



APPENDIX III: ADDITIONAL APPENDICES

GFNMS MANAGEMENT PLAN

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Appendix IIIA: Jurisdictional Authorities

The sanctuary overlaps and borders the jurisdictions of several other agencies. Coordination and cooperation among the responsible agencies are critical to the success of the sanctuary. These agencies and their roles in assisting management of the sanctuary are described below.

FEDERAL AUTHORITIES

National Marine Sanctuaries

Two other national marine sanctuaries share boundaries with Gulf of the Farallones National Marine Sanctuary (GFNMS). To the north and west is Cordell Bank National Marine Sanctuary (CBNMS); to the south and east is Monterey Bay National Marine Sanctuary (MBNMS). GFNMS works closely with both CBNMS and MBNMS to protect shared populations and habitats.

The GFNMS is responsible for managing programs and regulations of the Northern Management Area of MBNMS, which includes all MBNMS waters and submerged lands north of Point Año Nuevo and the San Mateo/ Santa Cruz county line.

National Park Service

The sanctuary manages waters adjacent to two agencies of the National Park Service (NPS), the Golden Gate National Recreation Area (GGNRA) and Point Reyes National Seashore (PRNS). They work closely with the sanctuary on the protection and management of natural and cultural marine resources. GGNRA includes an extensive network of recreational and historic sites. The sanctuary coordinates and cooperates with PRNS and GGNRA in the areas of interpretation, administrative support, wildlife protection, oil spill preparedness, and natural resource damage assessment and restoration. PRNS represents the largest stretch of shoreline adjacent to the sanctuary. It includes certain state tide and submerged lands that have been conveyed to the national seashore. The seashore's management plan defines Natural Zones that are to remain unaltered by human activity.

United States Fish and Wildlife Service (FWS)

Within the waters of GFNMS, the FWS is responsible for protecting all marine mammal species, including sea otters; other than cetaceans and pinnipeds under the Marine Mammal Protection Act (MMPA); and Brown Pelican, Short-Tailed Albatross and other bird species listed as threatened or endangered under the Endangered Species Act (ESA). The National Marine Fisheries Services (NMFS) is responsible for protecting cetaceans and pinnipeds under the MMPA, and sea turtles and fish that are listed as threatened or endangered under the ESA.

The FWS also has responsibility for managing the Farallon National Wildlife Refuge. The refuge includes North, Middle, and Southeast Farallon Islands; Maintop Island; and Noonday Rock. The refuge is operated primarily as a migratory bird refuge to protect murre, auklets, guillemots, puffins, and other birds, and secondarily, to protect seal, sea lion, and other marine mammal assemblages.

National Marine Fisheries Service (NMFS)

The NMFS is responsible for enforcing the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), the MMPA, and the ESA. Pursuant to the MSFCMA NMFS approves, implements and enforces fishery management plans (FMP) prepared by regional fishery management councils. NMFS works closely with the California Department of Fish and Game (CDFG) and United States Coast Guard (USCG) for enforcement operations both within and outside the three-mile territorial sea. Gulf of the Farallones fish populations affected by FMP regulations include lingcod, rockfish, and salmon.

The NMFS shares responsibility with the FWS for implementation of the MMPA and the ESA (see FWS entry above).

United States Coast Guard (USCG)

The USCG is the federal government's primary maritime law enforcement agency. The USCG's missions include maritime law enforcement, national security, maritime safety, and marine environmental protection. For ocean and coastal activities, the USCG manages maritime transportation activities in order to minimize loss of life and damage to the environment. The USCG has historically held the primary responsibility for ensuring cleanup of any oil spill or other pollutants in the marine environment. To avert oil spills and promote safety, the USCG inspects vessels carrying oil and other hazardous materials. The USCG requires vessels to have approved response plans detailing owner and operator response to an oil spill and ensuring proper response activities. Pursuant to the Oil Spill Prevention Act of 1990 (OPA), which defines ground rules for dealing with oil pollution events and recommends pollution prevention measures, the USCG has responsibility for preparing most of the regulations necessary to implement OPA. Additionally, the USCG must be consulted in the development of oil spill contingency plans for marine oil and gas facilities and terminals. The OPA also allows for natural resource damage recovery by federal and state resource trustees.

Minerals Management Service (MMS)

The Minerals Management Service (MMS) is responsible for managing offshore oil and gas exploration and development operations in accordance with the provisions of the Outer Continental Shelf Lands Act. The Outer Continental Shelf Lands Act establishes federal jurisdiction over the natural resources of the outer continental shelf (OCS) beyond three nautical miles. The MMS has primary responsibility for managing OCS mineral exploration and development. The Energy Policy Act of 2005, Section 388, granted MMS new authority to regulate alternative energy and alternate use on the OCS. Section 388 authority does not apply to areas within National Marine Sanctuaries.

Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) has regulatory responsibilities with regard to ocean water quality. Under the U. S. Clean Water Act (CWA), EPA establishes and enforces water quality standards for waters outside of the three-mile state waters. Title 1 of the Marine Protection, Research, and Sanctuaries Act (Ocean Dumping Act), prohibits the unpermitted

dumping of “any material transported from a location outside the United States” into the territorial sea of the United States, or into the zone contiguous to the territorial sea, to the extent discharge into the contiguous zone would effect the territorial sea or the territory of the United States. The act is administered by the EPA and supercedes any CWA requirements.

