Currently, rehabilitation efforts are performed by facilities with very diverse physical capabilities and husbandry programs. Implementing a minimum set of standards would help to improve care for the animals, and would improve the knowledge base for treatments.

Release of Rehabilitated Animals
Alternative D3 (Preferred) New SAs would be issued, release activities continue. Final Release criteria would be implemented.

Recognizing the risks posed to wild populations by the release of marine mammals from rehabilitation facilities, stringent criteria are needed for deciding which animals are appropriate release candidates. Obligatory follow-up monitoring, with timely dissemination of results, is needed to learn which rehab efforts are useful, and to explore the impacts of released animals on wild populations (e.g., Wells *et al*. 1999; in review a, in review b). Sample sizes from releases to date are generally too small to be conclusive.

Disentanglement Activities
Alternative E3 (Preferred) Disentanglement network would continue current activities on East Coast with modifications to West Coast network. The Disentanglement Guidelines and training prerequisites would be implemented.

The Disentanglement Network has played an important role with large whales, especially in the case of northern right whales, where each individual is critical to the continuation of the species.

#17

This is a highly visible and dangerous activity. Every effort should be made to ensure proper training and maintenance of standards for operations.

Biomonitoring and Research Activities
Alternative F3 (Preferred) New ESA/MMPA permit would be issued to include current and future biomonitoring and research activities.

Biomonitoring and research activities are crucial for identifying current and emerging threats to marine mammal populations, and for placing strandings into appropriate perspective (e.g., Wells *et al.* 2004). Methods have been developed to accomplish many of these research activities safely and effectively, with minimal risk to the animals, but with tremendous returns in terms of data that can not be obtained in any other way. Focused hypothesis-driven research, as well as research for establishing health baselines, should aid future investigations of Unusual Mortality Events. In order to optimize the value of this research, it is important that a set of standardized diagnostic laboratories be identified or established that will allow for consistent sample analyses, and will be able to expeditiously handle the large number of samples that may result from a research program or Unusual Mortality Event investigation, for example.

I am very supportive of the development and implementation of the "Policies and Best Practices Manual" as described, including:

- Evaluation Criteria for a Marine Mammal SA (New Applicants and Renewals)
- National Template for Marine Mammal SAs
- Standards for Marine Mammal Rehabilitation Facilities (a.k.a. Rehabilitation Facility Standards)
- Standards for the Release of Rehabilitated Marine Mammals (a.k.a. release criteria)
- Marine Mammal Disentanglement Guidelines

Such a package of standardized policies and practices will help to elevate the quality of efforts of the entire network, will increase the value of the information resulting from these activities, and will improve the return on investment the Prescott Grants Program, for example. The Prescott Grants Program has accomplished a great deal to date, and its continuation is crucial to the continuation and improvement of national stranding response.

I would be happy to discuss any of these points in greater detail with you at your convenience. Staff should be commended for the work they put into this lengthy document.

Sincerely,

Randall S. Wells, PhD

P.S. In Section 3-20, line 24, sperm whales should be moved from the list of mysticetes.

Literature Cited

Moore, M.M, G. Early, K. Touhey, S. Barco, F. Gulland, and R.S. Wells. In press. Rehabilitation of marine mammals in the United States: Risks and benefits. Marine Mammal Science.

Wells, R. S., H. L. Rhinehart, P. Cunningham, J. Whaley, M. Baran, C. Koberna and D. P. Costa. 1999. Long-distance offshore movements of bottlenose dolphins. Marine Mammal Science. 15:1098-1114.

Wells, R.S., H.L. Rhinehart, L.J. Hansen, J.C. Sweeney, F.I. Townsend, R. Stone, D. Casper, M.D. Scott, A.A. Hohn, and T.K. Rowles. 2004. Bottlenose dolphins as marine ecosystem sentinels: Developing a health monitoring system. EcoHealth 1:246-254.

Wells, R.S., G.A. Early, J.G. Gannon, R.G. Lingenfelser, and P. Sweeney. In review a. Tagging and tracking of rough-toothed dolphins (*Steno bredanensis*) from the March 2005 mass stranding in the Florida Keys. NOAA Tech. Memo.

Wells, R.S., C.A. Manire, D. Smith, J.G. Gannon, D. Fauquier, and K.D. Mullin. In review b. First records of movements and dive patterns of a Risso's dolphin, *Grampus griseus*, in the Gulf of Mexico and Atlantic Ocean.

Subject: Attn: MMHSRP PEIS
Date: Wed, 30 May 2007 08:37:01 -0400
From: Tech Desk <mmsc@verizon.net>
Organization: Marine Mammal Stranding Center
To: mmhsrpeis.comments@noaa.gov

Dear Mr. Cottingham,

The efforts of NMFS to standardize the care among stranding response organizations is welcome and all of your work is greatly appreciated. The following are some suggestions regarding the "Policies and Best Practices: Marine Mammal Stranding and Response, Rehabilitation and Release standards for Rehabilitation Facilities" specifically as it pertains to pinniped rehabilitation facilities and their pool requirements.

In Section 2.1.1 the recommended standard for pools is for them to meet USDA, APHIS regulations. These standards are based on the adult length of the largest species housed in that pool and were developed for permanent display facilities. These standards would not be very practical for rehabilitation facilities like ours who handle primarily pups and juveniles of various species that can grow to be quite large and rarely, if ever, strand in our area of response as adults. Also, it is not very clear whether these standards would apply to all pools used for rehabilitation or only those used for holding animals in the final stage of care prior to their release.

I appreciate the opportunity to comment and thank you for your time and consideration.

Robert C. Schoelkopf

Director

Marine Mammal Stranding Center

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NATIONAL MARINE LIFE CENTER
Caring for Stranded Marine Animals

30 May 2007

Mr. David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources, National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Dear Mr. Cottingham,

Thank you for the opportunity to comment on the Marine Mammal Health and Stranding Response Program Draft Programmatic Environmental Impact Statement. The document is thorough and thoughtful, and clearly represents a great deal of positive effort on the part of MMHSRP program staff to support and improve the stranding network.

I fully support adoption of the preferred alternatives.
* Alternative A4 – to implement final Stranding Agreement criteria, use a new SA template, and include current and future activities.
* Alternative B3 – to transport chemically euthanized carcasses offsite when possible and practical.
* Alternative C3 – to issue new Stranding Agreements, continue rehabilitation activities, and implement Rehabilitation Facility Standards.
* Alternative D3 – to issue new Stranding Agreements, continue release activities, and implement Release Criteria.
* Alternative E3 – to continue current activities of the Disentanglement Network on the east coast, to continue with modifications the Disentanglement Network on the west coast, and to implement Disentanglement Guidelines and training prerequisites.
* Alternative F3 – to issue a new ESA/MMPA permit to include current and future biomonitoring and research activities.

In order to facilitate organizations meeting and maintaining Rehabilitation Facility Standards and all other standards and activities recommended in the preferred alternatives, I urge NOAA to continue and expand the John H. Prescott Rescue Assistance Grant Program. The Prescott Grant Program has been responsible for many improvements in marine mammal stranding response, rehabilitation, and release. Additionally, the Prescott Grant Program is responsible for significant advances in science that continue to improve our knowledge of marine wildlife health and how that relates to oceans and human health.

Thank you for considering these comments.

Sincerely,

Kathryn Zagzebski

Kathryn A. Zagzebski
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New England Aquarium

May 30, 2007

David Cottingham, Chief
Marine Mammal and Sea Turtle Division
NMFS 1315 East-West Highway
Silver Spring, MD 20910-3226

Dear Mr. Cottingham,

I am writing on behalf of the New England Aquarium, a stranding agreement holder in the Northeast region, to provide feedback on the Draft Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program. We support NOAA in your efforts to develop standards for the national marine mammal stranding and disentanglement networks. We appreciate the effort that has gone into these documents and are grateful for the opportunity to provide comments.

Of great significance are Section 2.1.1.3 Stranding Agreement and Response Alternatives. We reject Alternative A1 and A5 primarily because the risk to public safety is too great. If trained authorized personnel do not respond to injured or distressed marine mammals the public will take matters into their own hands as we have seen in the past. We also reject Alternative A3 and A2 on the grounds that they lack standardization and guidelines for the national network. We endorse Alternative A4 and support NOAA in their goal to offer guidelines, minimum criteria and standardization for network participants.

Although we support NOAA's development of a Policies and Best Practices Manual, we are concerned that there are countless items throughout that add new or increased responsibilities onto stranding organizations. We are very supportive of the cooperative relationship that we have enjoyed for years with NOAA, but the constant addition of new requirements in reporting, inspection, training, etc. add additional strain to organizations that have minimal staff, funding, and time and that cover a huge area of coastline and a large number of stranding responses each year.

<u>Specific Comments on the draft National Stranding Agreement Template</u>

1. *Article III section B & C.* The language in the NOAA deliverables section is quite different from the language used in the Stranding Agreement Participant section. The NOAA deliverables section includes the phrase "as needed and as available," while in the Participant deliverables section the wording changes dramatically to the participant "shall bear all expenses." While it is appropriate to clarify the financial liability, we believe NOAA should cover the cost, if one exists, of all Level B or C data they request.

Alternatively, the language could be changed to closely match the NOAA section; for example: "as needed and as funds are available".

2. *Article II section B* lists the NMFS responsibilities. It would be helpful to the Stranding Agreement Participants to understand the experience level and qualifications of the NOAA employees in its region. Stranding Participants are all required to provide such information and it seems prudent the NOAA agree to do the same.

3. *Article II, section C, part 4* states that the stranding participant shall bear any and all expenses incurred with the taking, collection, or other activities pursuant to this agreement. NMFS may be able to support costs associated with specific analysis and additional requests as funds are available and authorized.

   This section should clarify that these activities do not include the towing of large whales. We also suggest that the language reflect the fact that activities will be based on the financial resources of the Stranding Participant. If the Stranding Participant does not have the resources available then the samples cannot be collected, shipped, or analyzed. Language used in the NMFS responsibility section such as "as resources are available" would be appropriate here.

4. *Article V, section B1, part f* states that the stranding participants "shall prohibit the public display and training for the performance of stranded rehabilitating marine mammals as required by 50 CFR 216.27 (c) (5). This includes any aspect of a program involving interaction with the public."

   We feel that the sentence, "This includes any aspect of a program involving interaction with the public" should be clarified and the terms defined. As it stands this would eliminate many highly effective yet non-detrimental education programs currently in progress. It would significantly impact many facilities that have free visitation programs to their rehabilitation centers.

<u>Specific Comments on the Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals)</u>

1. *Section 2.1 General Evaluation Criteria for Articles III, IV, and V Authorization section 10.* This section states that a prospective SA must apprentice under a SA holder for a minimum of three years. We suggest that NOAA assign a number of rehabilitation cases to meet the minimum requirements rather then length of time.

2. *Section 3.2* states that key personnel are required to have necropsy experience, but this seems unnecessary if level B and C data is only collected "if possible" as is stated in this section. If necropsies are not required, why is necropsy experience for staff?

3. *Section 4.2 Qualifications for Article IV Authorization section f.* Although it states that this qualification is "preferred but not required" it should be removed

since mass strandings are limited to only a few geographical locations throughout the nation.

4. *Section 5.2 Qualifications for Article V Authorization section 1 c.* "Experience in a supervisory role" should be defined. Does this mean supervising volunteers and interns during husbandry care or supervising the rehabilitation case?

Specific Comments on Standards for Cetacean Rehabilitation Facilities

1. *Section 1.1 Facilities, Housing and Space*
In the paragraph on unweaned neonate cetaceans, if the rehabilitation facility is considering permanent care, they should also provide an updated staffing plan to NOAA since an unweaned cetacean would likely require 24-hour care for weeks or months.

2. *Section 1.6.1 Diets and Food Preparation*. Bullet three states, "Diets reviewed by a nutritionist and the attending veterinarian." This request seems excessive. Most facilities do not have a nutritionist on staff, even the large facilities like the New England Aquarium. It should be enough that the attending veterinarian and the biologists evaluate and calculate the diets. Requiring that a nutritionist review all the diets may prove to be prohibitively costly for the majority of the rehabilitation centers when the husbandry and veterinary staff can manage this.

3. *Section 1.6.6. Feed Records, Minimum Standard* bullet three states that a girth measurement must be obtained weekly on cetacean rehabilitation candidates. While this may be okay in the beginning stages of rehabilitation, weekly captures in later stages are excessive. Every other week would be more appropriate with cetaceans in the later stages of rehabilitation.

4. *Section 1.7.1 Veterinary Experience* states that veterinarians be available to assess animals during mass stranding events. This should be clarified. In many smaller events veterinarians are often not on site but consulting via phone. We acknowledge that in some regions Participants often act on their own accord with limited or in the absence of veterinary oversight. Wording needs to provide direct guidance for these groups but should also not cripple more responsible mass stranding responders who work consistently under the direction of veterinarians. Under *RECOMMENDED* for that section is states the vet be a full time employee or contracted veterinarian of record at facilities managing ten or more cetacean cases per year. This does not clarify if that included live and dead animals or just live? If the latter then this requirement could prove prohibitive for smaller facilities with traditionally low cetacean numbers. ***Section 2.7.1 in the Pinniped section*** also recommends that the vet consult with the vet on record at facilities managing over 50 pinniped cases per year. Does this included dead animals? If not this seems to go against NMFS new direction of making difficult decisions.

5. *Section 1.7.2 Veterinary Program section, Minimum Standards.* This section taxes the veterinarians with a lot of paperwork that seems excessive, particularly bullet two, which requires a review of Standard Operating Procedures every six months. One time per year is sufficient. Smaller facilities or those not associated with a larger park or Zoo have contracted veterinarians who have another full time job in private practice. While we strongly support veterinary oversight we also think the demands on the veterinarian's time should be reasonable and focused on animal health and direct animal care. Non-veterinarians can perform some of the tasks listed here.

6. *Section 1.9.1 Record Keeping:* Bullet 13 states that medical records should be available for NMFS review upon request. It should be clarified that this statement does not mean that NMFS is able to retain copies of the medical files or diagnostic results, because these are level B and C data and are owned by the Participant. This should be modeled after the AFIS regulations where regular inspections and reviews take place but AFIS does not retain copies. An agent visits the facility and reviews the documents in house. **Bullet 14** states that medical records must be kept on site for a minimum of 15 years. It should be clarified if this means hard copies or computer copies. Computer copies can be kept more easily, whereas hard copy storage may be problematic. If this refers to hard copies then ten years on site or fifteen years at a secured storage area should be sufficient. (This is restated in the Pinniped section).

7. *Section 1.14 Training and Deconditioning Behaviors* states the staff veterinarian should evaluate the benefits of training. We recommend that a person with at least three years of operant conditioning with cetaceans be consulted regarding the training plan and the plan for deconditioning. Phone consult would be sufficient before, during and prior to the deconditioning. Many marine mammal trainers will provide support free of charge.

Specific Comments on Release Criteria

8. Section 3.8 Marking for Individual Identification of Cetaceans prior to Release. This section suggests three forms of identification prior to release. One of these is non-invasive while the other two are invasive. We are concerned about freeze branding and whether this is really necessary with a dorsal or satellite tag in place?

Subject: **ATTN: MMHSRP PEIS**
Date: Wed, 30 May 2007 20:05:37 -0400
From: Rob DiGiovanni <rdigiovanni@riverheadfoundation.org>
To: mmhsrpeis.comments@noaa.gov
CC: rdigiovanni@riverheadfoundation.org

Dear Mr. Cottingham,

I would like to thank you for the opportunity to comment on the draft EIS statement. These comments refer to the Interim policies and best practices, Marine Mammal Stranding Response, Rehabilitation and Release.

I feel that the guidelines outlined in this document are acceptable as long as they remain guidelines and do not become regulations. The major issues I have are the discrepancies between the minimum and recommended standards. I do not understand how they relate and how they would be weighted if they became regulations. I feel most facilities will aspire to meet the minimum standards and improve their facilities. However, if the recommended guidelines become regulations this would require an additional upgrade coupled with an increase the cost of conducting rehabilitation. These upgrades would require and additional source of funding not able to be covered under the current John H. Prescott Rescue Assistance Grant Program. Currently the only way to fund moderate upgrades is through this grant program. Unfortunately if these funds are diverted from general operational support our programs will not be able to meet our obligations operationally. As the cap for funding is $100,000 (and we currently do not have enough funding to support the existing program proposals) when the burden of upgrade is added, funding will fall short.

A couple of examples of where costs of general operations will increase without any increase in animals recovered are as follows. By increasing the coliform sampling regime for rehabilitation tanks to a weekly cycle lab costs for facilities that maintain individual pools for each animal would rise to $70,000 a year at current prices. When looking at staffing requirements under the proposed guidelines, if we were to maintain 24-hour care, staffing costs would more than double at the current rate. The doubling in staff cost would not be able to be absorbed if Prescott Grant Funding is not increased significantly.
Another concern is that over the year's marine mammal stranding facilities have seen major changes and shifts in numbers and species composition of stranded animals. This would require our facility and many others to make changes in the life support system and staffing levels in addition to our five-year upgrade plan. For example, our facility does not currently rehabilitate pups but if pupping starts occurring in our region there would be a costs associated with modifying the facility to comply with the new regulations. Although we do meet the guidelines set forth to deal with current strandings it is the increase in strandings and rare occurrences that cause concerns. Another general comment is that all references to tank diameters and dimensions should be based on actual animal size being rehabilitated in that tank and not the average adult length. These changes assume that animals will not be in the facilities during construction and operations will be conducted offsite. Another problem associated with these upgrades is related to the continuous operations of the rescue program. If facility upgrades cannot be timed to coincide with a decrease in the number of animals, alternate housing would need to be secured. It would be helpful to have NMFS facilitate a coordinated plan, based on their need assessment throughout each region, to upgrade facilities so as not to create a response void.

Section 1.1 Facilities, housing and space
The statement "prior to receiving an unweaned cetacean calf for rehabilitation, facility personnel must submit a plan to the NMFS regional coordinator which will include options and timeline for decisions regarding disposition" should be clarified whether that means receiving from another facility or picking it up from the beach, as most assessment would be done

upon arrival at the facility. It should be modified to "shortly after receiving an unweaned cetacean calf for rehabilitation, facility personnel must submit a plan to the NMFS regional coordinator which will include options and timeline for decisions regarding disposition"

Section 1.1.1 Space requirements for pool, bay, or ocean pens
The statement "pools shall have a minimum horizontal dimension of 9.75 meters (32 feet) or two times the average adult length of the largest species in the pool, whichever is greater" should be changed to "pools shall have a minimum horizontal dimension of 9.14 meters (30 feet) or two times the actual length of the largest species in the pool, whichever is greater"

Section 1.1.4 Critical Care Animals and Calves
The statement "control air temperature above the pool between 50 – 80°F when appropriate to facilitate recovery" should refer to the environmental parameters encountered by the species undergoing rehabilitation.

Section 1.3.2. Frequency of testing in closed, semi-open or open systems
The statement "maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian" should add "or a husbandry care specialist"

Section 1.6.1 Diets and Food Preparation
The statement "diets reviewed by a nutritionist and the attending veterinarian" should be altered to "diets reviewed by a nutritionist, attending veterinarian or animal care specialist"

Section 2.1.1 Pool requirements
The statement "facilities where numerous pinnipeds are rehabilitated consistently each year should be equipped with at last one pool and haul-out area that meets APHIS standards for at least one adult of that species where one or more per year strands as adults" should be altered to "facilities where numerous pinnipeds are rehabilitated consistently each year should be equipped with at last one pool and haul-out area that meets APHIS standards for at least one adult of the species when the average of occurrence increases to one or more per year.

Thank you for you consideration in this matter.

Robert A. DiGiovanni Jr.

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BRISTOL BAY NATIVE ASSOCIATION

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May 31, 2007

Mr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Mammal Fisheries Service
1315 East-West Highway
Room 13635
Silver Spring, MD 20910

ATTN: MMHSRP PEIS

On behalf of the Qayassiq Walrus Commission, and the Bristol Bay Marine Mammal Council, we thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement (DPEIS) on the 'Rehabilitation and Release of Marine Mammals.' I also work for the Bristol Bay Native Association's Marine Mammal Program which serves thirty (30) federally recognized tribal/village councils from Togiak to the Nushagak Bay and Nushagak River watershed communities, the Lake Iliamna sub-region, the Naknek area, and the Alaska Peninsula Region to Ivanoff Bay area.

The Bristol Bay and the Alaska Peninsula coastal and inland communities totally rely heavily on Alaska Native traditional harvest of the food resources which include marine mammals (bearded seals, ringed seals, spotted seals, harbor seals, beluga whales, Steller sea lions, Northern sea otters, and walrus). The marine mammals are an integral part of the culture and economy in Native communities and have been since time immemorial. Traditionally, Native hunters have never looked to just one of these species for sustenance and still do not today. Native communities depend on everything the marine ecosystem can provide including seabirds, waterfowl, salmon, herring, clams, and other shellfish species found in the marine environment. The Alaska Native way of life consists of a year-round cycle in harvesting the marine mammals, seabirds, waterfowl eggs, salmon, herring, smelts, hooligans, Northern pike, whitefish, Dolly varden, trout, Arctic char, blackfish, tomcod fish, herring eggs, clams and other shellfish. Hunting for large land animals, trapping for furbearing animals, and gathering edible berries, plants, and medicinal plants is part of the Native way of life. There are oral traditional Native customs, values, and ways the hunters and gatherers adhere to continue to be provided by Mother Nature. For example, Alaska Native people were taught by their ancestors to treat the land and the sea they harvested from with respect; to get only what they needed and leaving

enough eggs, fish, and animals behind so more will be available next season. This is still a part of conserving the natural resources by the Alaska Native people. The Alaska Native people were taught not to leave the place where they harvested traditional foods disturbed and messy. They were taught to properly dispose of unedible animal parts either to designated land and sea areas. Today, hunt captains have a process they go by in screening their hunt crew to ensure a successful harvest by abiding by the Alaska Native traditions. One of the practices, the Alaska Native's was taught was not to play or treat animals disrespectfully. This is one of the reasons, the majority of Alaska Native communities do not support some of the Western scientists, and institutions research projects. The animals are not to be touched or played with was one of the traditional Alaska Native customs, otherwise if the hunter hunted, slowly, the animals or game he hunted will eventually become scarce. These very important Alaska Native traditions or customs need to be respected by researchers. Cooperatively working with the respected communities of any proposed projects need to be presented to the village council's for their approval. One of Bristol Bay Native Association's goals is to build local capacity. One information and or way of doing this is to hire local people to provide expertise in a project because they are knowledgeable about their environment and their traditional hunting areas. A simple courtesy can go a long ways.

The main concerns I would like to address include release of marine mammals after they have been rehabilitated; freeze branding or marking marine mammals for research purposes; and prescribing medicines to marine mammals. My other comment will be recommendations of this Program to conduct statewide/regional marine mammal stranding workshops in coastal Alaskan sub-regional hub communities in the Bristol Bay, and the Alaska Peninsula.