STATE AUTHORITIES

California Department of Fish and Game (CDFG)

The CDFG, under the Fish and Game Code (and Chapter 14 of the Administrative Code), regulates and manages a wide variety of activities affecting the living marine resources found in the territorial sea and in the 200-mile-wide exclusive economic zone (EEZ). In cooperation with NMFS, the CDFG enforces federal regulations established under the MSFCMA. It also enforces and implements the Marine Life Management Act and the Marine Life Protection Act (MLPA). The CDFG has established ecological reserves, marine reserves, game refuges, and marine life refuges in the ocean waters and submerged lands surrounding the Farallon Islands and Point Reyes. The agency has the authority to prohibit or restrict activities that may harm resources, including fishing, collecting, swimming, boating, and public entry. The CDFG works closely with the sanctuary in oil spill response, damage assessment, and restoration through its Office of Spill Prevention and Response (OSPR).

Several fisheries conducted within the GFNMS are managed by the state of California. The CDFG is responsible for preparing FMPs under the authority of the California Fish and Game Commission and the California State Legislature. Gulf of the Farallones fish populations affected by California regulations include Pacific herring, nearshore finfish, Market squid, and Dungeness crab.

State Water Resources Control Board (SWRCB)

The SWRCB is responsible for water quality within state waters. The SWRCB adopts statewide water quality control plans and policies, such as the Ocean Plan, the Thermal Plan, and the State Implementation Policy. The Regional Water Control Boards adopt and submit basin plans to the state board for approval. Title III, Section 303 of the CWA requires California to submit statewide and basin plans to the EPA for approval.

The SWRCB has established a system of thirty-four Areas of Special Biological Significance (ASBS), now known as State Water Quality Protection Areas (SWQPA). These are areas designated for special protection from undesirable alteration in natural water quality. Five ASBSs (SWQPAs) are located in GFNMS. These are at Duxbury Reef, Point Reyes Headland, Double Point, Bird Rock, and the Farallon Islands.

California Coastal Commission (CCC)

The CCC was established under the California Coastal Zone Management Act (CZMA) of 1972, which gives authority to the commission to establish policy for activities in state waters. The CZMA established the authority for a federal-state partnership to manage development and use

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of the coastal zone. The CCC also has the authority to review federal activities in the coastal zone to ensure consistency with California's Coastal Zone Management Program.

California State Lands Commission (SLC)

SLC has jurisdiction over all of California's tide and submerged lands and over the beds of naturally navigable rivers and lakes, each of which are sovereign lands, swamp, and overflow lands, and school lands (proprietary lands). Management responsibilities of the SLC extend to activities within submerged land and those within three nautical miles of shore.

California Department of Boating and Waterways (DBW)

The DBW programs are designed to fulfill the needs of California's boating community including funding for local waterway law enforcement programs, assisting in beach erosion control projects, licensing yacht and ship brokers, and funding the development of public access boating facility projects. The DBW also provides grants to cities, counties, and districts for developing small craft harbors/marinas; and loans to private recreational marinas.

Appendix IIIB: Glossary of Terms

Action plan: A major section of a management plan containing related strategies and activities designed to address a specific issue or function (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Activity: Specific actions that will be taken to carry out a strategy (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Aquaculture: The cultivation of marine life for harvest and utilization by humans.

Bathymetry: Water depth measurement information used to produce depth-contoured charts.

Benthic: The region of the ocean consisting of the sea bed and the organisms that live on or in it.

Benthic communities: Bottom-dwelling plants and animals.

Biodiversity: The variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Chum: Bait usually consisting of oily fish ground up and scattered on the water.

Continental shelf: A generally shallow, flat submerged portion of a continent, extending to the point of step descent to the ocean floor.

Critical habitat: The specific areas within the geographical area occupied by a threatened or endangered species on which are found those physical or biological features essential to the conservation of the species, and which may require special management considerations or protection.

Demersal: Fishes and other aquatic organisms that live near the bottom of the water column.

Depleted: A species is termed depleted when it falls below its optimum sustainable population.

Designation document: A portion of the regulations for a given sanctuary that spells out the terms of its designation, including boundaries, regulations, and those activities potentially subject to future regulation.

Desired outcome: A succinct and concise statement that articulates a desired future for a sanctuary relative to a specific problem statement (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Ecology: The science of the relationships between organisms and their environments.

Ecosystem: The sum total of all living and nonliving components of a particular area that interact and exchange materials with each other; sometimes defined as the ecological community of organisms plus the environment with which they interact. Energy flow and nutrient cycling are regulated within a particular ecosystem and are studied as indicators of its overall health.

Effluent: An outflow of waste, as from a sewer.

Endangered species: Any species that is in danger of extinction throughout all or a significant portion of its range.

Epifauna: Animals that live on the ocean bottom, either attached or moving freely over it.

Food chain: A succession of organisms in a community that constitutes a feeding chain in which food energy is transferred from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member.

Indigenous: Living or occurring naturally in a specific area or environment.

Infaunal: Organisms that live buried in sediments, including a variety of polychaetes, burrowing crustaceans, and mollusks.

Infrastructure: Basic installations and facilities, such as roads, power plants, transportation, and communication systems.

Invertebrate: An animal lacking a backbone or spinal column.

Isobath: An imaginary line or one drawn on a map connecting all points of equal depth below the surface of a body of water.

Marine protected area: Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein. (Executive Order 13158 on Marine Protected Areas). Under this broad definition, a wide variety of sites including fishery management zones, national parks, national marine sanctuaries, national estuarine research reserves, state conservation areas, critical habitats, and state reserves could be considered as marine protected areas.

Marine reserve: A kind of marine protected area generally agreed to have strict regulations regarding the extraction of resources.

Marine sanitation device: Any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage.

Mollusks: Any of various members of the phylum Mollusca, largely marine invertebrates, including the edible shellfish and some 100,000 other species.

Multibeam: A type of sonar that has multiple beams to record water depth.

Nonpoint source pollutant discharges: Those pollutant discharges not associated with a specific location (e.g., urban and agricultural pesticide runoff).

Organism: Plant or animal.

Overfished: An overfished stock or stock complex is one whose size is sufficiently depleted that a change in management practices is required in order to achieve an appropriate level and rate of rebuilding. A rebuilding plan is required for stocks that are overfished.

Pathogens: Any agent, most commonly a micro-organism, capable of causing a disease.

Pelagic: Of, relating to, or living in open seas or oceans rather than waters adjacent to land or inland waters.

Planktonic: Organisms dependent on water movement and currents as their means of transportation, including phytoplankton, zooplankton, and ichthyoplankton.

Point source pollutant discharges: The discharge of pollutants from a distinct and identifiable source, such as a sewer or industrial outfall pipe.

Program/Issue Statements: A one or two sentence articulation of the specific components of an issue (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Salinity: The relative concentration of salts, usually sodium chloride, in a given water sample. It is usually expressed in terms of the number of parts per thousand (ppt) or parts per million (ppm) of chlorine (Cl). As a reference, the salinity of seawater is approximately 35 ppt.

Side-scan sonar: A type of sonar that gathers sound reflections at oblique angles to the sensor.

Socioeconomic: Being both social and economic.

Strategy: The means by which a particular desired outcome can be achieved (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Substrate: A surface on which a plant or animal grows or is attached.

Threatened species: Plant or animal species believed likely to move into the endangered category in the foreseeable future.

Trawling: To fish using a trawl, a large tapered and flattened or conical net towed along the sea bottom.

Trolling: To fish by running a baited line behind a slowly moving boat.

Trophic: A description related to feeding; it often refers to a feeding level in a food chain.

Trophic level: One of a succession of steps in the movement of energy and matter through a food chain in an ecosystem.

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Turbidity: The extent to which there are suspended or stirred up particles or sediments, as in the water column.

Zone: An area or region considered as separate and distinct from others because of its designated use, plant or animal life, etc.

Zoning: The act of partitioning areas of land or water into sections dedicated to specific purposes and activities.

Appendix III C: Acronyms

ACP	Area Contingency Plan (USCG)
ACR	Audubon Canyon Ranch
ACS	American Cetacean Society
AIS	Automated Identification System
AOP	Annual Operating Plan
APPS	U.S. Act to Prevent Pollution from Ships
ASBS	Area of Special Biological Significance
ATOC	Acoustic Thermometry of Ocean Climate
BASA	Bay Area Science Alliance
BLM	Bureau of Land Management
BML	Bodega Marine Laboratory
BMP	best management practices
Cal EPA	California Environmental Protection Agency
CalCOFI	California Cooperative Oceanic Fisheries Investigations
CalTrans	California Department of Transportation
CAP	Civil Aeronautical Patrol
CAS	California Academy of Sciences
CBNMS	Cordell Bank National Marine Sanctuary
CBSOA	California Boating Safety Officers Association
CCA	California Critical Coastal Areas
CCC	California Coastal Commission
CCR	California Code of Regulations
CCRWQBC	Central Coast Regional Water Quality Control Board
CDBW	California Department of Boating and Waterways
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CenCOOS	Central California Ocean Observing Systems
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CIMT	Center for Integrated Marine Technology
CINMS	Channel Islands National Marine Sanctuary
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMAR	Coastal Maritime Archaeology Resources
COASST	Coastal Observation and Seabird Survey Team
CODAR	Coastal Ocean Dynamics Applications Radar
COE	U.S. Army Corps. of Engineers
CSC	California Species of Special Concern
CSC	Coastal Services Center
CSLC	California State Lands Commission
CSUMB	California State University Monterey Bay
CWA	U.S. Clean Water Act
CZARA	Coastal Zone Authorization Amendments
CZMA	Coastal Zone Management Act
DARRF	Damage Assessment and Restoration Evolving Fund
DBW	California Department of Boating and Waterways