Release of Marine Mammals After Rehabilitation

We do not support releasing marine mammals after they have been rehabilitated to a different area than from where they originally came from. One of the Bristol Bay Marine Mammals concern is if the Alaska SeaLife Center or agencies rehabilitating a marine mammal, and releases it to a different location than where it originally came from, various diseases, parasites, and new illnesses can be spread to the marine mammals and other marine resources. The recommended process for agencies that rehabilitate marine mammals from communities is to work with the local village council where the call originated from. The Alaska Native traditions is if a baby marine mammal is observed, do not touch it thinking it is orphaned, because usually the mother is nearby feeding and sometimes they feed up to a day. The majority of coastal communities recommend leaving the orphaned baby animal alone, and let nature take care of it. An educational flyer needs to be made about observing marine mammals that may be orphaned, stranded or ill and be sent to all Alaskan coastal communities. I have received some calls from Bristol Bay communities of marine mammals thinking they were orphaned, and they went ahead and called, for example, the Alaska SeaLife Center, or the local National Wildlife Refuge offices without contacting the local village or traditional councils. The recommended procedure is if a call is made to, for example, the Alaska SeaLife Cent to rehabilitate a baby animal, contact the village council. Find out who the Village Council President or Vice-President is and follow their recommendations. If they approve to have the animal rehabilitated, then the person can also contact their regional Native Association marine mammal program, the Refuge, and Fish & Game offices to cooperatively rehabilitate the animal upon approval of the Council. These types

of protocols need to be developed.

Freeze Branding or Marking of Marine Mammals

Another procedure that researchers, federal and state agencies have conducted is branding/marking marine mammal's skin and hides for research tracking purposes. This was a revocation of the federal trust responsibility between the Alaska Natives and the Federal Government. The main Federal Trust Responsibility between the Federal Government and the Alaska Natives is to protect their traditional way of life to ensure it will continue on into the millenium and beyond. This includes harvesting marine mammals for food, to use the fur for parkas, hats, and hide for footwear or for covering the traditional *qayaq* or boat. These so called freezed branding or marking of Sea lions was done without the permission of the local coastal Alaska Native people that traditionally harvest seals. There have been studies done by so Western science 'experts' including marine mammal population trends, genetic research and collecting skin samples. These are good as long as the marine mammal is not 'played' with meaning, treating the animal disrespectfully. Some of the marine mammal studies have concluded a decline in various species. One of the reason is Alaska Native traditional customs are not being adhered to which includes 'freeze branding or marking *any* animals in the sea, the land, and any location they haulout at. Thus, a population of an animal can misteriously decline, or in the Alaska Native culture, an animal can become scarce for an unknown reason. These are important Native traditional advice to consider before Western scientists touch the animals eaten. Just like the beef rib-eye steaks eaten in the lower '48 and relished by a majority of Americans, coastal Alaska Natives relish and cherish their seal oil, dried seal meat, and traditional delicacies that cannot be replaced by damaged or spoiled goods. Therefore, we do not support any freeze branding or marking of any marine mammals in coastal Alaskan waters. It would be beneficial for researchers and scientists to contact local Alaska Native Organizations or Village Councils or Traditional Councils or IRA's to present them with any proposed research projects including marking, tagging, sampling of any animals.

Prescribing and/or Injecting Medicines to Marine Mammals

Another concern of the Bristol Bay Marine Mammal Council, the Qayassiq Walrus Commission, and Bristol Bay communities is researchers prescribing or injecting medication to marine mammals while in the field. The hunters want to ensure the marine mammals they harvest are healthy and drug free, as well as disease free. They understand and trust agencies which get samples of marine mammals in their area, that the animals will be analyzed and results will be send back to their communities in a timely manner. Due to the high cost of fuel, and oil, the majority of the hunters are staying out longer until they harvest marine mammals. For example, for the Dillingham walrus hunt, it costs approximately $ 6,000 to traditionally harvest walrus at Round Island. The hunt captain and crew will try to get their quota of four walrus. The walrus will be brought back to Dillingham and will be shared with the surrounding Nushagak Bay communities. The value of hunting a healthy animal is essential for the survival of several communities in Bristol Bay. We want to continue to hunt and harvest healthy marine mammals and know they are drug free.

Other Recommendations

I am enclosing the Bristol Bay Native Association's Policy Guidelines for Research In Bristol Bay, Alaska adoped by the BBNA Board of Directors for your information.

For further information on the communities served by the Bristol Bay Native Association, you may connect to the following BBNA web link site at: http://www.bbna.com/who.htm.

Thank you for considering our public programmatic EIS comments and we look forward in working with you in the future.

Sincerely,

Bristol Bay Native Association

Helen M. Chythlook
Marine Mammal Coordinator

Enclosure: Bristol Bay Native Association Policy Guidelines for Research in Bristol Bay

BRISTOL BAY NATIVE ASSOCIATION
POLICY GUIDELINES FOR RESEARCH IN BRISTOL BAY

The following principles, adopted by the BBNA Board of Directors, are consistent with those adopted by the Alaska Federation of Natives in May of 1993 and shall serve as guidelines for scientific research in the Bristol Bay region.

Alaska Natives in Bristol Bay share with the scientific community an interest in learning more about the history and culture of our societies. The best scientific and ethical standards are obtained when Alaska Natives are directly involved in research conducted in our communities and in studies where the findings have a direct impact on Native populations.

BBNA recommends to public and private institutions that conduct or support research among Alaska Natives in Bristol Bay that they include a standard category of funding in their projects to ensure Native participation. BBNA recommends all scientists and researchers who plan to conduct studies among Alaska Natives in Bristol Bay to comply with the following principles:

Advise Native people who are to be affected by the study of the purpose, goals and timeframe of the research, the data-gathering techniques, and the positive and negative implications of the research.

Obtain the informed consent of the appropriate governing body, village or tribal council through a letter of support or the resolution process.

Hire and train Native people to assist in the study with the intent to building capacity for Native-led research.

Guarantee confidentiality of surveys and sensitive material.

Honor the contributions of Native participants by compensating them for their time, intellectual property and involvement.

Respect the culture and traditions of affected communities.

Use Native language in communities where English is the second language.

Provide the affected Native communities with the opportunity to comment on research reports before a final draft is released.

Include Native viewpoints and acknowledge the contributions of Native resources and people in final publications.

Inform affected parties and villages in a summary and in non-technical language of the major findings of the study.

Provide copies of studies to the local library, villages, agencies and other affected organizations.

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Subject: Comments on draft rehab standards
Date: Thu, 31 May 2007 09:39:12 -0700
From: "Dr. Felicia B. Nutter" <felicia_nutter@hotmail.com>
To: mmhsrpeis.comments@noaa.gov

Comments on Interim Policies and Best Practices Marine Mammal Stranding Response, Rehabilitation, and Release: Standards for Rehabilitation Facilities<?xml:namespace prefix = o ns = "urn:schemas-microsoft-com:office:office" />

Chapter 2 – Standards for Pinniped Rehabilitation Facilities

Throughout this document, suggest that "at the discretion of the attending veterinarian" be applied to many if not all of the minimum standards. Many situations arise during medical treatment and rehabilitation of stranded marine mammals where it might actually be detrimental to their recovery to follow the standards. For example, activity and access to water may need to be severely limited for animals with fractures.

1.0 Facilities, housing, and space

Due to variations amongst the most commonly rehabilitated species, their growth rates, and varying sizes at different life stages and age classes, standards for space requirements should be based on the individual animal housed at any given time, and not generalized on measurements of adults of the same species.

p 26, line 5: Suggest that the temperature range of 60-80F is too narrow and unrealistic. The range should be the same as pinniped species are exposed to in the wild, with protection from extremes of heat and cold.

1.1 Pool requirements and 1.2 Dry resting area

As stated in 9CFR3.110 (revised January 1, 2005), Sec 3.110(b)

Holding facilities used only for medical treatment and medical training need not meet the minimum space requirements as outlined in Sec 3.104. Holding of a marine mammal in a medical treatment or medical training enclosure that does not meet minimum space requirements for periods longer than 2 weeks must be noted in the animal's medical record and the attending veterinarian must provide justification in the animal's medical record. If holding in such enclosures for medical treatment and/or medical training is to last longer than 2 weeks, such extension must be justified in writing by the attending veterinarian on a weekly basis.

Since the USDA-APHIS standards make a specific exception for medical treatment, and since rehabilitation facilities are by definition providing medical treatment, there should be no requirement for rehabilitation facilities to meet the same USDA-APHIS standards for marine mammal housing for long-term/display facilities. The exception for medical treatment should remain.

To reduce paperwork, particularly in high-volume rehabilitation centers, we suggest that an exception be made to the required weekly written justification for holding animals under medical treatment. Holding in appropriate facilities for medical care should be permitted until the rehabilitated animals are deemed healthy for release by the attending veterinarian.

Veterinary discretion should apply to all pool dimensions, not just surface area of the pool, as written in the recommended standards.

1.2 **Dry Resting Area**

The description of how to calculate dry resting area is confusing to read. We suggest that a table be prepared, based on body length, for the required surface area. This table could be similar to the one for cetaceans in 9CFR3.104, which is based on body length and not on species.

1.6 **Air Temperature**

Please clarify whether the proposed minimum standard applies to indoor facilities only. For outdoor rehabilitation facilities, there is no practical way to control ambient air temperature.

Suggest that if protection from extremes of heat and cold are provided, such as access to heating pads, shelters, shade, water spray, etc., the holding of animals in such areas should be at the discretion of the attending veterinarian.

1.7 **Housing for Critical Care Animals**

The language in section 1.7 is more generally appropriate for ambient conditions: *provide shelter from extremes of heat or cold, and provide heat as appropriate for animals held in cold climates*.

Please clarify what "appropriate in size" means for individual dry haul out space or individual enclosures.

Providing a structurally separate quarantine facility for all incoming animals in not necessarily appropriate or feasible. If there is adequate separation between portions of a structure and between animals, that should

suffice.

1.8 Housing of Pups

Housing arrangements should be at the discretion of the attending veterinarian and/or trained husbandry staff. In many situations, paired or group housing of young animals helps to decrease stress.

Raised platforms (in both section 1.8 and 1.9) are not appropriate, as animals in the wild often haul out and sleep on hard, cold surfaces. Dry resting areas may be appropriate and necessary for critically ill animals, but should be at the discretion of the attending veterinarian.

1.11 Housekeeping

Requiring enrichment items to be non-porous and cleanable excludes most if not all natural items, such as kelp, driftwood, etc. Suggest that if items are not porous and easily cleaned, that they be disposable and not shared between pens or pools, e.g. used for only one animal or group of animals.

1.12 <?xml:namespace prefix = st1 ns = "urn:schemas-microsoft-com:office:smarttags" />Pest Control

Preventing contact between rehabilitating animals and all wild animals (i.e. birds, small rodents, insects) is not feasible, particularly for outdoor facilities. Control is appropriate.

2.7 Water Temperature

Holding water temperature within the normal habitat range is not feasible, nor is it necessary for short-term rehabilitation. Suggest that this be changed to “protect from extremes of heat and cold,” as in other sections.

3.1 Prevention of Animal to Animal Disease Transmission

Individual quarantine of all animals is not necessary or appropriate. Please insert language indicating that batch quarantine is permitted and appropriate, as animals are often admitted in groups during seasons.

Eye shields or safety glasses are not necessary or appropriate. Suggest changing this to the provision of eye-wash stations, and the option for personnel to wear shields or glasses at their discretion.

3.3 Prevention of wild animal to marine mammal transmission of disease

It is not practical to build perimeter fencing that will prevent all wildlife from entering the premises. Suggest deter instead of prevent.

Similarly, it is not practical or even desirable to build net pens that will keep all wildlife (i.e. fish) from coming into contact with rehab animals.

3.6 Methods to reduce spread of disease from animals housed in open sea/bay pen systems

Placing a second set of perimeter nets 30 feet from the pens is not practical nor always desirable.

We suggest that placing pens 1000 m from storm drains is not practical (i.e. run-off from building roofs, etc., can be considered storm drains). Limit this requirement to sewage outfall.

Daily coliform testing for net pens is not practical. Pens may be located in remote areas where testing cannot be carried out, and it is also not feasible to control the coliform count in open water areas.

3.7 Evaluation requirements before placing marine mammals together

Obtaining full bloodwork, cultures, etc., is neither practical nor appropriate in all cases. For example, diseases such as leptospirosis, which is endemic in certain wild populations, can be presumed present in certain groups of animals, and they can be housed together appropriately without extensive preliminary testing.

Please clarify the meaning of contingeny plan. Is this a treatment plan for the various conditions listed? Housing plan? Please also clarify which diseases are reportable for marine mammals, and to which agency. CDC? WHO? OIE? USDA? Suggest that a table would be helpful.

3.8 Zoonotic considerations

This section is very vague. All pinniped handling may result in exposure to potentially zoonotic pathogens. So does all handling, including beach rescues, require full protective gear?

5.0 Food, Handling, and Preparation

Suggest check of wild pinniped foraging literature, as there are many reports that pinnipeds will forage and then haul out for several days.

5.1 Food Storage and Thawing

If daily food intake is recorded per animal or per group, then kCals consumed can be calculated if/when necessary from the medical records. Requiring daily calculation is adding unnecessary work.

Suggest that the composition of each diet routinely used be calculated.

Fish supplies maintain composition analysis records for each batch. It is not necessary for each facility to replicate that work.

5.6 Feed records

Daily feed records cannot be maintained for individuals when they are housed in groups. Group records can be maintained, and together with daily husbandry notes and weekly records of weight provide sufficient indication of individual animal consumption.

Please indicate that food can be weighed before and after feeding to individuals or groups.

6.1 Veterinary Experience

It is not possible for an attending veterinarian to certify that animals are likely to survive, or that they are free from known communicable diseases. We do not test for all known communicable diseases, so we cannot certify that animals are free from them. For example, *E. coli* is a potentially communicable pathogen, and all animals certainly have *E.coli*. Suggest that a more appropriate standard is that animals must be free from clinical signs of disease, able to swim and dive, and free feed.

6.2 Veterinary Program

Suggest that annual review of SOPs is sufficient.

Please clarify what constitutes a health and safety plan. Is a preventative health program required for all staff/personnel?

7.0 Laboaratory Tests and Frequency of Testing

Suggest that one blood sample and CBC/serum chemistry is sufficient, as admit and release exams may be the

same in many cases. Additional testing should be at the discretion of the attending veterinarian.

Measuring girth is not practical in all cases, for example when manual restraint of large animals is used for exams. Most formulas are based on length and weight, so standard length and weekly weights should be sufficient. Suggest that girth measurements be recommended but not required.

Suggest that complete necropsies performed within 72 hours are sufficient, and that 24 hours is not practical.

Suggest that histopathology on select tissues is at the discretion of the attending veterinarian, as for cultures and other diagnostic sampling.

Please clarify which disease are reportable for marine mammals (see notes above), and also which disease require notification to NMFS.

Release should be at the discretion of the attending veterinarian. Advance notice to NMFS is not always practical nor in the best interest of the animal, e.g. animals very stressed by captivity.

For recommended standards, frequency of blood sampling beyond the single collection should be at the discretion of the attending veterinarian.

Please explain the utility of banking the buffy coat. Suggest that it be performed on selected animals only subject to utility.

8.1 Record Keeping

Under recommended record keeping:

Please define the set of standard morphometric measurements that should be collected and include a suggested recording format.

Suggest that obtaining photographic documentation of all animals is not practical and of questionable utility. Animals with distinguishing markings, or other unusual features could be documented.

Please see the previous comments on determining the daily caloric intake for each animal. This is not practical and of questionable utility, particularly in high volume centers. If caloric value of commonly used diets is calculated, and then minimum intakes are set based on weight, that should be sufficient. Additional calculations should be at the discretion of the attending veterinarian.

Daily weighing of pups is too stressful and results in too much handling. Suggest that weekly weight be required, more frequently at the discretion of the attending veterinarian.

8.2 Data Collection

Please define “real time accessible compiled comparative data.”

Felicia B. Nutter, DVM, PhD
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Draft rehab standards response.doc	**Name:** Draft rehab standards response.doc **Type:** WINWORD File (application/msword) **Encoding:** base64 **Download Status:** Not downloaded with message

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

TAKE PRIDE IN AMERICA

JUN 13 2007

In Reply Refer To:
ER 07/332

Dr. David Cottingham
Chief, Marine Mammal and Sea Turtle Conservation Division
Attn: MMHSRP DPEIS
Office of Protected Resources National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Dr. Cottingham:

The Department of the Interior has reviewed the Draft Programmatic Environmental Impact Statement (EIS) for the Marine Mammal Health and Stranding Response Program (MMHSRP). The notice of availability for this Draft Programmatic EIS was published by the Environmental Protection Agency in the *Federal Register* on March 16, 2007 (72 FR 12611).

The Department has received comments from the Fish and Wildlife Service (FWS) in response to our review request. With the exception of section 408, the MMHSRP is a program created and implemented, as authorized under the Marine Mammal Protection Act, by the Secretary of Commerce. Therefore, for the most part, this Draft Programmatic EIS refers to management of marine mammals under the jurisdiction of the National Marine Fisheries Service, i.e., cetaceans and pinnipeds (except the walrus). Accordingly, the Department's comments are limited to those involving marine mammals under the management jurisdiction of the Secretary of the Interior, i.e., manatees, sea otters, walruses, and polar bears and, those actions that overlap with the FWS management regimes. Our comments are provided in the enclosure.

We appreciate the opportunity to provide these comments and hope that they prove to be useful. If you have any questions regarding specific technical issues in these comments, please direct them to the Fish and Wildlife Service's Martin Kodis, Chief, Branch of Resource Management Support, at (703) 358-2161. For all other questions, you may contact Ken Havran in the Office of Environmental Policy and Compliance at (202) 208-7116.

Sincerely,

Willie R. Taylor
Director
Office of Environmental Policy
and Compliance

Enclosure

Enclosure

Department of the Interior's Comments on the Draft Programmatic EIS for the Marine Mammal Health and Stranding Response Program

Chapter 1. Purpose and Need for the Proposed Action. To be all inclusive, the Department recommends the following additions to the second full paragraph on page 1-10 concerning permits under the Convention on International Trade in Endangered Species of Wild Fauna and Flora:

"For import and export of marine mammal specimens, the MMHSRP may be required to have import and export permits, if the species is listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I, II, or III. The CITES permits for import and export are issued by the FWS and are required to import and export samples, parts, carcasses, or live animal species (for treatment or release) listed in the CITES Appendices. Species listed on CITES Appendix I require both an import permit and an export permit be issued for international shipments. Species listed on CITES Appendix II only require an export permit, unless the importing country has stricter measures than CITES. The only marine mammal listed under Appendix III is the walrus, *Obobenus rosmarus*; either an export permit or a certificate of origin is required for each international shipment of walrus specimens."

Chapter 3. Affected Environment.

On page 3-24, the paragraph titled UMEs identifies several unusual mortality events that have occurred over the years. We note that a UME was declared for southern sea otters in 2003. Unless this event is being lumped with the "Multi-species UME" for 2003, the 2003 southern sea otter UME should be included in this paragraph.

On page 3-28, first line, including the polar bear, there are twenty-nine marine mammal species that have the potential to occur in the Alaska Region. This change also needs to be made to Table E-18 in Appendix E (see below).

Also on page 3-28, insert the following sentence on line 4 before the sentence beginning with "Endangered species include . . . ": "On January 9, 2007, the polar bear was proposed for listing as a threatened species throughout its range (72 FR 1064-1099); a final determination will be made following the ESA review process."

On page 3-29, at the end of the first paragraph, Mass Strandings, add the following sentences: "There were six polar bear mortalities in 2006. Mass walrus mortalities are occasionally reported at Alaska terrestrial haul-outs. In 2005, about 30 walruses died from terrain falls at Cape Pierce in the Togiak National Wildlife Refuge. Trampling deaths have been reported in the Punuk Islands near St. Lawrence Island."

Also on page 3-29, in the second paragraph under Human Interactions, add the following sentences: "From 1996-2000, the estimated mean mortality of walruses from fisheries activities was 1.2 walruses per year. Most human induced mortality on the Pacific walruses is presently from legal subsistence hunting in Alaska and the Russian Federation (Chukotka). In 2005, the estimated total hunting removal of walruses from the population was 5,276 animals."

#24

On page 3-29, line 13, Temporal Changes, add the following sentences: "Polar bear and Pacific walrus strandings would be most likely attributed to changing sea ice habitat and could occur year round although the most critical times for polar bears would probably be the spring soon after cubs are born through the fall. For Pacific walrus the critical time for young animals and calves would be during the late spring-early summer when the females and calves follow the ice pack north."

Also, on page 3-29, line 21, Marine Mammal Population Changes, add the following sentences: "The size and trend of the Pacific walrus population are currently unknown. Population point estimates from1975-1990 ranged between 202,039 to 246,360 walruses, but were not precise enough to accurately reflect trend. The Southern Beaufort Sea Population and Chukchi/Bering Seas populations of Polar bear are thought to be declining."

On page 3-30, ensure that Figure 3-12, Alaska Region Pinniped Strandings 2001-2004, includes the strandings of Pacific walrus.

Appendix C-Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release. The NMFS coordinated with the FWS to compile the Standards for Release Guidelines that are a part of these policies and practices. The FWS provided comments throughout the development of these Guidelines and we appreciate that they have been incorporated in the January 2007 version. No further comment is necessary at this time; however, we do have some editorial suggestions:

On page 2-1, under 2.1.1 NMFS Policies, last sentence, delete "with" so the sentence reads: "However, authorization to take ESA listed species by the Stranding Network is currently provided under *MMPA/ESA permit #932-1489-01* as amended and requires authorization and direction from ~~with~~ NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal."

On page 2-3, a facility may also request permanent placement under Section 104(c)(3) if an ESA-listed marine mammal is determined unreleasable. Please edit the last paragraph on this page to reflect such:

> "For FWS species, LOA and permit holders provide recommendations to the FWS Field Offices for decisions regarding releasability of rehabilitated marine mammals (see Appendix H for contact information). The FWS retains the authority to make the final determination on the disposition of these animals. If FWS determines that a marine mammal is non-releasable, the holding facility may request a permit for permanent placement in captivity as prescribed in Section 104(c)(7) of the MMPA for non-depleted species, or Section 104(c)(3) or 104(c)(4) and Section 10(a)(1)(A) of the ESA for depleted species."

On page 5-1, under Guidelines for Release of Rehabilitated Manatees: Introduction, second paragraph, the third and fourth sentence should read: "All rescue-related communications and the day to day decision making process in the field are generally handled by the local field

Stations of the Florida Fish and Wildlife Conservation Commission (FFWCC) in conjunction with reports from the public using the 1-888-404-FWCC hotline. All activities related to verification of a report of a manatee in trouble, subsequent rescue, and transport to rehabilitation facilities are communicated through the FFWCC Field Stations, according to established protocols."