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GFNMS Management Plan***

DDT	dichlorodiphenyltrichloroethane
DEIS	Draft Environmental Impact Statement
DFG	California Department of Fish and Game
DMP	Draft Management Plan
DOC	United States Department of Commerce
DOI	United States Department of the Interior
DPR	California Department of Parks and Recreation
EDS	Ecosystem Dynamics Study
EECOM	Environmental Education Council of Marin
EEZ	U.S. Exclusive Economic Zone
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESNERR	Elkhorn Slough National Estuarine Research Reserve
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEIS/MP	Final Environmental Impact Statement / Management Plan
FES	Friends of the Elephant Seal
FGC	Fish and Game Commission
FGDC	Federal Geospatial Data Center
FIRWD	Farallon Islands Radioactive Waste Dumpsite
FKNMS	Florida Keys National Marine Sanctuary
FMP	Fishery Management Plan
FMR	Fitzgerald Marine Reserve
FMSA	Farallones Marine Sanctuary Association
FSO	Friends of the Sea Otter
FWPCA	Federal Water Pollution Control Act
GCEL	General Council Enforcement Litigation
GCOS	General Council Ocean Service
GFNMS	Gulf of the Farallones National Marine Sanctuary
GGNRA	Golden Gate National Recreation Area
GIS	geographic information systems
GPS	global positioning system
GRNMS	Grey's Reef National Marine Sanctuary
GSA	General Services Administration
HAB	harmful algal bloom
HAZMAT	Hazardous Materials Response Division
HDD	horizontal directional drilling
HIHWNMS	Hawaiian Islands Humpback Whale National Marine Sanctuary
IACC	Interagency Coordinating Committee
ICES	International Council for Exploration of the Sea
ICS	Incident Command System
IFQ	individual fishing quota
IGERT	Integrative Graduate Education and Research Traineeship Program
IMO	International Maritime Organization
IPPC	International Plant Protection Convention
ITQ	individual transferable quota
IUCN	International Union for Conservation of Nature and Natural Resources

JMPR	Joint Management Plan Review
LCP	Local Coastal Program
LCV	Large Commercial Vessels
LiMPETS	Long-term Monitoring Program and Experiential Training for Students
MAC	Maritime Archaeology Center (NOAA)
MALT	Marin Agricultural Land Trust
MARE	Marine Activities, Resources, and Education
MARPOL	International Convention for the Prevention of Pollution from Ships
MATE	Marine Advanced Technology Education (Center)
MBA	Monterey Bay Aquarium
MBARI	Monterey Bay Aquarium Research Institute
MBNMS	Monterey Bay National Marine Sanctuary
MBTA	Migratory Bird Treaty Act
MCBI	Marine Conservation Biology Institute
MCSTOPPP	Marin County Stormwater Pollution Prevention Program
MERITO	Multicultural Education for Resource Issues Threatening Oceans
MGD	million gallons per day
MHW	mean high water
MHWL	mean high water line
MLMA	Marine Life Management Act
MLML	Moss Landing Marine Laboratories
MLPA	Marine Life Protection Act
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MOA	memorandum of agreement
MOU	memorandum of understanding
MPA	marine protected area
MRDC	Marin Rural Development Council
MSD	marine sanitation device
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NANPCA	Nonindigenous Aquatic Nuisance Prevention and Control Act
NAS	Nautical Archaeology Society
NASA	National Aeronautics and Space Administration
NCCOS	The National Centers for Coastal Ocean Science
NEMO	Nonpoint Education for Municipal Officials
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NHPA	National Historic Preservation Act
NISA	National Invasive Species Act of 1996
NISAC	Non-native Invasive Species Advisory Committee
NM	nautical mile
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NMSF	National Marine Sanctuaries Foundation
NMSP	National Marine Sanctuary Program
NMSS	National Marine Sanctuary System
NOAA OLE	NOAA Office of Law Enforcement
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center
NOS	National Ocean Service

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NPDES	National Pollutant Discharge Elimination System
NPR	National Public Radio
NPS	National Park Service
NPS	Naval Postgraduate School
NPS	non-point source pollution
NRDA	National Resource Damage Assessment and Restoration
NURP	National Undersea Research Program (NOAA)
OCNMS	Olympic Coast National Marine Sanctuary
OCRM	Office of Coastal Resource Management (NOAA)
OCS	outer continental shelf
OE	Office of Enforcement
OES	Office of Emergency Services
ONMS	Office of National Marine Sanctuaries
OPA	Oil Spill Prevention Act of 1990
ORR	Office of Response and Restoration
OSPR	(Office of) Oil Spill Prevention and Response (CDFG)
OSRO	Oil Spill Response Organization
OWE	Open Water Exchange
PARS	Port Access Route Studies
PCB	polychlorinated biphenyl
PCFFA	Pacific Coast Federation of Fishermen's Associations
PCLC	Pacific Coast Learning Center
PFMC	Pacific Fishery Management Council
PISCO	Partnership for Interdisciplinary Studies of Coastal Oceans
PRBO	PRBO Conservation Science (Point Reyes Bird Observatory)
PRNS	Point Reyes National Seashore
PRNSA	Point Reyes National Seashore Association
PSA	public service announcement
PSMFC	Pacific States Marine Fisheries Commission
PWSA	Ports and Waterways Safety Act
RBOC	Recreational Boaters of California
RCRA	U.S. Resource Conservation and Recovery Act
ROV	remotely operated vehicle
RRP	Regional Response Plan
RUST	Resources and Under Sea Threats (NMSP database system)
RWQCB	Regional Water Quality Control Board
SAC	Sanctuary Advisory Council
SBNMS	Stellwagen Bank National Marine Sanctuary
SCCAT	Southern California Caulerpa Action Team
SCRP	Submerged Cultural Resources Program (NMSP)
SEALS	Sanctuary Education Awareness and Long-term Stewardship
SeaWif	Sea-viewing Wide Field of Vision
SERC	Smithsonian Environmental Research Center
SFBNERR	San Francisco Bay National Estuarine Research Reserve
SFSU	San Francisco State University
SFU	San Francisco State University
SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
SHPO	California State Historic Preservation Office
SIMoN	Sanctuary Integrated Monitoring Network (MBNMS)
SLC	California State Lands Commission

SMCNHA	San Mateo Coast Natural History Association
SPO	Special Projects Office
SST	sea surface temperature
STRAW	Students and Teachers Restoring a Watershed
SWiM	System Wide Monitoring Program (NMSP)
SWMEA	Southwest Marine and Aquatic Educator's Association
SWQB	State Water Quality Board
SWQPA	State Water Quality Protection Area
SWRCB	State Water Resources Control Board
TBNMS	Thunder Bay National Marine Sanctuary
TMDL	total maximum daily loads
TMMC	The Marine Mammal Center
UCCE	University of California Cooperative Extension
UCD	University of California Davis
UCSC	University of California Santa Cruz
UNESCO	United Nations Educational Scientific and Cultural Organization
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VTS	Vessel Traffic System
VTSS	Vessel Traffic Separation Schemes
WDR	Waste Discharge Requirement
WRP	Western Regional Panel on Aquatic Nuisance Species

Appendix IIID: National Marine Sanctuaries Act

16 U.S.C. 1431 ET. SEQ., as amended by Public Law 106-513

Sec. 301. FINDINGS, PURPOSES, AND POLICIES; ESTABLISHMENT OF SYSTEM.

(a) FINDINGS.--The Congress finds that--

(1) this Nation historically has recognized the importance of protecting special areas of its public domain, but these efforts have been directed almost exclusively to land areas above the high-water mark;

(2) certain areas of the marine environment possess conservation, recreational, ecological, historical, scientific, educational, cultural, archeological, or aesthetic qualities which give them special national, and in some instances, international, significance;

(3) while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment; and

(4) a Federal program which establishes areas of the marine environment which have special conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or aesthetic qualities as national marine sanctuaries managed as the National Marine Sanctuary System will-

(A) improve the conservation, understanding, management, and wise and sustainable use of marine resources;

(B) enhance public awareness, understanding, and appreciation of the marine environment; and

(C) maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas.

(b) PURPOSES AND POLICIES.--The purposes and policies of this title are--

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;

(2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner, which complements existing regulatory authorities;

(3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes;

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(4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System;

(5) to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;

(6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(7) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and

(9) to cooperate with global programs encouraging conservation of marine resources.

(c) ESTABLISHMENT OF SYSTEM.--There is established the National Marine Sanctuary System, which shall consist of national marine sanctuaries designated by the Secretary in accordance with this title.

Sec. 302. DEFINITIONS

As used in this title, the term--

(1) "Draft management plan" means the plan described in section 304(a)(1)(C)(v);

(2) "Magnuson-Stevens Act" means the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.);

(3) "marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law;

(4) "Secretary" means the Secretary of Commerce;

(5) "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States;

(6) "damages" includes--

(A) compensation for--

- (i)(I) the cost of replacing, restoring, or acquiring the equivalent of a sanctuary resource; and (II) the value of the lost use of a sanctuary resource pending its restoration or replacement or the acquisition of an equivalent sanctuary resource; or
- (ii) the value of a sanctuary resource if the sanctuary resource cannot be restored or replaced or if the equivalent of such resource cannot be acquired;
- (B) the cost of damage assessments under section 312(b)(2);
- (C) the reasonable cost of monitoring appropriate to the injured, restored, or replaced resources;
- (D) the cost of curation and conservation of archeological, historical, and cultural sanctuary resources; and
- (E) the cost of enforcement actions undertaken by the Secretary in response to the destruction or loss of, or injury to, a sanctuary resource;
- (7) "response costs" means the costs of actions taken or authorized by the Secretary to minimize destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risks of such destruction, loss, or injury, including costs related to seizure forfeiture, storage, or disposal arising from liability under section 312;
- (8) "sanctuary resource" means any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary;
- (9) "exclusive economic zone" means the exclusive economic zone as defined in the Magnuson-Stevens Act; and
- (10) 'System' means the National Marine Sanctuary System established by section 301.

Sec. 303. SANCTUARY DESIGNATION STANDARDS

- (a) STANDARDS.--The Secretary may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if the Secretary determines that--
 - (1) the designation will fulfill the purposes and policies of this title;
 - (2) the area is of special national significance due to--
 - (A) its conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities;
 - (B) the communities of living marine resources it harbors; or
 - (C) its resource or human-use values;

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(3) existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education;

(4) designation of the area as a national marine sanctuary will facilitate the objectives in subparagraph (3); and

(5) the area is of a size and nature that will permit comprehensive and coordinated conservation and management.