Appendix E-Biological Resources Tables. In Table E-17, Marine Mammals Common in the NMFS Northwest Region, the northern sea otter is identified as "threatened" under the U.S. Endangered Species Act (ESA). However, the northern sea otter stock that occurs in this area, i.e., Washington State, is not listed as endangered or threatened under the ESA.

In Table E-18, page E-30, Marine Mammals Common in the NMFS Alaska Region, the distribution for the Pacific walrus should read: "Found in shallow water areas, close to ice or land; geographic range is mainly in the Bering Sea and Chukchi Sea ice pack."

In addition, on page E-31, the northern sea otter is identified as "threatened" under the ESA. Although this is correct for the southwest Alaska distinct population segment, neither the southcentral nor the southeast DPS is listed under the ESA.

Also, under Table E-18, we recommend including the Polar bear (*Ursus maritimus)*as a year round resident of the Arctic Circle.

Appendix L-Marine Mammal Oil Spill Response Guidelines. On page 4 under Trustee Organizations, the fifth sentence reads:

"The Marine Mammal Protection Act (MMPA) prohibits the "take" of sea otters, seals, sea lions, walruses, whales, dolphins, and porpoises, which includes harassing or disturbing these animals as well as actual harming or killing . . ." To avoid potential misunderstandings, we suggest including manatees and polar bears in the list of marine mammals for which the MMPA prohibits take.

MS. HOWLETT: Sure.

(Recess taken.)

MS. HOWLETT: Our court reporter will be recording your comments. Also, your written comments are also welcome today. You can hand them in today. We also have comment sheets up front that you can write on, or you can submit them to us by mail or e-mail. I believe we have on the handouts -- we also have our information for you to send them to. We just ask for written and verbal comments, that you bring very specific concerns regarding the content of the draft document. And please suggest civic changes to alternative environmental consequences that NMFS should consider.

MR. FOLKENS: You want a written response in addition to the oral?

MS. HOWLETT: No. If you just want to give oral, that's fine. If you think of something that you didn't give us, you can feel free to write it down. Just to let you know that additional information is also

available via public libraries, and it's available on our NMFS web page. If you comment today, you will get a copy of the final document. But if you're not commenting and you want a copy, please feel free to check up on our sign-in sheet if you would like one. We can begin.

MR. FOLKENS: This is Peter Folkens from the Alaska Whale Foundation. I have four specific items to

raise.

First one pertains to the recognition of stranding agreements across regions. Due to an ongoing research affiliation at University of California, Davis, a number of Alaska Whale Foundation personnel went over into the San Francisco Bay Area from October to May.

We keep two of our six boats here as well. They are assigned at the moment to Contra Costa County Search and Rescue team. In southeast Alaska, we now see more whale entanglements in one season than the southeast region has experienced in a decade.

The Alaska Whale Foundation boat, disentanglement equipment, and expertise can be put to good use in Northern California. However, in a recent Alaska stranding network meeting in Anchorage, it was pointed out that stranding agreements are not recognized across regions.

Under the notion of best practices, we recommend that the National Marine Mammal Health and Stranding network implements a policy and procedure to either recognize stranding agreements across regions or issue additional stranding agreements to singular organizations that typically cross multiple jurisdictions.

Item 2. Since the 9/11 and Katrina disasters, the federal government has implemented policies and procedures for the standardization of roles and training levels of responders. This has taken the form of the

ICS 100 and NMFS 200 response management protocols for all types of official responses. I understand the National Marine Fisheries Service employees are trained to these standards.

At a recent Alaska Marine Mammal Disentanglement Network meeting in Anchorage, the question was raised about ICS training. It turns out that everyone in attendance except one has had ICS 100 training. It was also mentioned by Robert Mahoney from the NMFS office in Anchorage that the disentanglement network follows a de facto NMFS kind of structure. It's my suggestion that an ICS 100 structure be officially part of the entanglement responses across regions.

Item 3. In a related issue, responder typing

at the federal and state levels is a 1 to 4 hierarchy with 1 being the highest certification. However, the National Marine Fisheries Service disentanglement response training typing is backwards with 1 being the lowest level of training. Since such responses often include the U.S. Coast Guard and other official government entities that follow the other ICS and NMFS typing protocols, I recommend that National Marine Fisheries Service flips its type numbering so that 1 is at the highest level with perhaps a 1A designation for specific right whale responders.

Item 4. For many years, the standard training response data form was one from the Smithsonian Institution designed by comparative anatomists. As the

Marine Mammal Protection Act and National Fisheries Office of Protective Resources began to play a bigger role in such events, the response data forms became heavily focused on soft tissue sampling, probably largely due to expertise of the veterinarians that were taking major positions at the federal level.

Unfortunately, this was at a near-complete disregard for anatomical and morphological data. Here I requested the National Marine Fisheries Service incorporates more anatomical data on its Level A data form. Towards that end, I have offered a couple of

solutions that meet the needs of both the soft tissue collectors and the comparative anatomists. I have copies here that I've given to a few people and I can give for the official record.

To give you an example of a real world situation in which a better data form would have saved literally hundreds of thousands of dollars for the government, I was involved as an expert witness in a ship strike event in which if the original stranding data were taken better and with a more forensic line and morphological and anatomical data, it is unlikely that there would have been litigation over that event, saving literally hundreds of thousands of dollars both for the government and the private sector.

So I feel very strongly that the Level A data form needs to include more forensic, morphological information. Are there any questions?

Written Comment Form

Draft Programmatic Environmental Impact Statement (DPEIS) for the Marine Mammal Health and Stranding Response Program

Your input is important to us. Please feel free to use additional comment sheets if more space is needed. To ensure that your comments are considered in the Final PEIS, we must receive them by April 30, 2007.

Carcass disposal - We will need assistance with determining appropriate burial if other disposal is not possible. We also request assistance in ranking chemicals for toxicity levels if chemical euthanasia is sited and in working w/ VA $200/equation groups in developing non-chemical, humane & less friendly ways to euthanize

We support an article addition to the S.A. on small cetacean & pinniped disentanglement.

We support close coordination between HQ & regions when dialoging SA's, Rehab centers & releases. There should be cross regional consistency whenever possible

We suggest that 109h holders be held to similar criteria as SA holders are.

Your Name & Email Address: Sue Barco sabarco@virginiaaquarium.com
Mailing Address: 717 General Booth Blvd
City, State, Zip Code: VA Beach, VA 23451

This form can be submitted to:

David Cottingham
Chief, Marine Mammal and Sea Turtle
Conservation Division
Office of Protected Resources,
NMFS 1315 East-West Highway. Room 13635
Silver Spring, MD 20910-3226
Email: mmhsrpeis.comments@noaa.gov
Fax: 301-427-2584

For Office Use Only

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Subject: mmhsrp eis
From: Caleb Pungowiyi <caleb.pungowiyi@maniilaq.org>
Date: Fri, 27 Apr 2007 14:06:05 -0800
To: mmhsrpeis.comments@noaa.gov
CC: jgoodwin@otz.net, lori_quakenbush@fishgame.state.ak.us

Mr. David Cottingham, Chief
Marine Mammal & Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Springs, MD 20910

Dear Mr. Cottingham;

We strongly recommend that any marine mammal that may be in distress or out of its natural habitat not be disturbed and no attempts be made to pick up or rescue the animal unless and until appropriated approvals have been received or given by the proper authorities. It is unlawful for any citizen of United States to touch or attempt to rescue any marine mammal without proper authorization. This wording should be boldly highlighted in the EIS. We also strongly opposed any release of any marine mammals that have been rehabilitated into the wild. There is too much risk that such released animals will introduce viruses or diseases that the animals in the wild have no immunity to. Regulations must be adopted that prohibits release of rehabilitated marine mammals into the wild.

Sincerely,

Caleb Pungowiyi
Coordinator, Natural Resources
Maniilaq Association

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Subject: public comment on peis for marine mammal stranding program of 3/07 deis
From: Bk1492@aol.com
Date: Sun, 08 Apr 2007 18:11:44 -0400 (EDT)
To: mmhsrpeis.comments@noaa.gov, americanvoices@mail.house.gov

attention david cottingham mmhsrp dpeis nmfs silver spring md

15 years to come up with this plan - isnt that a little bit tardy and not protecting resources for far too long a time in this eat em up world. Congress decided l5 years ago to have a good plan in place to protect marine mammals in distress.

I dont think the us dept of commerce should have jurisdiction over any animals since it is so focused on business and commerce and certainly not interested at all in the welfare of any animal. Profiteers and businessmen rule this dept and the animals get unprotected and abused in this department. Overfishing is rampant in this commerce filled dept, concerned only about more and more and more and with no conception of saving or protecting.

i have comments on the pages below:
1-8 future generations are being robbed blind by mgt policies of this agency. virtually every species is overfished courtesy of this agency.

1-11 Prescott grant program accomplishes imporant work. its spending should be closely audited to eliminate all graft and corruption but more of nmfs budget should to to helping mammals in trouble. right now graft and corruption gets too much ot tax dollars.

1-13 - asking usda to participate (as anti animal a dept as can be imagined in our wildest nightmares) is no help at all in protecting marine mammals. also what does geological survey have to do with marine mammals? this is a very strange choice of participating agencies. meanwhile animal protection groups are blacklisted and kept out of the loop - shows how democracy is not working in corrupt washington dc bureaucracy.

3-5 - public notice and public comment re authorization of "incidental" killing and murder - the public comment is given short shrift if it comes in saying protect the marine mammals. these permits to kill are approved l00% of the time. such a l00% system is a scam on the public. it is pro forma.

3-18 - 61% of right whales show entanglement in fishing nets. this must be stopped now. negligence of this agency in regard to this killing and injury is horrendous.

3-31 - the reporting of marine mammals entangled in fishing gears is NEVER truthfully reported by the commercial fish profiteers. commercial fish profiteers instead carry guns to kill all marine mammals. we need satellite records of all that goes on on commercial fish boats.

3-33 under the bush atmospheric deposition has gotten much dirtier and unhealthful. water quality has also been destroyed by policies of corrupt washington.

3-34 - l00% of esturarine area in n ortheast is polluted - not 27%. Sediment contamination in this area is poor - not fair. why isn't this agency testifying against allowing the contamination that has gone on for the past sixty years? this agency is instead silent and doing NOTHING for a clean environment.

3-35- to say Gulf of Mexico with its dead zone the size of NJ is in "fair condition" seems like a ludicrous overstatement.

3-39 NMFS enters into co op agreements with alaska native organizations to kill marine mammals NOT TO CO MANAGE THEM.this is a lie and a use of deceptive words so americans dont understand exactly what your are doing.

4-4 - NMFS/noaa already allows the spread of fish practices that are harmful to marine mammals - that is already here. i do not think the stranding network does enough to act as a "surveillance" network.

4-6 tags do caues pain and infection and use of them should be severely restricted. that is not happening.

4-10 - absolutely periodic review should be made to stay in the stranding network.

4-13 - public continually wanred about pathogens. no appendix was affixed showing any such issue exists or has existed in last ten years. please advise why you are claiming.

4-14 - this doesnt have to be a 300 pg book. there is far far too much repetition in writing this book.

4-19 - dont touch the animal unles syou intend to help it. otherwise leave it alone.

4-24 - it is illustrative that 300 right whales are such a small population. their efforts at reproduction will probably NOT be successful and this species will probably go extinct like so many many others. it is clear that allowng commercial fish profiteers to use whale life threatening gear is ludicrous and should be stopped now.

4-26 educated people on the west coast certainly can follow guidelines on how to disentangle a whale without "training".

4-30 tags on marine animals severely disrupt their lives. the use of tags should be banned just about totally.

4-32 - inescapable that critter cams represent severe drain on a creature's energy causing injury and possible death. how would you like to drag 30 to 50 lbs weight with YOU every day of your life? the cruel abuse of these animals by alleged "researchers" is far too frequent and given much too liberablly.

4-33 using bleach to mark an animal - what crazy insane researcher is on the loose with that insane idea? if there is no evidence of infection from being hit by a blowgun - i think the research is not satisfactory here and believe infection can and does result. this old research from l992 seems wrong.

the research from l993 on effects on mammal of biopsy should be redone by researcher accompanied by animal protection person. some statements saying animal is "unconcerned" seem like self serving statements of the researcher hoping it is so. so researchers can then continue their assault on these animals.. self serving statements.

4-36 the stupid negligent diversion of all animal life into usda, fws, dot, noaa is far too divisive. there should be ONE AGENCY DEALING WITH ALL ANIMALS LIVING IN USA, STAFFED BY ANIMAL PROTECTIONISTS, NOT STAFFED BY ANIMAL USERS AND ABUSERS.

4-37 - FESS UP - WHAT DISEASES HAS THIS DEPT INITIATED WHICH RAN RAMPANT BASED ON VACCINES INJECTED INTO PERFECTLY HEALTHY MAMMALS.
B. SACHAU
15 ELM ST
FLORHAM PARK NJ07932

4-

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Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
Specific comments on PEIS sections				
12	N/A	Entire document	While we largely support the Proposed Alternatives within the PEIS, we believe that the document does not sufficiently consider response to reported individual animals from strategic/depleted stocks. Additionally it must increase mandates for thorough examination of carcasses for human interaction.	Response activities are the same for all animals, including those from strategic/depleted stocks. Extra efforts may be made for those species that are threatened or endangered. Information on human interaction documentation were also added to the final PEIS in Section 2.1.1.1. The human interaction handbook and data sheet developed by the Cape Cod Stranding Network and the Virginia Aquarium was also added as Appendix M.
11	Page 1-5	Section 1.2.2	Should the $4 million specific figure be dropped from the text? I wouldn't want it to look like that is the final figure and can never go up (or down).	On page 1-5, lines 15-19, text was revised to state: "NMFS was authorized to disburse funds to eligible members of the National Stranding Network for: the recovery or treatment of marine mammals; the collection of data from living or dead stranded marine mammals for scientific marine mammal health research; and facility operation costs. Since 2001, Congress has annually appropriated $4.0 million to the Program, and 187 awards totaling over $16.5 million have been disbursed to stranding network members." More information on the Prescott Grant Program is provided in Section 1.3.2.4, which does state that the grant program is subject to annual Congressional appropriation. On page 1-5, line 21, the following text was added : "Additional information on the Prescott Grant Program is presented in Section 1.3.2.4."

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
24	Page 1-10, lines 17-22	Section 1.3.2.2	To be all inclusive, the Department recommends the following additions..."For import and export of marine mammal specimens, the MMHSRP may be required to have import and export permits, if the species is listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I, II, or III. The CITES permits for import and export are issued by the FWS and are required to import and export samples, parts, carcasses, or live animal species (for treatment or release) listed in the CITES Appendices. Species listed on the CITES Appendix I require both an import permit and an export permit be issued for international shipments. Species listed on CITES Appendix II only require an export permit, unless the importing country has stricter mesaures than CITES. The only marine mammal listed under Appendix III is the walrus, *Odobenus rosmarus*; either an import permit or a certificate of origin is required for each international shipment of walrus specimens."	Text revised per comment.
19	Pages 1-11 to 1-12	Section 1.3.2.4	In order to facilitate organizations meeting and maintaining Rehabilitation Facility Standards and all other standards and activities recommended in the preferred alternatives, I urge NOAA to continue and expand the John H. Prescott Rescue Assistance Grant Program.	Acknowledged
17	Pages 1-11 to 1-12	Section 1.3.2.4	The Prescott Grants Program has accomplished a great deal to date, and its continuation is crucial to the continuation and improvement of national stranding response.	Acknowledged
19	N/A	Section 2	I fully support adoption of the preferred alternatives.	Acknowledged
17	N/A	Section 2	I support the implementation of the preferred alternatives.	Acknowledged

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
25	Pages 2-3 to 2-4	Section 2.1.1.3	Under the notion of best practices, we recommend that the National Marine Mammal Health and Stranding network implements a policy and procedure to either recognize stranding agreements across regions or issue addtional stranding agreements to singular organizations that typically cross multiple jurisdictions.	Stranding Agreements are tied to a geographic area in one NMFS region. Stranding Agreements will not be recognized across regions. Article I of the Stranding Agreement states that, if requested by NMFS, people authorized under a Stranding Agreement "may assist in the stranding response outside of their assigned response area or in another Region as coordinated with the appropriate regional NMFS Marine Mammal Stranding Coordinator (s)."
20	Pages 2-3 to 2-4	Section 2.1.1.3	Of great significance are Section 2.1.1.3 Stranding Agreement and Response Alternatives. We reject Alternative A1 and A5 primarily because the risk to public safety is too great. If trained authorized personnel do not respond to injured or distressed marine mammals the public will take matters into their own hands as we have seen in the past. We also reject Alternative A3 and A2 on the grounds that they lack standardization and guidelines for the national network. We endorse Alternative A4 and support NOAA in their goal to offer guidelines, minimum criteria and standardization for network participants.	Acknowledged
12	Pages 2-3 to 2-4	Section 2.1.1.3	We believe that NMFS must respond to reports of all floating large whales, regardless of whether external signs of human interaction are noted on the carcass, but having due regard to the operational conditions that may limit or constrain such attempts. Vessel strikes are frequently determined by necropsy, and not by external signs of trauma and, according to Moore et al. 2004, post mortem examinations are necessary to ensure better understanding of mortalities that are due to human interaction. We believe that floating large whales should be retrieved and thoroughly necropsied with a draft necropsy report made available within 14 [working] days of when the carcass is examined.	NMFS attempts to respond to all floating large whale carcasses. However, response activities may be hampered due to available resources (personnel, money, etc.), weather conditions, and location of the carcass. The condition of the carcass is also a factor in the response. If a carcass is severely decomposed and untowable, a necropsy will not occur. Samples may be taken of ropes or line to identify the source of gear (if possible) and other samples may be taken of the animal for genetics or other scientific analyses.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
12	Pages 2-3 to 2-4	Section 2.1.1.3	Because there are areas where beaching a carcass for necropsy is difficult, we recommend NMFS funds the research, design, and construction of a number of mobile necropsy stations or barges. These would be located along the length of the east coast, with sufficient funding available to allow for the stations or barges to be utilized thus ensuring these data are collected in all US waters and our knowledge increased.	We have significant logistical concerns about this plan regarding the number of barges/stations that would be required to cover all of the geographic areas where floating carcasses may be reported, given the limited geographical range and slow cruising speeds of barges. In addition, NMFS believes we are currently making all logistically feasible attempts to land and necropsy all floating carcasses.
17	Pages 2-3 to 2-4	Section 2.1.1.3	More centralized oversight and management of national stranding response, through Headquarters, would be beneficial.	Acknowledged
12	Page 2-5	Section 2.1.2.2	We support Alternative B3 recommending that chemically euthanized carcasses are transported offsite. While this Alternative alleviates many of the concerns of bioaccumulation resulting from scavengers preying on carcasses, we also believe that NMFS must support research into methods of euthanasia which are both humane and environmentally safe.	NMFS has funded research on various methods of chemical euthanasia and the environmental impacts of these methods (see Appendix J). NMFS acknowledges that there is still much to learn regarding the fate of chemical euthanasia solutions in the environment. Section 6 has been updated to include continuation of research in the area of humane euthanasia, which includes research regarding the environmental impcats of chemical euthanasia solutions.
25	Page 2-6	Section 2.1.2.3	We will need assistance with determining appropriate burial if other disposal is not possible. We also request assistance in ranking chemicals for toxicity levels if chemical euthanasia is used and in working with vet and zoo/aquarium groups in developing non-chemical, humane and user friendly ways to euthanize.	NMFS has funded research on environmental impacts of various methods of chemical euthanasia, but acknowledges that there is much still to learn. Section 6 has been updated to include continuation of research in the area of humane euthanasia.
4	Page 2-5	Section 2.1.2.2	Guidelines are also needed for euthanasia, particularly of large whales. Research should be funded to identify or develop methods of euthanasia that are humane, efficient, and pose minimum risks to human safety and environmental health.	NMFS will work with stranding network members to ensure carcasses are disposed of in compliance with local, state, and Federal regulations.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
4	Page 2-5	Section 2.1.2.1	"Other methods" of disposal, as listed above, should be further defined and a list of specific, approved disposal methods should be listed in detail. There is the potential for individuals or facilities to loosely interpret "other methods" as a means of disposal; for example, "composting" could be interpreted as burial at the stranding site, which contradicts the intent of the recommendation. The NAIB also recognizes the need to identify alternative disposal methods for non-euthanized carcasses.	Added text to clarify composting: "Composting is an alternative method of carcass disposal involving transporting carcasses to a composting facility." The methods identified in Section 2.1.2.1 are those methods that have been utilized by stranding networks nationwide (incineration, rendering, composting, burial, towing to sea, leaving onsite).
17	Page 2-5	Section 2.1.2.2	It is important that chemically-euthanized animals not remain in areas where the chemicals can be released to the marine environment as the animals decompose.	NMFS concurs with this statement.
9	Page 2-6	Section 2.1.3.1	Further, we believe that animals should not be taken into rehabilitation facilities if they are poor candidates for release. This has happened with some regularity with small cetaceans (i.e., neonates being taken in, animals missing or with necrotic body parts, seriously ill animals). It is also not clear that the protocol described in the DEIS and its appendices will prevent this current problem from occurring in the future.	NMFS agrees that there is a need for better decisionmaking regarding rehabilitation candidates. NMFS is planning to hold a workshop to develop guidelines for making decisions during response activities (see Section 6).
4	Page 2-7	Section 2.1.3.3	Public display of animals in rehabilitation should be investigated and defined.	See Section 6, Cumulative Impacts, for a discussion on public viewing of animals in rehabilitation.
4	Page 2-7	Section 2.1.3.3	Priority funding should be awarded to organizations that seek to achieve or exceed minimum standards.	Stranding network organizations may receive funding through NMFS via the competitive Prescott Grant Program. The priorities of the Grant Program change yearly, but coming into compliance with rehab facility standards has been and will continue to be a priority for funding.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
12	Page 2-7	Section 2.1.3.3	We generally support Alternative C3 which would implement improved Rehabilitation Facility Standards, but we also strongly believe that NMFS must be clear that the primary objective of the SA holder is to release or refloat an animal immediately from the stranding site and moving a stranded animal into a rehabilitation facility is a last resort.	For single strandings, it is general practice to not refloat an animal as it has likely stranded because it is unhealthy. Unhealthy animals that are refloated would likely restrand. Single animals that strand are either euthanized or taken to a rehabilitation facility. For mass strandings, typically most animals are healthy and may be refloated. All strandings are handled on a case-by-case basis, and the onsite responder is responsible for making an assessment of each animals' health.
17	Page 2-7	Section 2.1.3.3	Implementing a minimum set of standards would help to improve care for the animals, and would improve the knowledge base for treatments.	NMFS concurs with this statement.
9	Page 2-8 to 2-9	Section 2.1.4.1	We are concerned that the stranding response program should make every effort to facilitate beach release of newly stranded animals. We have seen instances in which beach coordinators specifically instruct responders not to return small cetaceans to the water until all biological sampling that can be done is completed. This delay is returning them to the water may compromise the animal's condition. Releases in other countries (e.g., New Zealand) are usually accomplished expeditiously and they should be here as well, since most studies have indicated that mass stranded animals are generally healthy. It is not clear from the protocols described in the DEIS that this is the goal or priority. It should be.	For single strandings, it is general practice to not refloat an animal as it has likely stranded because it is unhealthy. Unhealthy animals that are refloated would likely restrand. For single animal strandings, animals are either euthanized or taken to a rehabilitation facility. For mass strandings, typically most animals are healthy and may be refloated. All strandings are handled on a case-by-case basis, and the onsite responder is responsible for making an assessment of the animal's health. The goal for all stranding response activities is to make an expeditious assessment of the animal. To make this assessment, biological samples may be necessary. Also, any animal refloated would receive some form of identification (tag) in case it restrands.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
2, 3, 5, 8, 10, 16, 22, 27	Page 2-8 to 2-9	Section 2.1.4.1	Eight commenters opposed any release of any marine mammals that have been rehabilitated into the wild in Alaska.	Text has been revised in Section 5 (Mitigation), page 5-7, lines 10-18, to state: "Additional measures to minimize the potential for disease transmission from rehabilitated ice seals (bearded, ringed, ribbon, and spotted seals) would be implemented in the Alaska Region. NMFS would not authorize responders to transport stranded ice seals beyond the geographic areas where they strand for the purposes of rehabilitation and release back to the wild. NMFS would review the following situations on a case-by-case basis: 1) an ice seal out-of-habitat; 2) ice seals as part of an official UME; and 3) stranded spotted seals in Bristol Bay, AK. NMFS would work with Alaska Native organizations (co-managers of these species) to determine the best possible solution for those ice seals. After consultation with these organizations, NMFS may re-evaluate this policy at anytime, particularly with regard to changes in the status of ice seal populations and their habitat." The text is taken from a letter written from NMFS to John Goodwin (Chairman, Ice Seal Committee). The letter can be found in Appendix N of the Final PEIS.
17	Page 2-10	Section 2.1.4.3	Obligatory follow-up monitoring, with timely dissemination of results, is needed to learn which rehab efforts are useful, and to explore the impacts of released animals on wild populations (e.g., Wells *et al.* 1999; in review a, in review b). Sample sizes from releases to date are generally to small to be conclusive.	Stranding network organizations may receive funding through NMFS via the competitive Prescott Grant Program. The priorities of the Grant Program change yearly, but telemetry studies to monitor released, rehabilitated animals has been and will continue to be a priority. Collaborative studies between multiple stranding network organizations to increase sample sizes are particularly important.
26	Page 2-10	Section 2.1.5.1	We support an article addition to the SA on small cetacean and pinniped disentanglement.	Acknowledged