(b) FACTORS AND CONSULTATIONS REQUIRED IN MAKING DETERMINATIONS AND FINDINGS.--

(1) Factors.--For purposes of determining if an area of the marine environment meets the standards set forth in subsection (a), the Secretary shall consider--

(A) the area's natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;

(B) the area's historical, cultural, archaeological, or paleontological significance;

(C) the present and potential uses of the area that depend on maintenance of the area's resources, including commercial and recreational fishing, subsistence uses other commercial and recreational activities, and research and education;

(D) the present and potential activities that may adversely affect the factors identified in subparagraphs (A), (B), (C);

(E) the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;

(F) the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;

(G) the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources, which generate tourism;

(H) the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development;

(I) the socioeconomic effects of sanctuary designation;

(J) the area's scientific value and value for monitoring the resources and natural processes that occur there;

(K) the feasibility, where appropriate, of employing innovative management approaches to protect sanctuary resources or to manage compatible uses; and

(L) the value of the area as an addition to the System.

(2) Consultation.--In making determinations and findings, the Secretary shall consult with--

(A) the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate;

(B) the Secretaries of State, Defense, Transportation, and the Interior, the Administrator, and the heads of other interested Federal agencies;

(C) the responsible officials or relevant agency heads of the appropriate State and local government entities, including coastal zone management agencies, that will or are likely to be affected by the establishment of the area as a national marine sanctuary;

(D) the appropriate officials of any Regional Fishery Management Council established by section 302 of the Magnuson-Stevens Act (16 U.S.C. 1852) that may be affected by the proposed designation; and

(E) other interested persons.

Sec. 304. PROCEDURES FOR DESIGNATION AND IMPLEMENTATION

(a) SANCTUARY PROPOSAL.--

(1) Notice.--In proposing to designate a national marine sanctuary, the Secretary shall--

(A) issue, in the Federal Register, a notice of the proposal, proposed regulations that may be necessary and reasonable to implement the proposal, and a summary of the draft management plan;

(B) provide notice of the proposal in newspapers of general circulation or electronic media in the communities that may be affected by the proposal; and

(C) no later than the day on which the notice required under subparagraph (A) is submitted to Office of the Federal Register, submit a copy of that notice and the draft sanctuary designation documents prepared pursuant to section 304(a)(2), including an executive summary, to the Committee on Resources of the House of Representatives, the Committee on Commerce, Science, and Transportation of the Senate, and the Governor of each State in which any part of the proposed sanctuary would be located.

(2) Sanctuary Designation Documents.-- The Secretary shall prepare and make available to the public sanctuary designation documents on the proposal that include the following:

(A) A Final Environmental Impact Statement pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

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(B) A resource assessment that documents--

(i) present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial, governmental, or recreational uses;

(ii) after consultation with the Secretary of the Interior, any commercial, governmental, or recreational resource uses in the areas that are subject to the primary jurisdiction of the Department of the Interior; and

(iii) information prepared in consultation with the Secretary of Defense, the Secretary of Energy, and the Administrator of the Environmental Protection Agency, on any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary. Public disclosure by the Secretary of such information shall be consistent with national security regulations.

(C) A draft management plan for the proposed national marine sanctuary that includes the following:

(i) The terms of the proposed designation.

(ii) Proposed mechanisms to coordinate existing regulatory and management authorities within the area.

(iii) The proposed goals and objectives, management responsibilities, resource studies, and appropriate strategies for managing sanctuary resources of the proposed sanctuary, including interpretation and education, innovative management strategies, research, monitoring and assessment, resource protection, restoration, enforcement, and surveillance activities.

(iv) An evaluation of the advantages of cooperative State and Federal management if all or part of the proposed sanctuary is within the territorial limits of any State or is superjacent to the subsoil and seabed within the seaward boundary of a State, as that boundary is established.

under the Submerged Lands Act (43 U.S.C. 1301 et seq.).

(v) An estimate of the annual cost to the Federal Government of the proposed designation, including costs of personnel, equipment and facilities, enforcement, research, and public education.

(vi) The proposed regulations referred to in paragraph (1)(A).

(D) Maps depicting the boundaries of the proposed sanctuary.

(E) The basis for the determinations made under section 303(a) with respect to the area.

(F) An assessment of the considerations under section 303(b)(1).

(3) Public Hearing.--No sooner than thirty days after issuing a notice under this subsection, the Secretary shall hold at least one public hearing in the coastal area or areas that will be most affected by the proposed designation of the area as a national marine sanctuary for the purpose of receiving the views of interested parties.

(4) Terms of Designation.--The terms of designation of a sanctuary shall include the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or aesthetic value, and the types of activities that will be subject to regulation by the Secretary to protect those characteristics. The terms of designation may be modified only by the same procedures by which the original designation is made.

(5) Fishing Regulations.--The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to prepare draft regulations for fishing within the Exclusive Economic Zone as the Council may deem necessary to implement the proposed designation. Draft regulations prepared by the Council, or a Council determination that regulations are not necessary pursuant to this paragraph, shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council's action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation. In preparing the draft regulations, a Regional Fishery Management Council shall use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination which is rejected by the Secretary, or fails to prepare the draft regulations in a timely manner. Any amendments to the fishing regulations shall be drafted, approved, and issued in the same manner as the original regulations. The Secretary shall also cooperate with other appropriate fishery management authorities with rights or responsibilities within a proposed sanctuary at the earliest practicable stage in drafting any sanctuary fishing regulations.