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
25	Page 2-10	Section 2.1.5.1	It's my suggestion that an ICS 100 structure be officially part of the entanglement responses across regions.	NMFS agrees and is working on ways to best incorporate the Incident Command System (ICS) structure into disentanglement responses. NMFS has offered ICS 100 training at a variety of regional and national stranding network meetings and will continue to do so.
25	Page 2-10	Section 2.1.5.1	Since such responses [disentanglement] often include the U.S. Coast Guard and other official government entities that follow the other ICS and NMFS typing protocols, I recommend that National Marine Fisheries Service flips its type of numbering so that 1 is at the highest level with perhaps a 1A designation for specific right whale responders.	NMFS is considering this recommendation. NMFS will determine if this type of change would introduce confusion among disentanglement responders since the ranking criteria has been in place for numerous years.
8	Page 2-10	Section 2.1.5.1	The level designation for responders (Levels 1-5) should be reversed to coincide with designations standard in the Incident Command System Structure (lower numbers respresent the higher risk/greater experience roles). This is a minor point that might help integrate disentanglement response with other agencies' ICS response efforts.	NMFS is considering this recommendation. NMFS will determine if this type of change would introduce confusion among disentanglement responders since the ranking criteria has been in place for numerous years.
12	Page 2-12	Section 2.1.5.3	We fully support Alternative E3 which would require the West Coast Disentanglement Network to adhere to the training standards and techniques currently employed by the East Coast Network.	Acknowledged
17	Page 2-12	Section 2.1.5.3	Every effort should be made to ensure proper training and maintenance of standards for operations.	Acknowledged
9	Page 2-12	Section 2.1.6.1	It is imperative that research undertaken or funded by the federal government adhere to standards of the Animal Welfare Act and that government agencies uphold the same standards required of other institutions engaged in research (i.e., IACUC oversight and adherence to IRAC principles). The DEIS should contain an explanation of whether and how the federal government is complying with these standards and if its research does not have this type of oversight and adherence to standards, why not.	NOAA-wide policy for the review of animal care and use during scientific research is currently in development. Once the NOAA policy is in place, the research conducted under the MMHSRP will be reviewed and approved by the animal care and use committee.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
12	Pages 2-12 to 2-13	Section 2.1.6.2	While the Preferred Alternative F3 appears the most appropriate, we believe that the number of take permits on wild populations should be minimized and suggest that NMFS establish a sampling archive bank for unused protion of tissue, fecal matter, exhalation, fluids, etc. obtained by stranding networks. Future permit requests requiring these types of samples should be required to utilize archived materials prior to authorization of additional takes from the wild.	The NMFS Office of Protected Resources Permits, Conservation and Education Division authorizes takes on wild populations of marine mammals throught the issuance of permits. The MMHSRP currently has a tissue bank for toxicology samples and is starting to bank serum. Individual facilities often archive their own samples taken from stranded animals. The MMHSRP will encourage the Permits Division to inform researchers of these resources for their activities.
17	Page 2-13	Section 2.1.6.2	In order to optimize the value of this research, it is important that a set of standardized diagnostic laboratories be identified or established that will allow for consistent sample analyses, and will be able to expeditiously handle the large number of samples that may result from a research program of Unusual Mortality Event investigation, for example.	NMFS acknowledges that it would be ideal to have a set of standardized diagnostic laboratories. However, there currently are no standard commercial laboratories available for marine mammal diagnostic tests in the U.S. Other logistical challenges make this difficult at the present time.
9	Page 3-13	Section 3.2.2.6	There is a statement made on page 3-13 that "[o]f the live-stranded small cetaceans, few are taken into a rehabilitation facility and very few are released." The wording in this sentence should clarified. It is not clear whether this sentence means to inform readers that, of the animals taken into rehabilitation facilities, very few are released; or whether it is stating that few are taken into rehabilitation facilities and, of the remainder who are not, "very few" stranded small cetaceans are released alive from the beach where they stranded. Each of these quite different interpretations has implications that should be addressed in different ways by NMFS. If "very few" of those taken into facilities are released, then the NMFS program should address the reasons for this (e.g., are poor candidates being chosen, are facilites unable to cope with needs of wild caught animals, etc.) and remedy them. If it is the latter scenario (that very few are released from the beach and die or are euthanized if not taken into rehabilitation facilities) then we believe that this too should be addressed.	Text revised per comment.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
12	Pages 3-13 to 3-21	Section 3.2.2.6	We are concerned that animals may be taken into rehabilitation with the express intent of supplying a captive facility. Data presented by NMFS in this document appear to substantiate these concerns. For instance, section 3.2.2.6 states that "up to 50% of the rehabilitated seals and sea lions are released back into the environment" and "of the live-stranded small cetaceans, few are taken into a rehabilitation facility and very few are released." It is unclear as to what happens to the othe 50% of pinnipeds that are not released-are they retained as captive animals, euthanized or die in reahb? Similarly for cetaceans, it is unclear why "very few" are released. Figure 3-3, Cetacean Strandings Nationwide appears to demonstrate that there is a substantially higher number of cetaceans taken into rehab versus the number released. The document offers	Text revised per comment.
9	Pages 3-13 to 3-21	Section 3.2.2.6	We would have appreciated a brief discussion of the likely reason for discrepancies in release of animals shown in charts depicting the fate of stranded pinnipeds and cetaceans shown in figures 3-2 and 3-3 of this chapter and in regional sections such as 3-4 and 3-5. There are virtually no releases of cetaceans shown. If this means that virtually all stranded animals are euthanized, we question this approach. If the "released" portion of each column only refers to animals taken into facilities for rehabilitation and subsequently released, this should be made clear. Simliarly, if the "yellow" portion of the bar showing "alive" stranded animals includes animals that were returned to the water from the beach and thus not counted as "released," then it should be so noted, with	Text revised per comment.
12	Pages 3-17 to 3-18	Section 3.2.2.6	In section 3.2.2.6, subsection , Northeast Region- Human Interaction, the PEIS notes ship strikes to right whales but not to other species. While the issue of ship strikes is a significant contributing facto to the potential demise of the critically endangered North Atlantic right whales, all large whale species are at risk.	The following text was added: "Six confirmed ship strikes of Gulf of Maine humpback whales and eight confirmed ship strikes of Western North Atlantic fin whales occurred from 2001 to 2005 in the Northeast Region (Nelson *et al.* 2007). Ship strikes have also been documented for sperm, sei, blue, and minke whales (Jensen and Silber 2003)."

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
12	Pages 3-18	Section 3.2.2.6	In the subsection, Northeast Region-Temporal Changes, it states that "ship strikes and entanglements are frequent in summer." While we do not dispute the accuracy of this statement, we do question why documented entanglements and ship strikes that occur outside of summer are not considered, and have been excluded. Documenting human interaction throughout the year is critical in determining whether seasonal exemptions, as proposed in management schemes, are sufficient or appropriate.	Documented entanglements and ship strikes have not been excluded. This section states when entanglements and ship strikes seem to be more common in the NMFS Northeast Region. Entanglements and ship strikes are documented whenever they occur/reported.
11	Page 3-20, line 29	Section 3.2.2.6	Add striped dolphins to the list of mass strandings in the SER.	Text revised per comment.
11	Page 3-21, lines 13-14	Section 3.2.2.6	I question the comment on page 3-21 that right whales and humpback strandings occur during the winter "migratory period from Nov-Apr." To begin that period described is six months long and therefore describes half of the year. Additionally, there is evidence from a number of aerial survey efforts off the mid-Atlantic and SE Atlantic Bight (reference documents as contract reports to the SER) of right whales and especially young humpbacks in the region from Sept to June. I would suggest some language like "southern component of their home range."	Text revised per comment.
24	Page 3-24, lines 5-9	Section 3.2.2.6	We note that a UME was delared for southern sea otters in 2003. Unless this event is being lumped with the "Multi-species UME" for 2003, the 2003 southern sea otter UME should be included in this paragraph.	Text revised per comment.
24	Page 3-28, line 1	Section 3.2.2.6	...including the polar bear, there are twenty-nine marine mammal species that have the potential to occur in the Alaska Region.	Text revised per comment.
24	Page 3-28, line 4	Section 3.2.2.6	...insert the following sentence on line 4 before the sentence beginning with "Endangered species include...": "On January 9, 2007, the polar bear was proposed for listing as a threatened species throughout its range (72 FR 1064-1099); a final determination will be made following the ESA review process."	Text revised per comment.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
24	Page 3-29, line 3	Section 3.2.2.6	...add the following sentences: "There were six polar bear mortalities in 2006. Mass walrus mortalities are occasionally reported at Alaska terrestrial haul-outs. In 2005, about 30 walruses died from terrain falls at Cape Pierce in the Togiak National Wildlife Refuge. Trampling deaths have been reported in the Punuk Islands near St. Lawrence Island."	Text revised per comment.
24	Page 3-29, line 11	Section 3.2.2.6	...add the following sentences: "From 1996-2000, the estimated mean mortality of walruses from fisheries activities was 1.2 walrus per year. Most human induced mortality on the Pacific walruses is presently from legal subsistence hunting in Alaska and the Russian Federation (Chukotka). In 2005, the estimated total hunting removal of walruses from the population was 5,276 animals."	Text revised to include: "From 1996-2000, the estimated mean mortality of walruses from fisheries activities was 1.2 walrus per year." The rest of the information was not added because the section is only about human interactions that are not legally authorized to occur.
24	Page 3-29, line 13	Section 3.2.2.6	...add the following sentences: "Polar bear and Pacific walrus strandings would be most likely attributed to changing sea ice habitat and could occur year round although the most critical times for polar bears would probably be the spring soon after cubs are born through the fall. For Pacific walrus the critical time for young animals and calves would be during the late spring-early summer when the females and calves follow the ice pack north."	Text revised per comment.
11	Page 3-29, lines 14-21	Section 3.2.2.6	Why is there a specific section on "marine mammal population change" only for the Alaska region?	Marine mammal population change sections were added for each of the NMFS regions.
24	Page 3-29, line 21	Section 3.2.2.6	...add the following sentences: "The size and trend of the Pacific walrus population are currently unknown. Population point estimates from 1975-1990 ranged between 202,039 to 246,360 walruses, but were not precise enough to accurately reflect trend. The Southern Beaufort Sea Population and Chukchi/Bering Seas populations of Polar bear are thought to be declining."	Text revised per comment.
24	Page 3-30	Section 3.2.2.6	...ensure that Figure 3-12, Alaska Region Pinniped Strandings 2001-2004, includes strandings of Pacific walrus.	Stranding information listed in the Figure is only for NMFS pinniped species. Text has been revised on page 3-29, lines 22-26 to state that pinniped stranding information excludes walrus.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
11	Page 4-8	Section 4.2.1.2	Direct cardiac injection of euthanasia solution on sedated animals has proven to be effective and relatively safe for the responding team.	Acknowledged
11	Page 4-23, lines 8-12	Section 4.2.4.3	Although the DEIS specifies (pg 4-23, lines 8-12) that release criteria would include a "medical assessment with a a hands-on physical examination and a review of the animal's complete history, diagnostic test results, and medical and husbandry records," these precautions can only minimize the risk, not eliminate it. Testing is not possible for new diseases as tests are not developed until the disease is known. Many tests used for marine mammals are developed for domestic animal use and the effectiveness for marine mammals is not known. False negatives from these tests are common.	NMFS acknowledges that there will still be a risk from releasing animals. However, the release criteria will minimize this risk. The document does state that the criteria will not eliminate the risks to releasing rehabilitated animals.
12	Page 4-24	Section 4.2.5.1	We are concerned, however, that in Section 4.2.5, NMFS indicates that "North Atlantic right whales would be greatly affected if disentanglement efforts ceased, as entanglements are know to be a significant source of mortality." While we support the disentanglement program, we do not support the notion that this is an appropriate solution for right whale entanglements. Disentanglement is, at best, a stop-gap measure and should not be viewed as responsible or appropriate mitigation when other risk mitigation measures have already been held up for a number of years.	NMFS agrees that disentanglement activities are not the solution to reduce large whale entanglements. However, measures to reduce entanglements do not fall under the activities of the MMHSRP.
11	Page 4-25	Section 4.2.5.2	I would like to commend the statement regarding potential injury to entangled animals may be intentional by responders. I believe strongly that we need to be developing more invasive techniques for working with life threatening entanglements. A small injury to the animal, say a quick tissue cut, should not stop teams from going in and actually cutting heavily entangled animals. The faster gear can be cut loose, the better the potential outcome for the animal.	NMFS concurs with this statement.

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Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
10	Page 4-47	Section 4.4.4.3	In considering the effects of the release of rehabilitated marine mammals on cultural resources (Section 4.4.4.3, pg 4-47) we believe you need to consider the ability to obtain marine mammals for food, boat covers, rope, clothing, artwork, and cultural objects could be severely affected by the release of a rehabilitated marine mammal that carries an undetected disease or parasite that infects wild populations.	NMFS believes that this scenario would be highly unlikely to occur given the current mitigation measures (the Release Criteria) and it would be an indirect impact of releasing the animal.
12	Page 4-60	Section 4.6.3.3	Furthermore, while we acknowledge that, as stated in 4.6.3.3, the cost to facilities resulting from upgrades necessary to meet new standards may be significant, we do not support the proposition that these additional funds can be raised by allowing these facilities to charge visitors to view animals in rehabilitation.	Nowhere in the draft PEIS does NMFS suggest that funds for upgrades could be achieved by allowing, and charging for, public viewing of animals in rehabilitation. The document specifically states that currently Prescott Grant funds are the main means to address the costs of upgrading rehabilitation facilities (Section 5.6.3). The document does mention the potential for public viewing as a future activity in Section 6.1. However, an additional assessment of environmental impacts would occur before a decision would be made to continue with this activity.
10	Page 4-61	Section 4.6.4.3	In considering socioeconomics (Section 4.6.4.3, pg 4-61) we believe you need to consider the cost to families in coastal Alaska if they cannot obtain food from the marine mammal resources and must purchase it in local stores. Food costs are extremely high in remote villages due to fuel costs for air transportation.	NMFS believes that this scenario would be highly unlikely to occur given the current mitigation measures (the Release Criteria) and it would be an indirect impact of releasing the animal.
9	Page 5-2	Section 5.2.1	...NMFS should provide general guidance on situations or types of animals who are clearly not good candidates for release and should be considered for euthanasia and/or when animals might be released from the beach rather than euthanizing them. This sort of guidance has been lacking and has led to situations in which animals that were clearly poor candidates for release were taken into rehabilitation facilities, necessitating the expenditure of resources for their ultimately unsuccessful care or to find placement for non-releasable animals.	NMFS agrees that there is a need for better decisionmaking regarding rehabilitation candidates. NMFS is planning to hold a workshop to develop guidelines for making decisions during response activities (see Section 6).

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
9	Page 5-2	Section 5.2.1	Mitigation for tagging, described under this chapter's alternatives, as well as in the permit in Appendix G and H should include a stipulation that the tags being used should be the smallest and least intrusive available that has been proven effective to meet the purpose.	Any mitigation for tagging would be issued by the NMFS Permits, Conservation and Education Division as part of the new ESA/MMPA permit.
9	Page 5-11 to 5-12	Section 5.2.6.2	Further, there should be a stipulation that if any death occurs during capture or tagging of animals, research should be halted pending review by experts as to the reason for the mortality and to recommend means of avoiding additional mortality.	Any mitigation for capture and tagging, including halting research activities, would be issued by the NMFS Permits, Conservation and Education Division as part of the new ESA/MMPA permit.
9	Page 6-1	Section 6.1.1	Section 6.1.1 and Table 6.1 discuss the possibility of amending regulations under the MMPA to allow public viewing of animals being rehabilitated. Although we understand the utility of raising this possibility in the DEIS, we would strongly oppose such a measure if it is raised in the future.	NMFS published an Advanced Notice of Proposed Rulemaking (January 31, 2008) to solicit comments on the need for modifications to the regulations.
15	Page 6-3	Section 6.1.1	Contrary to the statement in the DPEIS, the cited regulation (50 CFR 216.27(c)(5)) does not establish a complete prohibition on the public display of marine mammals undergoing rehabilitation. Rather, such displays are not allowed unless the Regional Director or the Director of the Office of Protected Resources has specifically authorized them and unless they are conducted in a manner consistent with the requirements applicable to public display. This being the case, regulatory changes are not needed.	Text revised per comment

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
15	Page 6-3	Section 6.1.1	Elaborate on the Service's plans for developing draft guidelines to govern when public display of marine mammals undergoing rehabilitation will be authorized, including opportunities for the Commission, the affected facilities, and the public to review the draft guidelines before their adoption.	Text revised as to state: "NMFS would establish guidelines that govern when public viewing of rehabilitating marine mammals would be authorized. NMFS would work with APHIS to develop public viewing guidelines that ensure the requirements of the MMPA and the Animal Welfare Act are met. The guidelines would be designed to protect animal health and to ensure that the potential for a successful rehabilitation would not be compromised. At a minimum, an EA would be prepared to assess any impacts associated with the proposed guidelines. The guidelines would be available for review by the MMC, current rehabilitation facilities, and the public."
15	Page 6-3	Section 6.1.1	The Marine Mammal Commission therefore urges the National Marine Fisheries Service to work closely with the Animal and Plant Health Inspection Service in developing the guidelines for public viewing to ensure that the requirements of the two statutes are met and that the potential for successful rehabilitation is not compromised.	Text revised as follows: "NMFS would work with APHIS to develop public viewing guidelines that ensure the requirements of the MMPA and the Animal Welfare Act are met. The guidelines would be designed to protect animal health and to ensure that the potential for a successful rehabilitation would not be compromised."
Miscellaneous Comments				
26	Response, Rehabilitation, and Release		We support close coordination between HQ and the regions when evaluating SAs, rehab centers, and releases. There should be cross regional consistency whenever possible.	Acknowledged
15	Response, Rehabilitation, and Release		Discuss alternatives for addressing overcrowding at rehabilitation facilities, issues associated with the placement of non-releasable marine mammals in public display facilities, and criteria for making on-site evaluations of the likelihood that a stranded marine mammal can be successfully rehabilitated and released.	Rehabilitation facilities must submit the maximum holding capacity for their facility, based upon the minimum space requirements listed in the Rehabilitation Facility Standards. If facilities are being overcrowded, animals may be tranferred to other facilities within their region. Overcrowding of pinnipeds at facilities has been reduced by watching animals to determine if they are truly stranded before picking them up. The MMHSRP is working with the Permits, Conservation and Education Division to streamline and improve the placement of non-releasable marine mammals. Section 6 describes NMFS' plan to hold a workshop to discuss and outline the process to decide if an animal is a good rehabilitation

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
15	Euthanasia		Clear and specific standards also are needed for determining when euthanasia of a stranded animal is appropriate.	The attending veterinarian is ultimately responsible for determining when euthanasia of a stranded animal is appropriate and the most appropriate method to use.
26	109h		We suggest that 109h holders be held to similar criteria as SA holders are.	Acknowledged
25	Level A form		Here I request the National Marine Fisheries Service incorporates more anatomical data on its Level A data form. Towards that end, I have offered a couple of solutions that meet the needs of both the soft tissues collectors and the comparative anatomists. (See copy of form).	This data is Level B or C data, not Level A. NMFS may develop a standard form to include this data and/or may allow it to be entered into the marine mammal stranding database.
12	Human Interaction		We also believe that while all species should be checked for signs of human interaction, it is particularly critical that strategic and/or depleted stocks be thoroughly examined for signs of human interaction (e.g. necropsy rather than external examination only).	Information on human interaction documentation was added to the final PEIS in Section 2.1.1.1. The human interaction handbook and data sheet developed by the Cape Cod Stranding Network and the Virginia Aquarium was also added as Appendix M. Necropsies may not be conducted on animals when/where it is not logistically feasible, however, every effort is made to recover photographs and samples from these carcasses. Animals are examined for signs of human interactions, regardless of the status of their stock.
9	Human Interaction		The DEIS does not discuss in detail what investigation should be undertaken to determine whether human interaction has occurred nor how best to document it in dead animals....Some specificity might be provided with regard to standards for accurate determination and documentation of human interaction.	Information on human interaction documentation was added to the final PEIS in Section 2.1.1.1. Information was also added to Section 6.1.1 regarding a human interaction handbook and data sheet that will be implemented.
9	Funding		Finally, we are concerned with unfunded mandates. The NMFS must assure that it requests adequate funding to ensure that the standards of stranding response and rehabilitation are uniform and sufficient to the important task laid out in portions of the DEIS.	The Office of Management and Budget submits budget requests to Congress for all parts of the Administration, including NMFS.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
15	Unusual Mortality Events		Revise the DPEIS to provide an update on the status of final reports of unusual mortality events, explore ways to promote completion and circulation of final reports more promptly, and identify actions that the Service can take to improve the synthesis and use of data from unusual mortality events.	Additional information on UMEs has been added to the final PEIS (including numbers of animals and the cause, if determined). However, the final PEIS is not the appropriate place to discuss the circulation of final reports or how to improve the synthesis and use of data from UMEs. This is an administrative task that can be accomplished outside of the NEPA process.
Comments on Appendices				
17	Appendix C	Entire document	I am very supportive of the development and implementation of the "Policies and Best Practices Manual" as described...Such a package of standardized policies and practices will help to elevate the quality of efforts of the entire network, will increase the value of the information resulting from these activities, and will improve the return on investment [of] the Prescott Grants Program, for example.	Acknowledged
7	Appendix C-Disentanglement		PCCS encourages that two certified national training centers, one on the Atlantic coast and one on the Pacific coast, be established to accomplish the goal of implementing the national standards and guidelines. Having clearly designated certified training centers will greatly facilitate implementation of standardized training so that the full benefits to human safety of Alternative E3 can be realized. Training would not occur exclusively at these training centers; rather those conducting disentanglement training would come from the certified training centers. This model has proven to be very effective on the Atlantic coast where PCCS has hosted trainees in an apprenticeship program and also sent staff to train Network members at various locations.	NMFS is looking for ways to expand disentanglement training.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
7	Appendix C- Disentanglement		The training video referred to in Level 1 and 2 criteria was created by PCCS specifically for distribution to U.S. Coast Guard stations to present Level 1 information to Coast Guard personnel. While much of the information is still relevant and accurate, the video is somewhat dated. Viewing this video is not a substitute for on-water experience or training and should be deleted as an "or" criteria listed for Level 2 certification.	NMFS agrees that the video is not a suitable substitute for on-water training. This video is just one component of the training tools and is one appropriate method for qualifying Level 1 and 2 responders. As budget allows, NMFS will work on updating the video.
7	Appendix C- Disentanglement		Definition of criteria for certification should be improved. Requiring completion of Level 1, Level 2, and Level 3 classroom or on-water training without some indication of the objectives of the training is vague. It should also be recognized that some people have extensive skills and experience that is applicable. We suggest the following objectives be incorporated to help clarify the criteria: Level 1- Level 1 classroom training covers definition of entanglement with examples, information on species usually involved, need for standby, documentation, overview of basic assessment and disentanglement objectives and techniques. Level 2- Documented whale experience or at-sea training, including species and individual ID, visual tracking (standing-by), disentanglement operation protocols, basic understanding of equipment (including telemetry, and disentanglement strategy. Level 3- Demonstrated understanding of Network protocols and authorizations. Demonstrated understanding of, and ability to use, specialized tools including telemetry equipment. Demonstrated understanding of disentanglement strategies, planning, and techniques.	NMFS appreciates these comments and will consider incorporating the suggested changes into the criteria.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
7	Appendix C-Disentanglement		There are inconsistencies between the responsibilities and certification criteria for some of the Levels. For example, Level 2 personnel are tasked to "provide a thorough assessment of the nature of the entanglement and the species, condition and behavior of the whale," but specific knowledge of species ID and behavior is not required until Level 3 certification. The Level 2 criteria suggested above should help rectify this discrepancy.	NMFS appreciates these comments and will consider incorporating the suggested changes into the criteria.
7	Appendix C-Disentanglement		Level 3 responders may be authorized to disentangle whales under supervision. We suggest striking the words "a minor entanglement with potential to adversely affect" in the last bullet point under responsibilities for Level 3 responders. The bullet point would then read: May be asked (depending on experience) to disentangle any whale other than right whales under the supervision/authorization of Level 4 or 5 network members. Authorization and supervision may be given over the phone or radio depending on the circumstances and level of experience.	NMFS appreciates these comments and will consider the recommendation.
24	Appendix E, page E-29	Table E-17	...the northern sea otter is identified as "threatened" under the U.S. Endangered Species Act (ESA). However, the northern sea otter stock that occurs in this area, i.e., Washington State, is not listed as endangered or threatened under the ESA.	Text revised per comment.
24	Appendix E, page E-30	Table E-18	...the distribution for the Pacific walrus should read: "Found in shallow water areas, close to ice or land; geographic range is mainly in the Bering Sea and Chukchi Sea ice pack."	Text revised per comment.
24	Appendix E, page E-31	Table E-18	...the northern sea otter is identified as "threatened" under the ESA. Although this is correct for the southwest Alaska distinct population segment, neither the southcentral nor the southeast DPS is listed under the ESA.	Text revised per comment.
24	Appendix E, page E-31	Table E-18	...we recommend including the Polar bear (*Ursus maritimus*) as a year round resident of the Arctic Circle.	Text revised per comment.
7, 8, 25	Appendix F - Disentanglement		No need to list names of Level 1 and 2 responders	Text revised per comment.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Appendix H	Entire document	This appendix could use an up front description/summary of how this information should be used in the stranding context (versus the research context).	Appendix H is a description of the general research methodologies used by Co-Investigators under the ESA/MMPA permit. While it also includes emergency response activities for ESA-listed species, it does not cover basic methods used during stranding response.
14	Appendix H	Entire document	At points, this document seems to refer only to one taxon or species in many places without specifying which and then does not discuss the other taxa/species. Bottom-line, it is not always clear what species is being included and if all other species are excluded.	Information throughtout the Appendix was clarified to specify if it refers to cetaceans and/or pinnipeds.
14	Appendix H, Page H-1	Section 1.1.2 and Section 1.1.3	Sections 1.1.2 and 1.1.3 are not typical activities for a stranding organization.	Appendix H is a description of the general research methodologies used by Co-Investigators under the ESA/MMPA permit. Activities listed in Sections 1.1.2 and 1.1.3 are used by these Co-Investigators and they have been used during stranding response.
14	Appendix H, Page H-2	Section 1.1.4	The first sentence reads: Capture of marine mammals may be necessary during research activities to collect specimens, perform an examination, or attach tags or scientific instruments. This appendix should address stranding scenarios, not research, or there should be a pre-amble to discuss how it applies in stranding situations.	Appendix H is a description of the general research methodologies used by Co-Investigators under the ESA/MMPA permit. While it also includes emergency response activities for ESA-listed species, it does not cover basic methods used during stranding response.
14	Appendix H, Page H-4	Section 1.1.4	Chemical restraint should require veterinary input.	Text added in first paragraph to state: "These procedures would be performed or directly supervised by qualified personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives."
14	Appendix H, Page H-5	Section 1.1.5	Sedation of large pinnipeds should require veterinary input.	Text added to state: "Sedation of large pinnipeds would be performed or directly supervised by qualified personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of sedatives."

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Appendix H, Page H-7	Section 1.1.6	Instruments should be attached to the coat of the animal, not to the skin.	Text revised to clarify that instruments will not be attached to the skin : "A fast drying epoxy adhesive is used to glue scientific instruments to the hair of pinnipeds. "
14	Appendix H, Page H-8	Section 1.1.7	Restrictions concerning hot branding should be specifically addressed.	Text revised to state: "Hot branding of pinnipeds will not be conducted during the MMHSRP's permit activities. "
22	Appendix H, Page H-8	Section 1.1.7	Therefore, we do not support any freeze branding or marking of any marine mammals in coastal Alaskan waters.	NMFS encourages the use of satellite tags (which are generally non-invasive and are attached externally using an adhesive) for post-release monitoring of animals. In Alaska, freeze branding has not been used to mark rehabilitated animals released by the Alaska Sea Life Center. Satellite tags and flipper tags are currently used by the Center for post-release monitoring. Current Co-Investigators listed under the MMHSRP ESA/MMPA permit do not engage in live-animal research.
14	Appendix H, Page H-10	Section 1.1.9	The second paragraph refers to dolphin biopsy sites. What about other cetaceans and pinnipeds?	Additional information was provided regarding biopsy sampling of cetaceans and pinnipeds.
14	Appendix H, Page H-10	Section 1.1.10	Some folks prefer 19G or even 20G, some prefer butterflies to straight needles. A 4cm needle is longer than needed for some sites/animals and may be too short in some cases. Recommend this be changed to read "of appropriate size."	Text revised to state: "Needle length and gauge for sampling is dependent on the size of the animal."
14	Appendix H, Page H-11	Section 1.1.10	Again, I would leave the precise needle size up to the discretion of the veterinarian. The extradural vessel is not a sampling site in otariids. Otariids and some phocids can be sampled from flipper web veins.	According to Geraci and Lounsbury (2005) the extradural vessel is a sampling site for otariids. Text revised to include flipper web veins as a sampling site for otariids and phocids.
14	Appendix H, Page H-12	Section 1.1.13	The second paragraph refers to extracting the #15 tooth of the lower jaw. What species is this for? Pre-molars are extracted in pinnipeds.	The tooth sampling methods described here refered only to small cetacean health assessment studies. Tooth sampling methods for pinnipeds were added.
14	Appendix H, Page H-13	Section 1.1.13	Catheterization is also possible in pinnipeds.	Text was revised to include catheterization in pinnipeds.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Appendix H, Page H-13	Section 1.1.13	The fourth paragraph's last sentence reads: The samples are sent to a diagnostic laboratory for culturing and species identification. Does species refer to the parasite species? Prey analysis?	For health assessment studies, feces samples are sent to diagnostic laboratories for parasite analysis.
14	Appendix H, Page H-14	Section 1.1.13	Please site the source of the thermal probes. There are other deep rectal probes available.	The thermal probes described here are only an example of probes that may be used during research activities.
14	Appendix H, Page H-14	Section 1.1.13	In the last paragraph of Section 1.1.13, change brevetoxin to any toxin	Text revised per comment.
14	Appendix H, Page H-14	Section 1.1.14	Veterinarian involvement should be required.	Text added in first paragraph to state: "These procedures would be performed or directly supervised by qualified personnel and, if possible, an experienced marine mammal veterinarian would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives."
22	Appendix H, Pages H-14 to H-15	Section 1.1.14	Another concern of the Bristol Bay Marine Mammal Council, the Qayassiq Walrus Commission, and Bristol Bay communities is researchers prescribing or injecting medication to marine mammals while in the field.	Animals in the wild may be sedated during response activities, but would not be injected with antibiotics. Animals in rehabilitation are taken off antibiotics so that they clear out of their system before the animals are released.
1	Appendix H	Section 1.1.15	First of all, I believe that it is an error to not include the mysticete cetaceans in the research measuring hearing that can be measured using evoked potential procedures. There has been a previous Marine Mammal Permit issued to Dr. Sam Ridgway allowing Auditory Evoked Potentials to be measured on mysticete whales, and to exclude this sort of research now cuts off a very important and necessary source of information on this group of animals. There is no apparent justification for excluding this group of animals and they should be included in future efforts to measure the hearing of whales using auditory evoked potentials.	Currently NMFS Permits, Conservation and Education Division does not have a policy regarding the use of AEP procedures on mysticetes. However, procedures will not be used on mysticetes until a successful methodology is developed. Text has been revised to state: " AEP procedures would not be conducted on mysticetes as there is no documentation on methodology that is likely to be successful in applying audiometric procedures on mysticetes. AEP experiments with animals of this size are inherently difficult for a number of reasons and mysticete anatomy presents additional challenges."

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
1	Appendix H	Section 1.1.15	The first paragraph of 1.1.15 indicates that "sounds are presented through a jawphone attached to the lower jaw". That method of sound presentation is not the best method. While we are assured that bottlenosed dolphins hear well through their lower jaw, (Mohl et al 1999), many other species of odontocetes may not use this same pathway. One can be assured that sound is traveling through the best natural path, and that sound can be best measured in the free field, if it is presented in the water around the animal rather than through a jawphone. Sound presentation to all odontocetes in all Auditory Evoked Potential experiments for stranded animals should certainly not be limited to a "jawphone attached to the lower jaw". The lower jaw would also certainly not be the best place to present sounds to a mysticete.	Text has been revised to include this method of AEP procedures on odontocetes. No methods on mysticetes have been added, as no AEP procedures will be used on them at this time.
1	Appendix H	Section 1.1.15	The next sentence indicates that…"Recording, ground and reference suction cup electrodes are attached along the dorsal midline". That is also not necessary or required. Most animals held in water do not require a ground electrode. Only two electrodes are necessary. A suction cup electrode attached to the dorsal fin is certainly an excellent place to secure it with a suction cup. There is little myogenic electrical noise within the dorsal fin.	Text revised per comment.
1	Appendix H	Section 1.1.15	Many odontocetes that have been examined hear frequencies from 1 to 160 kHz. Some, like the harbour porpoise and the white beaked dolphin, hear as high as 180 kHz (Nachtigall et al, 2000). Some mysticetes, because of the frequency of their emitted signals, are thought to hear as low as 20 Hz. The written range of "Frequencies used for testing range from 5 to 120 kHz" written in section 1.1.15 severely, and unnecessarily, limits the hearing range tests of cetaceans.	Text revised per comment. Information on mysticetes was not added, as testing on mysticetes will not occur at this time under the ESA/MMPA permit.
1	Appendix H	Section 1.1.15	I do not believe that qualified scientists should be limited by the Auditory Evoked Potential guidelines currently presented in Section 1.1.15.	The guidelines presented in Section 1.1.15 are apply only to researchers listed as Co-Investigators under NMFS ESA/MMPA Permit No. 932-1489-09 (as amended).

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
9	Appendix H, H-18	Section 2.1.3	The meaning of this is not entirely clear, but allowing the permit to be used to conduct auditory evoked potential studies on mysticetes should be considered a major amendment of the permit and require publication of the intent to amend the permit in the Federal Register with an opportunity for the public to comment on the methodology and magnitude of the research.	Conducting auditory evoked potential studies on mysticetes would be considered a major amendment to the permit. PR1 would publish the intended amendment in the Federal Register for a 30-day public comment period. Section 7 consultation may be required or reinitiated if activities would be conducted on endangered species.
9	Appendix H, H-18	Section 2.1.4	Section 2.1.4 states that the section on vaccination is not completed. The National Environmental Policy Act requires that reviewers be allowed to review and comment on all aspects prior to approval of any procedure.	Section 2.1.4 was complete when the draft PEIS was published. The "[Section not completed]" was left in by mistake. This section and all information regarding vaccination have been removed from the PEIS.
9	Appendix I		We do not see tables describing impacts of stranding response, other than the very general mention of Project I, which we assume to be emergency stranding response. All impact from possible activities are lumped together. We would expect to see greater detail for stranding response that included, for example, estimates of the number of animals taken by intentional lethal take (i.e., euthanasia) and numbers of animals projected to be taken into/transferred to permanent captive display.	The information in the take tables for emergency response is only for ESA listed species, as these actions are covered under the permit. Takes of non-ESA species are not covered under the permit (they are authorized under Stranding Agreements). These tables were part of the permit application submitted to the NMFS Permits Division (PR1). The tables have been revised according to input from PR1. This new information will be available when PR1 publishes a Notice of Receipt in the Federal Register, which initiates a 30-day public comment period.
9	Appendix I		With regard to the tables for the NMFS permit, we note in the table provided that 50 small cetacean animals would be subject to study with a requested mortality of up to 3 animals per year. This is 6% mortality for cetaceans, which seems high based on capture and study [release?]-related mortality observed in studies by Mote Marine Lab in Sarasota. Further 100 pinnipeds would be taken with a requested mortality of 3. This represents a mortality rate much higher than the rates projected for mortality under the Steller sea lion EIS and in other permits for study of pinnipeds. These mortality rates should be explained.	These tables were part of the permit application submitted to the NMFS Permits Division (PR1). The tables have been revised according to input from PR1. This new information will be available when PR1 publishes a Notice of Receipt in the Federal Register, which initiates a 30-day public comment period. Takes of 300 pinnipeds (annually) during health assessment studies were requested with a requested mortality of 3 animals per year. Takes of 200 small cetaceans were requested, with a requested mortality of 3 animals per year. These take numbers are for assessment studies conducted on any pinniped. small cetaceans species throughout the U.S.

Comments on the PEIS and Appendices

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
24	Appendix L, page 4		...under Trustee Organizations, the fifth sentence reads: "The Marine Mammal Protection Act (MMPA) prohibits the "take" of sea otters, seals, sea lions, walruses, whales, dolphins, and porpoises, which includes harassing or disturbing these animals as well as actual harm or killing..." To avoid potential misunderstandings, we suggest including manatees and polar bears in the list of marine mammals for which the MMPA	This comment was passed on to the authors of the Marine Mammal Oil Spill Response Guidelines.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 1		Having a stranding agreement number would make it easier to reference, or please specify how this agreement should be referenced.	The Stranding Agreement template has been revised to include a header on each page containing the information that should be used to reference the agreement: the region, the participant organizations name, and the period of effectiveness of the Agreement.
14	Page 1		Having an abbreviated (1page) version to present when transporting animals would be helpful.	The signature page of the template has been modified to include a list of those articles authorized. Along with the signature and effective dates listed on this page, it can be taken into the field as a one page summary of the Stranding Agreement.
20	Page 3	Article II, section B	Article II section B lists the NMFS responsibilities. It would be helpful to the Stranding Agreement Participants to understand the experience level and qualifications of the NOAA employees in its region. Stranding Participants are all required to provide such information and it seems prudent the NOAA agree to do the same.	In the revised document, NMFS responsibilities are found in Article II section C. NMFS considers the experience required to implement the MMPA both when hiring and contracting employees, and when designating agents outside the agency.
14	Page 5	Article II, section B	Additional bullet for NMFS responsibility to read: 9. Coordinate regional activities to ensure appropriate division of responsibilities based on geography as well as institutional responsibilities.	Text has been inserted as responsibility number 11 in Article II section C.
14	Page 5	Article II, section C	What should an organization do if financial constraints require limiting its efforts? Financial difficulties can come up quite suddenly and may not permit the requested notification time for changing the agreement.	In the revised version, Participant responsibilities are found in Article II Section D. Stranding Agreement participants should contact their Regional Stranding Coordinator if they are unable to respond to strandings for any reason, including financial reasons. The Regional Stranding Coordinator will request assistance from other network participants when practicable and necessary (see NMFS responsibility Article II C. number 10). NMFS and the Participant can work together to determine whether changes in the stranding participant's situation is temporary, or merits a modification of the stranding agreement.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 5	Article II, section C, part 4	Is an organization still allowed to request payment for reasonable recovery costs for samples transferred to authorized persons or labs?	(Article II Section D, part 4 in revision). Yes. Stranding participants may be reimbursed for shipping and other costs by researchers or labs authorized to receive samples collected from stranded marine mammals (marine mammal parts may not be bought or sold). NMFS is considering changes to the regulations (for possible publication in 2008) that may clarify the language regarding reimbursement from recipients for services and transportation costs associated with transferring stranded animal samples or parts.
13	Page 5	Article II, section C, part 4	While the participant organization is responsible for most costs incurred during a stranding event, this responsibility is unfair and impractical in the case of an Unusual Mortality Event. Sampling protocols are extensive during a UME and shipping costs to diagnostic labs can be an encumbrance to an organization. NMFS must, not may, support costs associated with UMEs, particularly supplies and shipping and diagnostic costs. A pot of money should be set aside to provide monetary support for UMEs around the country. It is unlikely that a Prescott grant could cover additional costs associated with a UME.	(Article II Section D, part 4 in revision). When funds are available and authorized, NMFS will continue to support costs associated with specific analyses and additional requests associated with Unusual Mortality Events (in accordance with MMPA section 405-Unusual Mortality Event National Contingency Fund). Additionally, a portion of funds is reserved from the annual Prescott Program appropriation to make emergency assistance available for catastrophic stranding events throughout the year on an as-needed basis. Responders to such stranding events should immediately contact their Regional Office. Because both of these funding sources are dependant upon annual Congressional appropriations, they cannot be guaranteed.
20	Page 5	Article II, section C, part 4	Article II, section C, part 4 states that the stranding participant shall bear any and all expenses incurred with the taking, collection, or other activities pursuant to this agreement. NMFS may be able to support costs associated with specific analysis and additional requests as funds are available and authorized. This section should clarify that these activities do not include the towing of large whales. We also suggest that the language reflect the fact that activities will be based on the financial resources of the Stranding Participant. If the Stranding Participant does not have the resources available then the samples cannot be collected, shipped, or analyzed. Language used in the NMFS responsibility section such as “as resources are available” would be appropriate here.	On occasion, NMFS has financially assisted in the towing of large whale carcasses (particularly North Atlantic right whales). The language in Article II, C 4 (Article II, D.4. in revised version) has been modified to state that the Participant will manage the costs of the response, rather than bear the cost of the response. Costs that cannot be managed by the Participant should not be incurred. The data collection responsibility for level B and C data collection (Article III B. 2. b.) has been modified to include the "as resources are available" language.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
13	Page 8	Article III, section B, part 1a	If NMFS is going to implement the ICS structure in certain circumstances and expect the responding stranding organization to follow that structure, then NMFS needs to provide ICS training to all participants.	Regional stranding coordinators will be able to provide guidance and information regarding ICS training opportunities to Participants that have not received specialized training. There are also numerous websites with online training for ICS (e.g., FEMA training website: http://training.fema.gov/IS/)
13	Page 9	Article III, section B, 2 a	The need for completed data such as Level A form is imperative, however, having a set schedule for when the data are due is a cause for concern. A set schedule suggests rigidity and does not allow for flexibility for organizations that have limited available personal or mitigating circumstances. It is a concern that organizations will be penalized if this inflexible schedule is not met.	Implementation of the MMHSRP requires timely receipt of Level A data. Title IV of the MMPA, for example, requires NMFS to coordinate effective response to Unusual Mortality Events (UMEs). UMEs occurring in multiple stranding response areas might not be detected rapidly without timely reporting, precluding an effective response. Most participants are able to provide reports within 30 days. Many have received Prescott funds to improve their data collection and reporting abilities. NMFS personnel have been working with stranding participants that periodically have trouble meeting data submission deadlines.
13	Page 9	Article III, section B, part 2 c	The ability to contact NMFS [Region] Regional Stranding Coordinator when there is a possible or confirmed human interactions, suspected unusual mortalities, extralimital or out of habitat situations, mass strandings, mass mortalities, large whale strandings, and any other involving endangered or threatened species of concern within 24 hours seems to be very time constraining. Many facilities within the region get several hundred stranded animals a year; it would be a huge additional time commitment to those facilities to report each of the scenarios listed above, particularly human interaction cases, within 24 hours. A larger time interval for this information should be taken into consideration as well as the importance of this information (does NMFS need to know about every human interaction case when that information will be submitted through the National Database via the Level A form?). This information will be entered in Level A data forms and other stranding/necropsy data sheets, so the need to also separately report this information seems to be double duty for the responder(s).	Many stranding network members already contact NMFS within 24 hours of these events, since they may precipitate enforcement action, require assistance from the stranding coordinator, or heightened vigilance in neighboring stranding response areas. Some regions provide a 24 hour hotline to facilitate rapid notice. Network members that are unable to provide notice within 24 hours when human interactions, unusual mortalities, potential military associated standings, out of habitat situations, mass strandings or large whale and listed species strandings occur should work with their Regional Stranding Coordinator to establish a mutually acceptable reporting program and periodically update the list of reporting expectations.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
13	Page 9	Article III, section B, part 2 d	To require additional information, expedited reports (written and or verbal) of Level B and C data such as analytical results and necropsy reports within 24 hours is also another time restrictive issue. It is not feasible to ask organizations to turn over completed reports and analytical data within 24 hours of the stranding(s). The need to have this information within 24 hours of a stranding is a concern especially for smaller organizations that have limited staff and resources or for organizations that are inclined to have several animals strand simultaneously including mass strandings. It often takes weeks, if not months, to get analytical results, therefore a 24 hour frame is impractical.	Generally, the NMFS Regional Stranding Coordinator is requesting this information over telephone calls, and the need for information is discussed and coordinated with the stranding network participant. The phrase "as available" has been inserted to clarify that this is a request for information that is available within 24 hours.
14	Page 10	Article III, section B, part 2 e	In regards to bullet point (e.), forms or instructions should be provided by the NMFS office.	Network members who have not been trained in chain-of-custody procedures will be instructed by NMFS Regional Stranding Coordinators or NMFS Office of Law Enforcement personnel regarding procedures to follow and forms to complete at the time of the event.
13		Article III, section B, part 3 a	The retention or transfer of any parts of marine mammals is filled out under the “Specimen Disposition” section on the Level A data sheet. It is redundant to also have to report this information to the NMFS Regional Stranding Coordinator within 30 days of the stranding(s)	Currently, parts retained from stranded marine mammals are sometimes transferred well after a stranding event occurs. The regulations implementing the MMPA require notification of the Regional Administrator within 30 days of transfer of any parts. However, if the transfer occurs immediately and is noted on the Level A data report form submitted within 30 days of the stranding, no additional reporting is required. Proposed changes to the regulations are being considered (for possible publication in 2008) that may clarify the language regarding the transfer of stranded animal samples or parts.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
20		Article III, section B and C	The language in the NOAA deliverables section is quite different from the language used in the Stranding Agreement Participant section. The NOAA deliverables section includes the phrase “as needed and as available,” while in the Participant deliverables section the wording changes dramatically to the participant “shall bear all expenses.” While it is appropriate to clarify the financial liability, we believe NOAA should cover the cost, if one exists, of all Level B or C data they request. Alternatively, the language could be changed to closely match the NOAA section; for example: “as needed and as funds are available”.	NMFS and Participant Responsibilities are found in Article II Section C and D in the revised version. To ensure that the purposes of the stranding network are clearly identified and the partnership required to implement Title IV and other provisions of the MMPA related to stranding network activities are adequately represented by the Stranding Agreement, the section on joint responsibilities (Article II Section D. in original) has been moved to Article II Section B, before the sections on NMFS and the network participant's responsibilities. Additionally, the language in the particpant responsibility section has been slightly modified to say Level B and C data should be collected "as resources are available" (Article III Section B.2.b), and provided upon request within 24 hours "if available" (Article III Section B.2.d). Many stranding agreement participants currently collect and provide this information to NMFS within 24 hours of unusual strandings, particularly strandings with severe signs of human interactions, military activity, or emergent diseases.
				Additionally, Prescott funds have been made available to enhance the data collection abilities of stranding organizations to further the purposes of the MMPA. However, this requirement is not intended to cause participants to incur costs that they would not incur in the normal course of their response.
14	Page 11, 13, 16	Article IV, section A, part 1 b	In regards to bullet point (b.), it is recommended that AVID chips and satellite tags be added to this list.	AVID chips and satellite tags were not added to the list. As discussed in the NMFS Policies and Best Practices: Standards for Release, the NMFS Regional Administrator must receive advance notification of and approve the application of alternative marking techniques.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
9	Page 16	Article V, section A, part 1	Transferring an animal for "permanent disposition at an authorized facility" does not meet the purpose of this paragraph, which was stated to relate to "rehabiliation and release." Permanent display is not release as we understand the concept of release (and the term is not defined in the glossary) which implies release back to the wild. We are also concerned that this language in a section on the appropriate disposition of stranded animals may encourage animals to be taken from the beach for display rather than releasing them to the wild, particularly if they are from a specie sthat is novel or otherwise desirable to a captive display facility. Clause "c" should be omitted from the section dealing with "release" and the possibility of keeping stranded animals for permanent display should be considered elsewhere.	The title of this section has been revised to: "Live Animal Response: Rehabilitation and Final Disposition," replacing "Release" with "Final Disposition." NMFS regulations implementing the MMPA include a provision to require the use of a rehabilitated animal in lieu of animals taken from the wild for public display (50 CFR 216.27(b)(4)).
20	Page 18	Article V, section B, part 1 f	Article V, section B1, part f states that the stranding participants “shall prohibit the public display and training for the performance of stranded rehabilitating marine mammals as required by 50 CFR 216.27 (c) (5). This includes any aspect of a program involving interaction with the public.” We feel that the sentence, “This includes any aspect of a program involving interaction with the public” should be clarified and the terms defined. As it stands this would eliminate many highly effective yet non-detrimental education programs currently in progress. It would significantly impact many facilities that have free visitation programs to their rehabilitation centers.	Proposed changes to the regulations are being considered (for possible publication in 2008) to clarify/define public viewing of animals undergoing rehabilitation.
14	Page 18	Article V, section B, part 1 f	In regards to bullet point (f.), we object to a blanket prohibition as public display is possible without impacting the rehabilitation of these animals. Language used in another document concerning distance viewing with no impact is preferred.	NMFS published an Advanced Notice of Proposed Rulemaking (January 31, 2008) to solicit comments on the need for modifications to the regulations regarding public viewing of animals in rehabilitation.