(6) Committee Action.--After receiving the documents under subsection (a)(1)(C), the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate may each hold hearings on the proposed designation and on the matters set forth in the documents. If within the forty-five day period of continuous session of Congress beginning on the date of submission of the documents, either Committee issues a report concerning matters addressed in the documents, the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary.

(b) TAKING EFFECT OF DESIGNATIONS.--

(1) Notice.--In designating a national marine sanctuary, the Secretary shall publish in the Federal Register notice of the designation together with final regulations to implement the designation and any other matters required by law, and submit such notice to the Congress. The Secretary shall advise the public of the availability of the final management plan and the final environmental impact statement with respect to such sanctuary. The Secretary shall issue a notice of designation with respect to a proposed national marine sanctuary site not later than 30 months after the date a notice declaring the site to be an active candidate for sanctuary

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designation is published in the Federal Register under regulations issued under this Act, or shall publish not later than such date in the Federal Register findings regarding why such notice has not been published. No notice of designation may occur until the expiration of the period for Committee action under subsection (a)(6). The designation (and any of its terms not disapproved under this subsection) and regulations shall take effect and become final after the close of a review period of forty-five days of continuous session of Congress beginning on the day on which such notice is published unless in the case of a natural [sic] marine sanctuary that is located partially or entirely within the seaward boundary of any State, the Governor affected certifies to the Secretary that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect in the area of the sanctuary lying within the seaward boundary of the State.

(2) **Withdrawal of Designation.**-- If the Secretary considers that actions taken under paragraph (1) will affect the designation of a national marine sanctuary in a manner that the goals and objectives of the sanctuary or System cannot be fulfilled, the Secretary may withdraw the entire designation. If the Secretary does not withdraw the designation, only those terms of the designation or not certified under paragraph (1) shall take effect.

(3) **Procedures.**-- In computing the forty-five-day periods of continuous session of Congress pursuant to subsection (a)(6) and paragraph (1) of this subsection--

(A) continuity of session is broken only by an adjournment of Congress sine die; and

(B) the days on which either House of Congress is not in session because of an adjournment of more than three days to a day certain are excluded.

(c) **ACCESS AND VALID RIGHTS.**--

(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.

(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.

(d) **INTERAGENCY COOPERATION.**--

(1) **Review of Agency Actions.**--

(A) **In General.**--Federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary.

(B) **Agency Statements Required.**-- Subject to any regulations the Secretary may establish each Federal agency proposing an action described in subparagraph (A) shall provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources at the earliest practicable time, but in no case later than 45 days before the final approval of the action unless such Federal agency and the Secretary agree to a different schedule.

(2) Secretary's Recommended Alternatives.--If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the Secretary shall (within 45 days of receipt of complete information on the proposed agency action) recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency in implementing the agency action that will protect sanctuary resources.

(3) Response to Recommendations.--The agency head who receives the Secretary's recommended alternatives under paragraph (2) shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency head shall provide the Secretary with a written statement explaining the reasons for that decision.

(4) FAILURE TO FOLLOW ALTERNATIVE.-- If the head of a Federal agency takes an action other than an alternative recommended by the Secretary and such action results in the destruction of, loss of, or injury to a sanctuary resource, the head of the agency shall promptly prevent and mitigate further damage and restore or replace the sanctuary resource in a manner approved by the Secretary.

(e) REVIEW OF MANAGEMENT PLANS.--Not more than 5 years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding 5 years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques and strategies, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title. This review shall include a prioritization of management objectives.

(f) LIMITATION ON DESIGNATION OF NEW SANCTUARIES.--

(1) FINDING REQUIRED.--The Secretary may not publish in the Federal Register any sanctuary designation notice or regulations proposing to designate a new sanctuary, unless the Secretary has published a finding that--

(A) the addition of a new sanctuary will not have a negative impact on the System; and

(B) sufficient resources were available in the fiscal year in which the finding is made to--

(i) effectively implement sanctuary management plans for each sanctuary in the System; and

(ii) complete site characterization studies and inventory known sanctuary resources, including cultural resources, for each sanctuary in the System within 10 years after the date that the finding is made if the resources available for those activities are maintained at the same level for each fiscal year in that 10 year period.

(2) DEADLINE-- If the Secretary does not submit the findings required by paragraph (1) before February 1, 2004, the Secretary shall submit to the Congress before October 1, 2004, a finding with respect to whether the requirements of subparagraphs (A) and (B) of paragraph 1 have been met by all existing sanctuaries.

(3) LIMITATION ON APPLICATION-- Paragraph (1) does not apply to any sanctuary designation documents for--

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(A) a Thunder Bay National Marine Sanctuary; or

(B) a Northwestern Hawaiian Islands National Marine Sanctuary.

(g) NORTHWESTERN HAWAIIAN ISLANDS CORAL REEF RESERVE.--

(1) PRESIDENTIAL DESIGNATION.-- The President, after consultation with the Governor of the State of Hawaii, may designate any Northwestern Hawaiian Islands coral reef or coral reef ecosystem as a coral reef reserve to be managed by the Secretary of Commerce.