Comments on the Stranding Agreement Template

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 18	Article V, section B, part 2 a	In regards to bullet point (a.), professional Husbandry staff is in a better position to assess the behavioral readiness and should either also sign or coordinate with the release determination paperwork.	As stated in the NMFS Policies and Best Practices: Standards for Release, the release determination recommendation should include a signed statement from the attending veterinarian, in consultation with the Assessment Team, stating that the marine mammal is medically and behaviorally suitable for release in accordance with the release criteria (i.e., similar to a health certificate) and include a written release plan and timeline. NMFS may also require a concurrence signature from the "Authorized Representative" or Signatory of the Stranding Agreement. The Assessment Team can consist of other specialized veterinarians, lead animal care supervisor, and consulting biologist with knowledge of species behavior and life history.

Comments on the Stranding Agreement Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14		Entire document	Word choice sometimes implies requirements for "new" applicants only, but doesn't always specify. Please clarify differences between new and existing organizations throughout the document.	As stated in the NMFS Policies and Best Practices Evaluation Criteria for a Marine Mammal Stranding Agreement, the intent of this document is for both renewals and new applicants. Every Article is footnoted. To renew an existing Stranding Agreement, the applicant must demonstrate past compliance with the terms and responsibilities of their Stranding Agreement, including reporting requirements and deadlines." This point has been clarified in the document.
4		Entire document	However, providing the scope and volume of information required in the General Evaluation Criteria for Stranding Agreement renewal will take many weeks of dedicated effort- a task that many organizations that rely on volunteer services, including ours, may be unable to achieve in the foreseeable future. We urge NMFS to develop a simpler process, particularly for Stranding Agreement renewals. One possibility would be to reduce the written component and rely more on NMFS inspection teams to conduct onsite evaluations.	NMFS intends to request a comprehensive package with these types of documents as part of the initial review for new applicants and once for exisitng stranding participants. At the time of reviews, organizations will only have to provide updates to the documents. Most exisiting organizations already have these types of documents that can easily be shared with NMFS.
20	Page 2-1	Section 2.1	This section states that a prospective SA must apprentice under a SA holder for a minimum of three years. We suggest that NOAA assign a number of rehabilitation cases to meet the minimum requirements rather then length of time.	Text revised to state "9. For prospective Participants, demonstrate experience working under the direct supervision of an existing Stranding Network Participant in good standing or NMFS for at least three years or equivalent case load."
14	Page 2-1	Section 2.1, number 2	Organizations will need time to develop the documentation described in 2.1.2. It would be best if the agency would provide examples or templates to work off of. Alternatively, could the organizational summary used for Prescott Grant applications suffice? Perhaps the requirements for both this document and the organizational summary fo rthe Prescott grant application be unified.	Much of the information requested for applications for the Prescott Grant Program can also be used to fulfill the document requests for a new or renewal of stranding agreement. However, there is more information that is required including specific protocols.
14	Page 2-1	Section 2.1, number 3	Bullet (a.) should read: Brief summary of the existing or proposed scope of the stranding program (e.g., all species of cetaceans, pinnipeds), and whether the request is for response to dead animals only, live and dead animals, and/or rehabilitation.	Text revised per comment.

Comments on the Stranding Agreement Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 2-1	Section 2.1, number 3	Bullet (b.) should read: Justification and description of the existing or proposed geographic area of coverage and why the area of response is appropriate for the organization (e.g., the amount of personnel/volunteers and resources available, relative to shoreline covered.	Text revised per comment.
14	Page 2-2	Section 2.1, number 5	It would be helpful if NMFS could generate a complete list of items and the level of detail ("102 1" x 19G needles" or "a supply of various sized needles" or even just misc. sampling supplies) they are interested in. Otherwise, organizations may not cover what the agency is looking for. Again, an example or template would help.	NMFS suggests referring to existing lliterature resources for a list of equipment, such as Marine Mammals Ashore, the CRC Handbook of Marine Mammal Medicine, and the Woods Hole Oceanographic Institution's Necropsy Techniques for Biologists.
14	Page 2-3	Section 2.1, number 8	In regards to number 8, resumes are also required under 2.1.4b. Pick one place to cover this requirement.	Text for 2.1.4b. revised to state: "Brief summary of relevant training, experience, and qualifications for key stranding response personnel, including primary responders, veterinarians and volunteers as appropriate."
14	Page 2-3	Section 2.1, number 9	In regards to number 9, this should apply to new Stranding Agreements only.	This requirement is for new applicants only and this point has been clarified.
14	Page 2-3	Section 2.2	The first paragraph should read: NMFS will evaluate existing and prospective participants based on their demonstrated track record and their capabilities in the following areas as described in their request.	Text revised per comment.
14	Page 3-1	Section 3.1, number 1	In regards to number 1, what is the difference between representative and responder?	The following roles were clarified: The **Authorized Representative** is the individual with signatory authority for the stranding organization. This individual may be the signatory of the stranding agreement (e.g., Executive Director, President, CEO, etc.). The **Primary Responder** is who will be on-site or supervising when dead or live animals are being examined or handled and is responsible for the day to day operations (i.e., paid and unpaid staff).

Comments on the Stranding Agreement Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
13	Page 3-1	Section 3.1	Is NMFS going to provide required equipment lists that outline what they feel is necessary to collect Level A data? It is a concern that facilities may be penalized for not meeting the required equipment list. Throughout the NER facilities and organizations differ in size, number of staff and geographic area as well as in the quantity and variety of species of animals that strand. As a result the equipment needed to respond to strandings in one area may differ from another.	NMFS suggests referring to existing literature resources for a list of equipment, such as Marine Mammals Ashore, the CRC Handbook of Marine Mammal Medicine, and the Woods Hole Oceanographic Institution's Necropsy Techniques for Biologists. Another use of the equipment list is for NMFS to obtain information on current equipment caches that could be utilized in a large emergency response.
20	Page 3-1	Section 3.2	Section 3.2 states that key personnel are required to have necropsy experience, but this seems unnecessary if level B and C data is only collected “if possible” as is stated in this section. If necropsies are not required, why is necropsy experience for staff?	NMFS believes that conducting necropsies on every carcass is important, but it may not always be possible. For example, when logisitcs prevent retrieval of a carcass. It is important that the key personnel know how to conduct some level of necrospy and sampling.
20	Page 4-1	Section 4.2, section f	Although it states that this qualification is “preferred but not required” it should be removed since mass strandings are limited to only a few geographical locations throughout the nation.	Mass strandings have been reported in every region of the coastal United States. Mass strandings could be two or more ceteaceans, excluding cow-calf pairs.
14	Page 4-2	Section 4.2, number 3	There paragraph should read: The prospective Participant should demonstrate knowledge of national, state, and local laws relating to live animal response.	Text revised per comment.
14	Page 5-1	Section 5.1, number 1	Bullet (a.), Sub-bullet (iii.). The maximum holding capacity depends upon the species. For facilities that receive a number of different species and have flexible holding options, how would the agency determine max capacity? For example, a facility might have a pool that can hold several small animals (i.e. harbor seals) but only a couple large animals (i.e. Steller sea lions). Also, some organizations are limited more by staff and not space, now will NMFs take this into account?	Maximum capacity is determined prior to a stranding event and communicated to NMFS. As stated in the National Stranding Agreement Template, the Participant shall not exceed their maximum holding capacity for cetaceans and pinnipeds based on the minimum standard space requirements, the number of animals housed in each holding area, and the availability of qualified personnel as described in the NMFS Policies and Best Practices Standards for Rehabilitation Facilities. A written waiver from the NMFS Regional Administrator is required prior to the Participant exceeding the maximum holding capacity. Other considerations for determining maximum holding capacity include on-site veterinary care, adequate volunteer support, experienced staff, adequate food and medical supplies, medical test capabilities, adequate isolation capability, adequate water quality, limited public access, and the ability to maintain current, accurate and thorough records.

Comments on the Stranding Agreement Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 5-1	Section 5.1, number 1	Bullet (b.), Sub-bullet (ii.). The sentence should read: Human health and safety throughout the rehabilitation facility.	Text revised per comment.
20	Page 5-3	Section 5.2, section 1 c	"Experience in a supervisory role" should be defined. Does this mean supervising volunteers and interns during husbandry care or supervising the rehabilitation case?	**The Animal Care Supervisor** is responsible for overseeing prescribed treatments, maintaining hospital equipment, and controlling drug supplies. The person should be adequately trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the animal care supervisor should communicate frequently and directly with the attending veterinarian to ensure that there is a timely transfer of accurate information about medical issues. Ideally, this individual should be a licensed veterinary technician or an animal health technician who reports to, or is responsible to, the attending veterinarian.
14	Page 6-1	Section 6	What is the policy for when the agency is proposing a designee for an existing organization?	As stated in the National Stranding Agreement Template, a Stranding Agreement Holder (Participant) can designate an organization or institution to act on behalf of the Participant. It is up to the Participant to agree to this arrangement. The initial request can come from the Participant or NMFS, but the agreement must be mutual.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
15	N/A	N/A	Specify actions that the Service plans to take to ensure that rehabiliation facilities are in compliance with the Interim Standards for Rehabilitation Facilities.	NMFS will send a qualified individual to each institution to document existing facilities, and to advise each facility of their areas of weakness. Once the Standards have been approved, inspections will be carried out on a rotating 1-3 year interval to ensure complliance.
21	N/A	Entire document	I feel that the guidelines outlined in this document are acceptable as long as they remain guidelines and do not become regulations. The major issues I have are the discrepancies between the minimum and recommended standards. I do not understand how they relate and how they would be weighted if they became regulations. I feel most facilities will aspire to meet the minimum standards and improve their facilities. However, if the recommended guidelines become regulations this would require an additional upgrade coupled with an increase the cost of conducting rehabilitation. These upgrades would require and additional source of funding not able to be covered under the current John H. Prescott Rescue Assistance Grant Program. Currently the only way to fund moderate upgrades is through this grant program. Unfortunately if these funds are diverted from general operational support our programs will not be able to meet our obligations operationally. As the cap for funding is $100,000 (and we currently do not have enough funding to support the existing program proposals) when the b	Minimal Standards will be enforced. Recommended Standards will not be enforced nor are they intended to become regulations, but will help to establish desired guidelines to try to achieve using Prescott Grant money or other forms of funding. Recommended Standards may be used as a means of obtaining funding.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
9	N/A	Entire document	It would seem important to consider providing regulations with additional minimal facility standards, personnel qualifications, staffing patterns, and other aspects of facility-based rehabilitation to assure that animals are properly cared for and that the care is uniform nationally and not variable depending on where the animal has the misfortune to strand. Regulations also faciliate enforcement of standards of care.	Acknowledged
21	N/A	Entire document	Another general comment is that all references to tank diameters and dimensions should be based on actual animal size being rehabilitated in that tank and not the average adult length.	The standards ARE based on the actual animal size. They may reflect the largest animal in the pen/pool.
21	N/A	Entire document	These changes assume that animals will not be in the facilities during construction and operations will be conducted offsite. Another problem associated with these upgrades is related to the continuous operations of the rescue program. If facility upgrades cannot be timed to coincide with a decrease in the number of animals, alternate housing would need to be secured. It would be helpful to have NMFS facilitate a coordinated plan, based on their need assessment throughout each region, to upgrade facilities so as not to create a response void.	Facilities should have approximately 3 years to bring their facility into compliance. Very few facilities operate at full capacity year-around. The improvements should be made when it is optimal for each facility. Communication and team work between facilities would be preferable to a NMFS mandated upgrade schedule.
20	Page 1-2	Section 1.1	In the paragraph on unweaned neonate cetaceans, if the rehabilitation facility is considering permanent care, they should also provide an updated staffing plan to NOAA since an unweaned cetacean would likely require 24-hour care for weeks or months.	Any rehabilitation facility considering rehabilitating unweaned cetaceans must submit a plan of disposition and additional care information to NMFS approval BEFORE such an animal requires rehabilitation. Text revised per comment. See response to comment below.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
21	Page 1-2	Section 1.1	The statement "prior to receiving an unweaned cetacean calf for rehabilitation, facility personnel must submit a plan to the NMFS regional coordinator which will include options and timeline for decisions regarding disposition" should be clarified whether that means receiving from another facility or picking it up from the beach, as most assessment would be done upon arrival at the facility. It should be modified to "shortly after receiving an unweaned cetacean calf for rehabilitation, facility personnel must submit a plan to the NMFS regional coordinator which will include options and a timeline for decisions regarding disposition."	Text clarified per comment. A rehabilitation facility needs to thoughtfully consider these types of cases when developing overall facility goals and objectives. If the facility aims to rehabilitate neonatal and/or unweaned calves, then they need to discuss and seek concurrence with NMFS options for final disposition since most of these cases will be nonreleasable. These issues need to be researched, outlined and NMFS approved prior to admitting any cases.
21	Page 1-3	Section 1.1.1	The statement “pools shall have a minimum horizontal dimension of 9.75 meters (32 feet) or two times the average adult length of the largest species in the pool, whichever is greater” should be changed to “pools shall have a minimum horizontal dimension of 9.14 meters (30 feet) or two times the actual length of the largest species in the pool, whichever is greater”	Text revised per comment.
15	Page 1-4 and 2-4	Section 1.1.3 and 2.1.3	Pages 1-4 and 2-4 state that shade structures or shelters must be provided when local climatic conditions could otherwise compromise the health of the animal. This standard is subjective and allows for broad interpretation. The Service should better define the conditions under which shade must be provided to animals that are undergoing rehabilitation, recognizing that, if such animals are unable to thermoregulate or swim and dive normally, protection from the sun is essential.	Text clarified per comment: "Shade structures or shelters must be provided to animals when local climatic conditions could compromise the health of the animal noting that some cetaceans undergoing rehabilitation may be unable to swim, dive, or thermoregulate, thus requiring either shelter from the elements or shade."
21	Page 1-5	Section 1.1.4	The statement “control air temperature above the pool between 50 – 80°F when appropriate to facilitate recovery” should refer to the environmental parameters encountered by the species undergoing rehabilitation.	It is beyond the scope of the document to mention each and every species. The phrase "when appropriate" should allow appropriate interpretation.
21	Page 1-12	Section 1.3.2	The statement “maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian” should add “or a husbandry care specialist”	Text clarified per comment: "Maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian or the animal care supervisor."

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
20	Page 1-20	Section 1.6.1	Bullet three states, “Diets reviewed by a nutritionist and the attending veterinarian.” This request seems excessive. Most facilities do not have a nutritionist on staff, even the large facilities like the New England Aquarium. It should be enough that the attending veterinarian and the biologists evaluate and calculate the diets. Requiring that a nutritionist review all the diets may prove to be prohibitively costly for the majority of the rehabilitation centers when the husbandry and veterinary staff can manage this.	Text clarified per comment: "Diets reviewed by a nutritionist, attending veterinarian, or the animal care supervisor."
21	Page 1-20	Section 1.6.1	The statement “diets reviewed by a nutritionist and the attending veterinarian” should be altered to “diets reviewed by a nutritionist, attending veterinarian or animal care specialist”	Text clarified per comment: "Diets reviewed by a nutritionist, attending veterinarian, or the animal care supervisor."
20	Page 1-22	Section 1.6.6	*Feed Records, Minimum Standard* bullet three states that a girth measurement must be obtained weekly on cetacean rehabilitation candidates. While this may be okay in the beginning stages of rehabilitation, weekly captures in later stages are excessive. Every other week would be more appropriate with cetaceans in the later stages of rehabilitation.	Bullet 4 text revised to state: "Obtain body weight or girth measurements at least weekly from debilitated easily-handled animals. Girth measurements are taken at the level of the axilla and the anterior insertion of the dorsal fin. Girth measurements are generally less stressful to obtain than weighing the animal." Bullet 5 text revised to state: "Girth measurements or body weight should be obtained as often as practical in the later stages of rehabilitation without causing undue stress to the animal."
20	Page 1-23	Section 1.7.1	*Veterinary Experience* states that veterinarians be available to assess animals during mass stranding events. This should be clarified. In many smaller events veterinarians are often not on site but consulting via phone. We acknowledge that in some regions Participants often act on their own accord with limited or in the absence of veterinary oversight. Wording needs to provide direct guidance for these groups but should also not cripple more responsible mass stranding responders who work consistently under the direction of veterinarians.	Text changed per comment: "The attending veterinarian be available to assess animals during a mass stranding directly or indirectly through trained and qualified primary responders.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
20	Page 1-24	Section 1.7.1	Under *Recommended* for that section is states the vet be a full time employee or contracted veterinarian of record at facilities managing ten or more cetacean cases per year. This does not clarify if that included live and dead animals or just live? If the latter then this requirement could prove prohibitive for smaller facilities with traditionally low cetacean numbers.	A veterinarian experienced in cetacean medicine should be available to consult on cetacean cases at facilities that regularly rehabilitate cetaceans on an annual basis. This is Recommended and not required. Text revised to state: "Be full time employees or contracted veterinarian experienced in cetacean medicine at facilities managing an average of 5 live cetacean cases per year."
20	Page 1-24	Section 1.7.2	*Minimum Standards.* This section taxes the veterinarians with a lot of paperwork that seems excessive, particularly bullet two, which requires a review of Standard Operating Procedures every six months. One time per year is sufficient. Smaller facilities or those not associated with a larger park or Zoo have contracted veterinarians who have another full time job in private practice. While we strongly support veterinary oversight we also think the demands on the veterinarian's time should be reasonable and focused on animal health and direct animal care. Non-veterinarians can perform some of the tasks listed here.	Bullet 2 text revised to state: "Standard operating procedures should be reviewed and initialed by the attending veterinarian or the animal care supervisor annually and/or whenever the document is changed or updated. This document may be reviewed by NMFS as part of the NMFS Stranding Agreement or as part of inspections."
20	Page 1-28	Section 1.9.1	Bullet 13 states that medical records should be available for NMFS review upon request. It should be clarified that this statement does not mean that NMFS is able to retain copies of the medical files or diagnostic results, because these are level B and C data and are owned by the Participant. This should be modeled after the AFIS [APHIS] regulations where regular inspections and reviews take place but AFIS [APHIS] does not retain copies. An agent visits the facility and reviews the documents in house. **Bullet 14** states that medical records must be kept on site for a minimum of 15 years. It should be clarified if this means hard copies or computer copies. Computer copies can be kept more easily, whereas hard copy storage may be problematic. If this refers to hard copies then ten years on site or fifteen years at a secured storage area should be sufficient. (This is restated in the Pinniped section).	Medical records should be available for review. This statement is straightforward and does not need clarification. Medical records may be kept in any format that is easily retrieved.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
20	Page 1-31	Section 1.14	*Training and Deconditioning Behaviors* states the staff veterinarian should evaluate the benefits of training. We recommend that a person with at least three years of operant conditioning with cetaceans be consulted regarding the training plan and the plan for deconditioning. Phone consult would be sufficient before, during and prior to the deconditioning. Many marine mammal trainers will provide support free of charge.	Text clarified per comment: "In some cases, extensive contact with humans, including training, may benefit resolution of the medical case by providing mental stimulation and behavioral enrichment, and may facilitate medical procedures. The relative costs and benefits of training should be evaluated by the attending veterinarian and animal care supervisor and the likelihood of contact with humans following release should be considered. Seeking advice from a qualified cetacean behaviorist (with at least 3 years of experience) may be beneficial."
23	N/A	Section 2	Throughout this document, suggest that "at the discretion of the attending veterinarian" be applied to many if not all of the minimum standards. Many situations arise during medical treatment and rehabilitation of stranded marine mammals where it might actually be detrimental to their recovery to follow the standards. For example, activity and access to water may need to be severely limited for animals with fractures.	This is why most standards allow for deviation of the standard at the discretion of the attending veterinarian.
14	Page 2-1	Section 2.1	Paragraph 4. The last sentence reads: Pinnipeds with evidence of infectious disease must be quarantined (See Section 2.4 Quarantine). Does this mean that Pinnipeds with infectious diseases should be quarantined from other rehabilitating animals? How many isolation areas are expected?	Pinnipeds with evidence of infectious disease should be held in separate areas from other rehabilitating pinnipeds to prevent transmission of disease. Facilities should be prepared to isolate incoming animals with evidence of disease away from other animals utilizing methods to control aersol and water-bourne exposure. Text revised to state: " Pinnipeds with evidence of infectious disease must be held in separate areas from other rehabilitating animals to prevent transmission of disease. There should be sufficient isolation areas to accommodate incoming animals with evidence of disease utilizing methods to control aerosol and water-bourne exposure to other on-site animals (see Section 2.4 Quarantine)."

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-1	Section 2.1	Due to variations amongst the most commonly rehabilitated species, their growth rates, and varying sizes at different life stages and age classes, standards for space requirements should be based on the individual animal housed at any given time, and not generalized on measurements of adults of the same species.	We recommend that such information be included in the facility SOPs using this document as guidance.
18	Page 2-2	Section 2.1.1	In Section 2.1.1 the recommended standard for pools is for them to meet USDA, APHIS regulations. These standards are based on the adult length of the largest species housed in that pool and were developed for permanent display facilities. These standards would not be very practical for rehabilitation facilities like our who handle primarily pups and juveniles of various species that can grow to be quite large and rarely, if ever, strand in our area of response as adults. Also, it is not very clear whether these strandards would apply to all pool used for rehabilitation or only those used for holding animals in the final stage of care prior to their release.	Recommended Text revised to state: "The minimum surface area of the pool for non-critical animals shall be at least equal to the dry resting area required by USDA, APHIS AWA standards, but using the actual length of the largest animal in the enclosure instead of the average adult length."
21	Page 2-2	Section 2.1.1	The statement “facilities where numerous pinnipeds are rehabilitated consistently each year should be equipped with at last one pool and haul-out area that meets APHIS standards for at least one adult of that species where one or more per year strands as adults” should be altered to “facilities where numerous pinnipeds are rehabilitated consistently each year should be equipped with at last one pool and haul-out area that meets APHIS standards for at least one adult of the species when the average of occurrence increases to one or more per year.	Recommended Text revised per comment: " If adult pinnipeds are commonly rehabilitated, facilities should be designed to accommodate the average number of adult-sized animals that strand each year, and have at least one pool and haul-out area that meet USDA APHIS AWA standards."

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	not sure (p2-12?)		Suggest that the temperature range of 60-80F is too narrow and unrealistic. The range should be the same as pinniped species are exposed to in the wild, with protection from extremes of heat and cold.	Text clarified per comment: "Method to raise or lower air temperature, as appropriate to maintain proper body temperature should be available. Access to full shade, constant water sprays and fans may be used for animals that have no access to pools during times when the ambient temperature exceeds 85°F (29.4°C). Likewise radiant heating devices or waterproof heating pads may be utilized when ambient temperatures fall below the comfort level of the animal, which will be determined by the species, age, medical condition, and body condition of the animal. Animals should be able to move away from point source heaters. If animals are too debilitated to move, temperature of heaters can not exceed the safe range of 60-80oF at skin surface or animals must be monitored every 2 hours."
23	Page 2-2 to 2-3	Sections 2.1.1 and 2.1.2	As stated in 9CFR3.110 (revised January 1, 2005), Sec 3.110(b): "Holding facilities used only for medical treatment and medical training need not meet the minimum space requirements as outlined in Sec 3.104. Holding of a marine mammal in a medical treatment or medical training enclosure that does not meet minimum space requirements for periods longer than 2 weeks must be noted in the animal's medical record and the attending veterinarian must provide justification in the animal's medical record. If holding in such enclosures for medical treatment and/or medical training is to last longer than 2 weeks, such extension must be justified in writing by the attending veterinarian on a weekly basis." Since the USDA-APHIS standards make a specific exception for medical treatment, and since rehabilitation facilities are by definition providing medical treatment, there should be no requirement for rehabilitation facilities to meet the same USDA-APHIS standards for marine mammal housing for long-term/display facilities. The exception for medical treatment should remain.	Not all animals in rehab require medical treatment. NMFS oversees marine mammal rehabilitation faclilities and there is no mandate that these facilities also meet USDA standards as they were developed for permanent captive animals. In certain circumstances, we recommend USDA APHIS AWA standards as applicable.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-2 to 2-3	Sections 2.1.1 and 2.1.2	To reduce paperwork, particularly in high-volume rehabilitation centers, we suggest that an exception be made to the required weekly written justification for holding animals under medical treatment. Holding in appropriate facilities for medical care should be permitted until the rehabilitated animals are deemed healthy for release by the attending veterinarian.	NMFS does not require weekly justifications. Regulations that implement the MMPA for NMFS species (50 CFR Sec. 216.27(a)(1)) require that a marine mammal held for rehabilitation be released within six months unless "…the attending veterinarian determines that: (i) The marine mammal might adversely affect marine mammals in the wild (ii) Release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal; or (iii) More time is needed to determine whether the release of the marine mammal in the wild will likely be successful…" and (b)(1) "The attending veterinarian shall provide the Regional Director or Office Director with a written report setting forth the basis of any determination."
23	Page 2-2 to 2-3	Sections 2.1.1 and 2.1.2	Veterinary discretion should apply to all pool dimensions, not just surface area of the pool, as written in the recommended standards.	Section 2.1.1, minimum standard, bullet 2 text revised to state: "Critically ill animals or young pups are to be housed appropriately, with the pool size and depth as well as the dry resting area determined by the discretion of the attending veterinarian." Section 2.1.2, minimum standard, bullet 4 text revised to state: "Animals may be temporarily housed in smaller areas at the discretion of the veterinarian. The attending veterinarian should determine the minimum space which will be most appropriate for the age or medical condition of the animal."
23	Page 2-3	Section 2.1.2	The description of how to calculate dry resting area is confusing to read. We suggest that a table be prepared, based on body length, for the required surface area. This table could be similar to the one for cetaceans in 9CFR3.104, which is based on body length and not on species.	Species specific tables are beyond the scope of this document. Each facility may prepare their own tables based on the sizes and species most commonly rehabilitated.
14	Page 2-3	Section 2.1.2	3rd bullet point. Sentence should read: The facility must have a plan to manage adult males.	Text revised per comment.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 2-4	Section 2.1.5	Paragraph should read: Animals housed at rehabilitation facilities must be provided with shelter to provide refuge from extreme heat or cold. Pinnipeds held in rehabilitation facilities may not have normal activitiy levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from cold temperatures or inclement weather. Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions. Except during pre-release conditioning phase, ensure adequate refuge from extremes.	Text revised to state: "Animals housed at rehabilitation facilities must be provided with shelter to provide refuge from extreme heat or cold…At the discretion of the attending veterinarian an exception to refuge from extreme cold during the pre-release conditioning phase may be made. Pinnipeds should be protected at all times from extreme heat."
23	Page 2-4	Section 2.1.6	Please clarify whether the proposed minimum standard applies to indoor facilities only. For outdoor rehabilitation facilities, there is no practical way to control ambient air temperature.	Outdoor enclosures may employ heating pads, heat lamps, fans, etc. to help control ambient air temp.
23	Page 2-4	Section 2.1.6	Suggest that if protection from extremes of heat and cold are provided, such as access to heating pads, shelters, shade, water spray, etc., the holding of animals in such areas should be at the discretion of the attending veterinarian.	Acknowledged
23	Page 2-5	Section 2.1.7	The language in section [2.]1.7 is more generally appropriate for ambient conditions: provide shelter from extremes of heat or cold, and provide heat as appropriate for animals held in cold climates.	Acknowledged
23	Page 2-5	Section 2.1.7	Please clarify what "appropriate in size" means for individual dry haul out space or individual enclosures.	Text revised to state:"Individual dry haul out space or individual enclosures shall be large enough to accomodate the most common species of pinnipeds rehabilitated routinely at the facility."
23	Page 2-5	Section 2.1.7	Providing a structurally separate quarantine facility for all incoming animals in not necessarily appropriate or feasible. If there is adequate separation between portions of a structure and between animals, that should suffice.	Text clarified per comment: " Barriers sufficient to isolate incoming animals until the attending veterinarian determines them to be free from contagious disease (See Section 2.4 Quarantine)."

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 2-5	Section 2.1.7	4th bullet point. Is the structure referenced in the paragraph meant ot be a separate building? Or can it be separate rooms/holding areas that prevent exchange of water and bodily fluids as well as prevent 'nose-to-nose' contact with other animals? This requirement is stricter than the requirement listed on page 2-15.	Text revised to state: "Barriers sufficient to isolate incoming animals until the attending veterinarian determines them to be free from contagious disease (see Section 2.4 Quarantine)."
23	Page 2-6	Section 2.1.8	Housing arrangements should be at the discretion of the attending veterinarian and/or trained husbandry staff. In many situations, paired or group housing of young animals helps to decrease stress.	Text revised to state: "Access to raised platforms in dry resting areas for pups of all ages at the discretion of the veterinarian."
23	Page 2-6	Section 2.1.8	Raised platforms (in both section [2.]1.8 and [2.]1.9) are not appropriate, as animals in the wild often haul out and sleep on hard, cold surfaces. Dry resting areas may be appropriate and necessary for critically ill animals, but should be at the discretion of the attending veterinarian.	Text revised to state: "Critical or debilitated pups should not be required to lay on concrete or other hard/cold surfaces."
14	Page 2-7	Section 2.1.10	1st bullet point. Addition of the following sentence: Dependent pups are more labor intensive and require more staffing.	Text revised per comment.
23	Page 2-8	Section 2.1.11	Requiring enrichment items to be non-porous and cleanable excludes most if not all natural items, such as kelp, driftwood, etc. Suggest that if items are not porous and easily cleaned, that they be disposable and not shared between pens or pools, e.g. used for only one animal or group of animals.	Generally speaking, driftwood or kelp may be inappropriate in rehabilitation situations. The goal is not to mimick the wild exactly but to provide appropriate items that are non-porous and cleanable or disposable.
23	Page 2-8	Section 2.1.12	Preventing contact between rehabilitating animals and all wild animals (i.e. birds, small rodents, insects) is not feasible, particularly for outdoor facilities. Control is appropriate.	Contact is prevented by pest control measures. Bullet 1, text revised to state: "This should include physical barriers to help to prevent feral and/or wild animals from contact with the rehabilitating animals."
14	Page 2-10	Section 2.2.1	2nd bullet point. Sentence should read: Drain water from pools as often as necessary to keep the pool water quality within acceptable limits.	Text revised per comment.
14	Page 2-12	Section 2.3.2	1st bullet point. Sentence reads: Measure water temperature, pH, salinity (if applicable), chemical additives (if applicable) daily in all pools. Does this apply to open flow through systems with natural sea water?	Yes, this applies to open flow through systems, especially water temperature.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-14	Section 2.3.7	Holding water temperature within the normal habitat range is not feasible, nor is it necessary for short-term rehabilitation. Suggest that this be changed to "protect from extremes of heat and cold," as in other sections.	It is reasonable to hold water temperature within normal habitat range, which is generally pretty broad, as water temperature which exceeds that range may be considered an extreme of heat or cold.
23	Page 2-15	Section 2.4.1	Individual quarantine of all animals is not necessary or appropriate. Please insert language indicating that batch quarantine is permitted and appropriate, as animals are often admitted in groups during seasons.	Text added to bullet 1 to state: "Animals that are admitted in groups may be quarantined together."
23	Page 2-15	Section 2.4.1	Eye shields or safety glasses are not necessary or appropriate. Suggest changing this to the provision of eye-wash stations, and the option for personnel to wear shields or glasses at their discretion.	Text revised per comment.
14	Page 2-15	Section 2.4.1	In regards to the 1st bullet point, the use of dividers, tarps, or physical space is very different from the structurally separate facility referenced on page 2-5. The description listed here is much more reasonable.	Text on page 2-5 has been revised to match the description here. Revised text states: "Barriers sufficient to isolate incoming animals until the attending veterinarian determines them to be free from contagious disease (see Section 2.4 Quarantine)."
14	Page 2-15	Section 2.4.1	In regards to the 5th bullet point, the sentence should read: Maintain equipment and tools strictly dedicated to the quarantine areas or thorough disinfection.	Text revised per comment.
23	Page 2-16	Section 2.4.3	It is not practical to build perimeter fencing that will prevent all wildlife from entering the premises. Suggest deter instead of prevent.	Text clarified per comment: "Ensure perimeter fencing will deter wildlife from entering the rehabilitation premises."
23	Page 2-16	Section 2.4.3	Similarly, it is not practical or even desirable to build net pens that will keep all wildlife (i.e. fish) from coming into contact with rehab animals.	Bullet 3 text revised to state: "Ensure net pens and lagoon areas have sufficient secondary fencing to keep wild mammals from coming in direct contact with the animals housed in the net pens."
23	Page 2-17	Section 2.4.6	Placing a second set of perimeter nets 30 feet from the pens is not practical nor always desirable.	It is desirable to provide a buffer zone between the animals and other wild mammals and the general public.
23	Page 2-17	Section 2.4.6	We suggest that placing pens 1000 m from storm drains is not practical (i.e. run-off from building roofs, etc., can be considered storm drains). Limit this requirement to sewage outfall.	Text revised per comment.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-18	Section 2.4.6	Daily coliform testing for net pens is not practical. Pens may be located in remote areas where testing cannot be carried out, and it is also not feasible to control the coliform count in open water areas.	It is necessary to have some idea of the coliform counts in net pens, even if weekly. Water paddles may be employed to move water if coliforms tend to build up. Bullet 9 text revised to state: "Weekly coliform testing will determine if pathogen build-up exists. Water circulation may be enhanced using water paddles."
23	Page 2-18	Section 2.4.7	Obtaining full bloodwork, cultures, etc., is neither practical nor appropriate in all cases. For example, diseases such as leptospirosis, which is endemic in certain wild populations, can be presumed present in certain groups of animals, and they can be housed together appropriately without extensive preliminary testing.	Text Clarified per comment: " CBC/Chemistries, appropriate cultures, physical examination before moving animals out of quarantine area and at the discretion of the attending veterinarian."
23	Page 2-18	Section 2.4.7	Please clarify the meaning of contingency plan. Is this a treatment plan for the various conditions listed? Housing plan? Please also clarify which diseases are reportable for marine mammals, and to which agency. CDC? WHO? OIE? USDA? Suggest that a table would be helpful.	A contingency plan should be developed if there is an outbreak of highly infectious disease in the rehabilitation facility - the need to separate animals that are ready for release from those with highly contagious disease and this should include housing plans. Also, NMFS will provide future guidance regarding "reportable disease."
23	Page 2-18	Section 2.4.8	This section is very vague. All pinniped handling may result in exposure to potentially zoonotic pathogens. So does all handling, including beach rescues, require full protective gear?	Bullet 5 text revised to state: "Provide appropriate safety equipment, as reasonable, such as protective clothing, eye protection and face masks to all staff who may be exposed to zoonotic diseases (see *Occupational and Safety Information for Marine Mammal Workers* http://www.vetmed.ucdavis.edu/whc/mmz/)"
23	Page 2-20	Section 2.6	Suggest check of wild pinniped foraging literature, as there are many reports that pinnipeds will forage and then haul out for several days.	The biggest concern is with growing pups. Text revised to clariy this: "Feeding regimens should be tailored to enhance weight gain for underweight animals or growing pups, and should simulate natural patterns in terms of frequency and quantity to the extent possible while following a prescribed course of medical treatment."
14	Page 2-21	Section 2.6.1	In regards to the 3rd bullet point, it is excessive for a public display aquarium to have a nutritionist on staff.	A nutritionist need not be on staff but could consult. Bullet 3 text revised to state: " Diets reviewed by a nutritionist, attending veterinarian, or the animal care supervisor."

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-21	Section 2.6.2	If daily food intake is recorded per animal or per group, then kCals consumed can be calculated if/when necessary from the medical records. Requiring daily calculation is adding unnecessary work.	Some facilities have worked this daily calculation into their computer programs. The calculation is also listed as a recommended standard, not a minimum standard.
23	Page 2-21	Section 2.6.2	Suggest that the composition of each diet routinely used be calculated.	Text revised per comment.
23	Page 2-21	Section 2.6.2	Fish supplies maintain composition analysis records for each batch. It is not necessary for each facility to replicate that work.	Text added to bullet 2 to state: "Analysis from fish supplier may be used and a copy should be maintained on site."
23	Page 2-22	Section 2.6.6	Daily feed records cannot be maintained for individuals when they are housed in groups. Group records can be maintained, and together with daily husbandry notes and weekly records of weight provide sufficient indication of individual animal consumption.	Text added at bullet 2: "If animals are fed in groups then group feed records shall be maintained and together with daily husbandry notes and weekly weight records ensure evidence of sufficient feed intake."
23	Page 2-22	Section 2.6.6	Please indicate that food can be weighed before and after feeding to individuals or groups.	Text revised per comment.
23	Page 2-23	Section 2.7.1	It is not possible for an attending veterinarian to certify that animals are likely to survive, or that they are free from known communicable diseases. We do not test for all known communicable diseases, so we cannot certify that animals are free from them. For example, E. coli is a potentially communicable pathogen, and all animals certainly have E.coli. Suggest that a more appropriate standard is that animals must be free from clinical signs of disease, able to swim and dive, and free feed.	We agree and as mandated by Title IV Section 402 (a) of the Marine Mammal Protection Act, NMFS has developed guidance and criteria for release based on optimizing the chances for survival and minimizing the risk to wild populations (NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release). These facility standards have been developed to achieve the goals set forth by the Standards for Release.
20	Page 2-23	Section 2.7.1	Section 2.7.1 in the Pinniped section also recommends that the vet consult with the vet on record at facilities managing over 50 pinniped cases per year. Does this included dead animals? If not this seems to go against NMFS new direction of making difficult decisions.	The 50 cases included both live and dead.
14	Page 2-23	Section 2.7.1	8th bullet point. Sentence reads: Have contingency plan for veterinary backup. This should be the responsibility of the facility and not the veterinarian who may be a volunteer.	We agree and this point is also discussed in the NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Evaluation Criteria for a Marine Mammal Stranding Agreement
23	Page 2-25	Section 2.7.2	Suggest that annual review of SOPs is sufficient.	Text revised per comment.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-25	Section 2.7.2	Please clarify what constitutes a health and safety plan. Is a preventative health program required for all staff/personnel?	A health and safety plan for the staff shall be written and accessible at all times. It shall be reviewed by the attending veterinarian or the animal care supervisor annually or as prescribed by the NMFS Stranding Agreement. All animal care staff will be familiar with the plan. The plan should include protocols for managing bite wounds.
14	Page 2-25	Section 2.7.2	6th bullet point. It is not appropriate to assign human health plans to the veterinarian. A human health plan should be developed by the Human Resource personnel with the help of a human medical professional. This should be the responsibility of the facility, not the veterinarian.	Often the veterinarian is the only health care professional associated with a facility. We've inlcuded that it would be beneficial to consult with an occupational health medical professional when developing these plans.
14	Page 2-25	Section 2.7.2	The following reports should be the responsibility of the facility and not the veterinarian: Health and Safety Plan reviews; Animal acquisitions and dispositions; NOAA Form 89862, OMB#0648-0178 (Level A data); NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report).	In some instances the vet is the most qualified, however should allow for other qualified individuals to share the responsibility inlcuding the animal care supervisor and organization stranding coordinator.
23	Page 2-25	Section 2.8	Suggest that one blood sample and CBC/serum chemistry is sufficient, as admit and release exams may be the same in many cases. Additional testing should be at the discretion of the attending veterinarian.	Text clairfied per comment: "For most cases, all animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry; upon admission and prior to release (see NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release). If duration of rehabilitation is shorter than a week, one blood workup may suffice and is at the attending veterinarian's discretion."
23	Page 2-25	Section 2.8	Measuring girth is not practical in all cases, for example when manual restraint of large animals is used for exams. Most formulas are based on length and weight, so standard length and weekly weights should be sufficient. Suggest that girth measurements be recommended but not required.	Text revised per comment.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-26	Section 2.8	Suggest that complete necropsies performed within 72 hours are sufficient, and that 24 hours is not practical.	Text clarified per comment: "The attending veterinarian or a trained staff member shall perform a necropsy on every animal that dies within 24 hours of death if feasible. If necropsy is to be performed at a later date (ideally no longer than 72 hours postmortem), the carcass should be stored appropriately to delay tissue decomposition."
23	Page 2-26	Section 2.8	Suggest that histopathology on select tissues is at the discretion of the attending veterinarian, as for cultures and other diagnostic sampling.	Text clarified per comment: "Specific requirements for tests will be issued by the NMFS stranding coordinator (or UME Onsite Coordinator) in each region as outlined in the Marine Mammal Health and Stranding Response Program for release determinations, surveillance programs and UME investigations. Routine diagnostic sampling and testing protocols will be determined by the attending veterinarian."
23	Page 2-26	Section 2.8	Please clarify which disease are reportable for marine mammals (see notes above), and also which disease require notification to NMFS.	NMFS, through the NMFS stranding coordinator, will provide future guidance regarding "reportable disease." NMFS defines Reportable Diseases as pathogens that pose a significant concern to public health, agriculture, and marine mammal populations and are required to be reported to NMFS and state agencies.
23	Page 2-26	Section 2.8	Release should be at the discretion of the attending veterinarian. Advance notice to NMFS is not always practical nor in the best interest of the animal, e.g. animals very stressed by captivity.	Text clarified per comment: "NMFS must be provided adequate time and information (including veterinary certificate of health) before the animal is released in all cases as directed in 50 CFR 216.27 (see NMFS Standards for Release). This information is required under 50 CFR 216.27(a) and must be submitted 15 days prior to release unless advanced notice is waived by the NMFS Regional Administrator. Guidance on the waivers is provided in the NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release." This regulatory requirement will not be considered for cetacean cases at this time.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 2-26	Section 2.8	10th bullet point. Sentence reads: Serological assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations. What does validation constitute? What labs are these? Will NMFS keep up with validations?	Text clarified per comment: " For cases involving release decisions, unusual mortality investigations, or surveillance programs, serologic assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations. Guidance will be provided by the NMFS Stranding Coordinators or UME Onsite Coordinator."
23	Page 2-26	Section 2.8	For recommended standards, frequency of blood sampling beyond the single collection should be at the discretion of the attending veterinarian.	For most cases, all animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry; upon admission and prior to release (see NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release). If duration of rehabilitation is shorter than a week, one blood workup may suffice and is at the attending veterinarian's discretion. Specific requirements for tests will be issued by the NMFS stranding coordinator (or UME Onsite Coordinator) in each region as outlined in the Marine Mammal Health and Stranding Response Program for release determinations, surveillance programs and UME investigations. Routine diagnostic sampling and testing protocols will be determined by the attending veterinarian.
23	Page 2-26	Section 2.8	Please explain the utility of banking the buffy coat. Suggest that it be performed on selected animals only subject to utility.	Text revised per comment.
23	Page 2-28	Section 2.9.1	Under recommended record keeping: Please define the set of standard morphometric measurements that should be collected and include a suggested recording format.	There are several good resources for collecting marine mammal morphometric data (e.g, Marine Mammal Ashore - A Field Guide for Strandings). We recommend consulting with other experts in the field and the literature when developing data collection protocols.
23	Page 2-28	Section 2.9.1	Under recommended record keeping: Suggest that obtaining photographic documentation of all animals is not practical and of questionable utility. Animals with distinguishing markings, or other unusual features could be documented.	This is a "Recommended" standard and could be feasible for facilities with a small to medium case load.

Comments on the Rehabilitation Facility Standards

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
23	Page 2-28	Section 2.9.1	Under recommended record keeping: Please see the previous comments on determining the daily caloric intake for each animal. This is not practical and of questionable utility, particularly in high volume centers. If caloric value of commonly used diets is calculated, and then minimum intakes are set based on weight, that should be sufficient. Additional calculations should be at the discretion of the attending veterinarian.	This is a "Recommended" standard and many institutions are capable of recording the caloric intake of each of the animals in their care, and it has proven to be a useful parameter to measure, and in some instances has aided in their rehabilitation efforts.
23	Page 2-28	Section 2.9.1	Under recommended record keeping: Daily weighing of pups is too stressful and results in too much handling. Suggest that weekly weight be required, more frequently at the discretion of the attending veterinarian.	This is a "Recommended" standard and daily weighing of underweight pups is beneficial. We realize larger pup species may be more difficult to weigh on a daily basis so implement at the discretion of the attending veterinarian.
23	Page 2-28	Section 2.9.2	Please define "real time accessible compiled comparative data."	This is a "Recommended" standard and suggests maintaining case data (Level B and C data) electronically that can be easily accessible if the need arises for such information. In other words, organize files and medical records in a usable and accessible manner so that the data can be compared to other data sets. This is important especially when an event is being considered by the Working Group of Mairne Mammal Unusual Mortality Events.
14	Page 2-30	Section 2.13	The verbage in this paragraph differs from what is in the Stranding Agreement Template. This is a better version.	Text clarified per comment: "NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is “an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive”. Only remote public viewing or distance viewing should be allowed and only when there is no possible impact of the public viewing on the animals being rehabilitated. There is a regulatory requirement for a variance or waiver by NMFS for facilities planning to offer public viewing of any marine mammal undergoing rehabilitation."

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
15	N/A	N/A	Discuss the criteria that the Service intends to use in its review and approval or disapproval of recommended releases of marine mammals, and plans for such releases, by rehabilitation facilities.	This document outlines the criteria that will be used to review recommended releases. For a list of the criteria by taxa, section 3 covers cetaceans, section 4 is pinnipeds, manatees is section 5, sea otters is section 6, and polar bears is in section 7. The decision tree that will be used to make the approval or disapproval determination is Figure 2.1, page 2-7.
15	N/A	N/A	The interim standards [for release] do not, however, recognize that, for some species, there may be a countervailing incentive to retain marine mammals for long-term maintenance in captivity and, perhaps, eventual placement at a public display facility. For such circumstances, protocols need to be established to ensure that the rehabilitation of animals and their preparation for eventual release to the wild are pursued diligently and with suitable agency oversight.	The decision to maintain a releaseable animal in captivity for either authorized scientific research or public display is addressed in NMFS regulations (50 CFR, section 216.27(b)(4)). This document does not preclude this decision, but it does not specifically cover the criteria by which this decision would be made .
15	N/A	N/A	Identify the types of information that would be included in protocols for monitoring released animals.	Section 3.9 was edited to include the sentence: "The post-release monitoring plan should include, at a minimum: the type of identification used (tag, brand, etc.); the frequency and method of making observations (both visual and indirect) post-release; the expected duration of the monitoring method; criteria or triggers for intervention; and how information regarding the animal will be disseminated to others who may observe it in the future. For individual animals, additional information may be required."
14	N/A	N/A	NMFS & USFWS should take into account the recommendations of the stranding facility and the AZA Taxon Advisor or Studbook Keeper for the species before making a decision as to placement.	NMFS has met with representatives from the AZA and AMMPA. We are finalizing the process by which we will coordinate placements of animals at member facilities of these organizations. This process will take into account the Taxon Advisor and Studbook Keeper. Additionally, all placement decisions are coordinated with APHIS. ANPR to address recommendations of stranding facility (not maintaining animal in permanent collection)

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
9	Page ES-1 and Page 5-2	Executive Summary and Section 5.2	Page ES-1 says one of the categories is "conditionally non-releasable (manatees only)." The definition of this term does not occur until page 5-22. Nowhere is it explained why this term applies only to manatees. It appears unnecessary or else this category should apply to other species as well...Why is this term not used for cetaceans and/or pinnipeds? Why only manatees? The DEIS should explain the unique circumstances that require this extra category here and in section 5.	The EIS does not include manatees. A discussion of the conditionally non-releasable category will not be added for cetaceans or pinnipeds within the EIS. As noted in NMFS' regulations, we presume that pinnipeds and cetaceans that have been held in rehabilitation for longer than 2 years will not survive upon release to the wild due to their health status, and additionally learned conditioned behaviors due to extended proximity to humans. Text has been added to Section 2.4 to state: " "Conditionally Non-releasable" is only a category for manatees because the FWS has had success releasing manatees that have been in captivity in excess of 20 years. NMFS species are deemed "Non-releasable" if they have been in captivity for over two years (see 50 CFR 216.27(a)(1)(iii)) and therefore a "Conditionally Non-releasable" category is not necessary.
24	Page 2-1	Section 2.1.1	...NMFS Policies, last sentence, delete "with" [before "NMFS Regional.."]	Text revised per comment.
9	Page 2-2	Section 2.2	Page 2-2 and others have a discussion regarding determinations of suitability for release of animals from rehabilitation facilities...This does not address the concern about facilities taking into rehabilitation animals with a very poor prognosis for release....As we noted above, the NMFS should provide clearer guidance.	In the Final PEIS, Section 6 describes NMFS' plan to hold a workshop to discuss and outline the process to decide if an animal is a good rehabilitation candidiate. Following this workshop, guidance and training will be planned and distributed.

Comments on the Release Criteria

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24	Page 2-3	Section 2.2	...a facility may also request permanent placement under Section 104(c)(3) if an ESA-listed marine mammal is determined unreleasable. Please edit the last paragraph on this page to reflect such: " For FWS species, LOA and permit holders provide recommendations to the FWS Field Offices for decisions regarding releasability of rehabilitated marine mammals (see Appendix H for contact information). The FWS retains the authority to make the final determination on the disposition of these animals. If FWS determines that a marine mammal is non-releasable, the holding facility may request a permit for permanent placement in captivity as prescribed in Section 104(c)(7) of the MMPA for non-depleted species, or Section 104(c)(3) of 104(c)(4) and Section 10(a)(1)(A) of the ESA for depleted species."	Text revised per comment.
9	Page 2-9	Section 2.4	Similar questions should be provided elsewhere to guide a determination of the suitability of an animal for transfer from the beach to a rehabilitation facility (versus either euthanasia or beach release).	In the Final PEIS, Section 6 describes NMFS' plan to hold a workshop to discuss and outline the process to decide if an animal is a good rehabilitation candidiate. This workshop will aid in the development of similar questions/criteria to inform this decision.
14	Page 2-9	Section 2.4, number 1	When taking an animals history, does mouthing qualify as a bite or does the word bite pertain to an animal breaking the skin of a human?	Revised text to read "attacked and/or bitten (included mouthing of unprotected skin) a human while being handled". Also revised Section 4.3, number 5 with same text.
14	Page 2-12	Section 2.4, number 4	5th paragraph. The third sentence of this paragraph refers to microbial culture. Other than the obvious wounds, what would the 'routine' samples come from? Fecal? Nasal?	Routine samples for surveillance are taxa and situation specific, and could include fecal, wound, oral, nasal, ocular, and blood. Recommended sample collections are discussed further in the sections for each taxon. Questions about sample collection for routine surveillance are asked in the ANPR, and guidance will be forthcoming following the receipt of public comments and decision-making by NMFS.
14	Page 2-13	Section 2.4, number 5	Bullet (a.). Satellite tags should be added to list of pre-approved identification systems.	Satellite tags added to the list of examples in Section 2.4. However, please note that satellite tags are not considered pre-approved and require consultation with NMFS prior to their use.

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 2-13	Section 2.4, number 5	Bullet (a.). Sentence should read: Invasive procedures should be done under the direct supervision of the attending veterinarian and will need prior approval from NMFS and FWS **and may require a monitoring period following the procedure.**	Text revised per comment.
14	Page 2-14	Section 2.4, number 5	First preference is releasing the animal in the same general/geographical area where the animal was stranded. The second choice, especially if the animal was stranded outside of its normal range, it to release the animal closer to or within its normal range. This is implied later but should probably also be referenced here.	This is addressed more specifically, and more appropriately, by taxon in later sections. Also, the original stranding site of the animal should be only one consideration in determining a release site, as determination of an appropriate release site should be made using many factors, outlined in this section.
20		Section 3.8	Marking for Individual Identification of Cetaceans prior to Release. This section suggests three forms of identification prior to release. One of these is non-invasive while the other two are invasive. We are concerned about freeze branding and whether this is really necessary with a dorsal or satellite tag in place?	Freeze branding is viewed as the only feasible long-term method of identification. Photo-identification will vary over the life of the animal, and photo-id catalogues are localized, relatively rare, and only for certain species. Any external tag that is applied will fall, rip, or migrate out of the animal. Therefore, dorsal fin tags are only valid identification methods in the short-term (weeks to months, possibly years), whereas freeze brands will last for the life of the animal (with some fading). This section has been slightly revised for clarity; we are recommending that freeze brands be placed on the dorsal fin and/or on the side of the animal (on a case-specific basis).
14	Page 4-4	Section 4.3	Section 4.3 beginning on page 4-4 is formatted differently than 4.4, 4.5, and 4.6, using the number subsections that more or less correspond to the checklist. 4.5's Behavioral subsections are given paragraph numbers. Recommend you standardize the style.	Text revised per comment.
14	Page 4-4	Section 4.3	The organization for section 4.3 should mesh with the checklist presented later in the document. Each point on the checklist should be described here and each point here should have a corresponding question on the checklist.	Checklist in Section 4.7 was re-ordered to correspond with the text in Section 4.3.

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 4-5	Section 4.3, number 4	The last sentence should read: Consultation with NMFS or FWS is thus required for pinnipeds that have a known history of exposure to terrestrial animals. Note: You can never know for sure what happened before an animal was reported and brought in.	Revised text to read "pinnipeds that have a history of exposure (i.e., confirmed or suspected)."
14	Page 4-5	Section 4.3, number 5	In regards to the first sentence, you might want to more precisely define bite to specify breaking of skin. "Bites" may occur without a breach of protective gear. Also, when tubing an animal, "bites" may occur without breach of protective gear.	Included mouthing of unprotected skin.
14	Page 4-5	Section 4.3, number 5	In regards to rabies among pinnipeds, there is only one documented case.	Referenced publication; However, we note that though only one case has been published there are anecdotal reports, and there are likely other cases where the necessary diagnostic test was not performed.
14	Page 4-5	Section 4.3, number 6	This sentence is confusing. Perhaps more detail can be added.	Added text "as deemed by NOAA Office of Law Enforcement, U.S. Department of Justice, or other Federal, state or local authorities."
14	Page 4-5	Section 4.3, number 7	We assume that just because an animal was at 2 places, does not mean it isn't releasable.	Correct, it does not mean that the animal is non-releaseable. However, it is important to obtain the medical records from all facilities in order to fully evaluate the health records prior to a release determination.
14	Page 4-9	Section 4.6	2nd paragraph. In the first sentence, list desired parameters. What does Chem-12 include? Also in the first sentence, delete blow hole as a sampling site for pinnipeds.	"Blow hole" changed to "nasal." Edited to read "chemistry profile (including BUN and creatinine, enzymes and elecrolytes)"
14	Page 4-9	Section 4.6	2nd paragraph. In the third sentence, 3ml of Serum is recommended but another document recommends 1ml per draw. Please clarify.	Text standardized to read 3 mL, minimum, at admit and pre-release.
14	Page 4-10	Section 4.7	Recommend structuring this checklist as a stand alone document for greater usability. Recommend keeping it <2 pages and reduce font size as needed.	The checklist has been added as a separate document in Appendix J.
14	Page 4-11	Section 4.7	New Point, History: The environmental conditions are considered acceptable (e.g. prey available, no lingering contamination).	The considerations of a release site (including acceptable environmental conditions) will and should be addressed outside of the health certificate for the animal (which requires the veterinarian signature). The release site determination should be included in the documentation provided to NMFS.

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
14	Page 4-11	Section 4.7	7. Please define "bite" somewhere.	As stated elsewhere in the document, bite includes mouthing unprotected skin or breaking the skin. A definition of "bite" was added to the glossary.
14	Page 4-11	Section 4.7	17. Is this the release determination exam? Don't you have to submit release paperwork 2 weeks prior?	Modified form to have columns for both release determination (15 days in advance) and Pre-release (within 72 hours of release); Modified Section 4.6 to clarify
14	Page 4-11	Section 4.7	19. Is this the exam to be done within 72 hours of release? 17 and 19 seem to overlap.	Modified form to have columns for both release determination (15 days in advance) and Pre-release (within 72 hours of release); Modified Section 4.6 to clarify
14	Page 4-11	Section 4.7	22. Change visual to in vision.	Text revised per comment.
14	Page 4-11	Section 4.7	25. 3ml total or each? Note, elsewhere this document mentions 1ml per blood draw and that only 2 blood draws are required.	Text standardized to read 3 mL, minimum, at admit and pre-release.
14	Page 4-11	Section 4.7	New Point, Medical Clearance: The veterinarian has received and reviewed all records on this animal from other facilities that held this animal.	Text revised per comment.
24	Page 5-1	Section 5.1	...second paragraph, the third and fourth sentence should read: "All rescue-related communications and the day to day decision making process in the field are generally handled by the local Field Stations of the Florida Fish and Wildlife Conservation Commission (FFWCC) in conjunction with reports from the public using the 1-888-404-FWCC hotline. All activities related to verification of a report of a manatee in trouble, subsequent rescue, and transport to rehabilitation facilities are communicated throught the FFWCC Field Stations, according to established protocols."	Text revised per comment.
14		Appendix E	Explain how the agency will keep this list and testing requirements up to date so that facilities can easily stay informed.	NMFS will periodically review this information, with the assistance of outside experts such as the Working Group on Marine Mammal Unusual Mortality Events, and will publish any revisions on our website.
14		Appendix G	Some formatting issues took place after Appendix G. Unclear of the titles of some pages.	Formatting issues have been fixed.

Comments on the Release Criteria

Commenter Number	*Page/Line*	*Section*	*Comment*	*NMFS Response*
4			However, there are several topics that are not addressed in the current release guidelines. The criteria for immediate release, relocation and release, and post-rehabilitation release should be clarified, as each scenario requires a different type of health assessment. Also, post-release monitoring of animals should be encouraged or strongly recommended when appropriate, and funds to support these activities should be made available.	In the Final PEIS, Section 6 describes NMFS' plan to hold a workshop to discuss and outline the process to decide if an animal is a good rehabilitation candidiate, as well as address criteria for making immediate disposition determinations (such as beach release or relocation and release). Following this workshop, guidance and training will be planned and distributed. Post-release monitoring of released animals is strongly encouraged (see Sections 3.9, 4.9, 5.9, and 6.8). Funds to support these activities are available through the John H. Prescott Marine Mammal Rescue Assistance Grant Program.

EPA Comments

Section	*Comment*	*NMFS Response*
Water Quality	However, we suggest that care should [be] taken by response personnel to guard against any chemical/medical/fuel spills during the processing of stranded animals (e.g. euthanasia fluids) or their rehabilitation. With this in mind, the FPEIS should highlight that spill prevention best management practices should be established, monitored, and practiced.	Text added in Sections 5.2.1, 5.3.1, and 5.5.1 to state "NMFS would develop spill prevention best management practices for responders to use to reduce the incidence of spills from equipment, euthanasia solution, etc."
Carcass Disposal	Although the DPEIS indicates that in cases where a marine mammal carcass is determined to be "toxic" that the carcass may be removed to an approved incineration facility, the DPEIS does not address the sampling procedure to be followed on marine mammal carcasses to determine how the carcass would be considered "toxic". Accordingly, we recommend that the FPEIS indicate what measures will be used to determine the toxicity of the marine mammal carcass.	NMFS has funded, and will continue to fund, research on the toxicity of carcasses. Currently there is no method to immediately determine if a carcass is toxic. The report in Appendix J summarizes the reported information on the concentrations of Persistent Organic Pollutants (POPs) in marine mammals. NMFS would like use information on known concentrations of POPs to develop criteria that can be use to best estimate if a carcass may be toxic.
Cultural Resources	Although the DPEIS states that all work in the area will be halted in cases where undiscovered or unknown cultural resources are encountered, the FPEIS should clarify how this requirement will be communicated to the voluntary Stranding Network members. One consideration could be to have contacting the State Historic Preservation Officer or Tribal Historic Preservation Office be a requirement of the Stranding Agreements or part of annual training for the members of the Stranding Network. Further, the FPEIS should delineate how undiscovered or unknown Tribal Government cultural resources will be handled when discovered during marine mammal carcass burial operations.	NMFS will encourage stranding network members to be proactive and contact their state or tribal historic preservation officer or local authorities. In Section 5.4.2, the DPEIS states that if cultural resources are discovered during burial operations, all work would cease the State SHPO would be contacted. Any burial activities on Native American/Alaska Native lands would be coordinated with Native American tribes, Alaska Natives, or other aboriginal peoples. This would include contact with the Tribal Historic Preservation Officer.

EPA Comments

Section	*Comment*	*NMFS Response*
Cultural Resources	In a related matter, it may be prudent to discuss with the Advisory Council on Historic Preservation the possibility of developing a Programmatic Agreement under Section 106 of the National Historic Preservation Act. As the Stranding Network is a "volunteer" based organization, the process to follow in handling cultural resources may not be readily known. A PA would provide the agency with an appropriate process that Stranding Network members can follow to ensure compliance with Section 106.	NMFS agrees that a Programmatic Agreement would be useful to ensure that Stranding Network members are in compliance with Section 106. NMFS will pursue this in the near future.
Human Health and Safety	The DPEIS does not delineate to any great extent what should be the human health and safety guidelines and practices (especially related to zoonotic diseases communicable to humans: pg 1-7) to be followed for both on-site and off-site disposal of marine mammal carcasses. NMFS should more clearly delineate what the appropriate safety measures are for response personnel (given that some may be untrained volunteers).	In Section 5.5, protective measures for those individuals engaged in response and disposal activities are described. This includes volunteers. All SA holders would have a health and safety plan that is reviewed by NMFS. Responders would have adequate protection for the tasks they are undertaking.

Virginia CZM Comments

Section	*Comment*	*NMFS Response*
Rehabilitation	NMFS's program should include criteria that clearly identify high-priority species (such as threatened or endangered species, or species of high conservation concern) that quality [qualify?] for some measures of human intervention. The criteria should also address the sources of debilitation that are appropriate to treat (i.e. human-induced versus natural).	Acknowledged
Carcass Disposal	...we concur that the proposed program elements are consistent with the Virgina Coastal Resources Management Program, provided that NMFS complies with all applicable requirements, and that no effort is made to dispose of carcasses in wetlands.	Acknowledged. Text revised in Section 5, page 5-3 to state "Burial would not occur in wetland areas."
Response	The Marine Resources Commission requires a permit for any activities that encroach upon, or over, or take materials form the beds of the bays, ocean, rivers, streams, and creeks which are the property of the Commonwealth. If any such activities are contemplated, application for and issuance of a permit from the Commission will ensure that the permitted activity is consistent with the subaqueous lands management enforceable policy of the Virginia Coastal Resources Management Program.	Acknowledged
Response	However, should it be required, any land-disturbing activity should be minimized, and access through the Chesapeake Bay Preservation Areas should be restricted to one point.	Acknowledged