(2) SECRETARIAL ACTION.-- Upon the designation of a reserve under paragraph (1) by the President, the Secretary shall--

(A) take action to initiate the designation of the reserve as a National Marine Sanctuary under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433);

(B) establish a Northwestern Hawaiian Islands Reserve Advisory Council under section 315 of that Act (16 U.S.C. 1445a), the membership of which shall include at least 1 representative from Native Hawaiian groups; and

(C) until the reserve is designated as a National Marine Sanctuary, manage the reserve in a manner consistent with the purposes and policies of that Act.

(3) PUBLIC COMMENT-- Notwithstanding any other provision of law, no closure areas around the Northwestern Hawaiian Islands shall become permanent without adequate review and comment.

(4) COORDINATION--The Secretary shall work with other Federal agencies and the Director of the National Science Foundation, to develop a coordinated plan to make vessels and other resources available for conservation or research activities for the reserve.

(5) REVIEW-- If the Secretary has not designated a national marine sanctuary in the Northwestern Hawaiian Islands under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433, 1434) before October 1, 2005, the Secretary shall conduct a review of the management of the reserve under section 304(e) of that Act (16 U.S.C. 1434(e)).

(6) REPORT-- No later than 6 months after the date of enactment of this Act, the Secretary shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Resources, describing actions taken to implement this subsection, including costs of monitoring, enforcing, and addressing marine debris, and the extent to which the fiscal or other resources necessary to carry out this subsection are

reflected in the Budget of the United States Government submitted by the President under section 1104 of title 31, United States Code.

(7) AUTHORIZATION OF APPROPRIATIONS-- There are authorized to be appropriated to the Secretary of Commerce to carry out the provisions of this subsection such sums, not

exceeding \$4,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005, as are reported under paragraph (6) to be reflected in the Budget of the United States Government.

Sec. 305. APPLICATION OF REGULATIONS AND INTERNATIONAL NEGOTIATIONS

(a) REGULATIONS.--This title and the regulations issued under section 304 shall be applied in accordance with generally recognized principles of international law, and in accordance with the treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States, unless in accordance with--

- (1) generally recognized principles of international law;
- (2) an agreement between the United States and the foreign state of which the person is a citizen; or
- (3) an agreement between the United States and the flag state of a foreign vessel, if the person is a crewmember of the vessel.

(b) NEGOTIATIONS.--The Secretary of State, in consultation with the Secretary, shall take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of any national marine sanctuary and to promote the purposes for which the sanctuary is established.

(c) INTERNATIONAL COOPERATION.--The Secretary, in consultation with the Secretary of State and other appropriate Federal agencies, shall cooperate with other governments and international organizations in the furtherance of the purposes and policies of this title and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

Sec. 306. PROHIBITED ACTIVITIES

It is unlawful for any person to--

- (1) destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary;
- (2) possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section;
- (3) interfere with the enforcement of this title by--
 - (A) refusing to permit any officer authorized to enforce this title to board a vessel, other than a vessel operated by the Department of Defense or United States Coast Guard, subject to such person's control for the purposes of conducting any search or inspection in connection with the enforcement of this title;

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(B) resisting, opposing, impeding, intimidating, harassing, bribing, interfering with, or forcibly assaulting any person authorized by the Secretary to implement this title or any such authorized officer in the conduct of any search or inspection performed under this title; or

(C) knowingly and willfully submitting false information to the Secretary or any officer authorized to enforce this title in connection with any search or inspection conducted under this title; or

(4) violate any provision of this title or any regulation or permit issued pursuant to this title.

Sec. 307. ENFORCEMENT

(a) IN GENERAL.--The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this title.

(b) POWERS OF AUTHORIZED OFFICERS.--Any person who is authorized to enforce this title may--

(1) board, search, inspect, and seize any vessel suspected of being used to violate this title or any regulation or permit issued under this title and any equipment, stores, and cargo of such vessel;

(2) seize wherever found any sanctuary resource taken or retained in violation of this title or any regulation or permit issued under this title;

(3) seize any evidence of a violation of this title or of any regulation or permit issued under this title;

(4) execute any warrant or other process issued by any court of competent jurisdiction;

(5) exercise any other lawful authority; and

(6) arrest any person, if there is reasonable cause to believe that such a person has committed an act prohibited by section 306(3).

(c) CRIMINAL OFFENSES--

(1) OFFENSES.-- A person is guilty of an offense under this subsection if the person commits any act prohibited by section 306(3).

(2) PUNISHMENT.-- Any person that is guilty of an offense under this subsection--

(A) except as provided in subparagraph (B), shall be fined under title 18, United States Code, imprisoned for not more than 6 months, or both; or

(B) in the case of a person who in the commission of such an offense uses a dangerous weapon, engages in conduct that causes bodily injury to any person authorized to enforce this title or any person authorized to implement the provisions of this title, or places any such person in fear of

imminent bodily injury, shall be fined under title 18, United States Code, imprisoned for not more than 10 years, or both.

(d) CIVIL PENALTIES.--

(1) Civil penalty.--Any person subject to the jurisdiction of the United States who violates this title or any regulation or permit issued under this title shall be liable to the United States for a civil penalty of not more than \$100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.

(2) Notice.--No penalty shall be assessed under this subsection until after the person charged has been given notice and an opportunity for a hearing.

(3) In Rem Jurisdiction.--A vessel used in violating this title or any regulation or permit issued under this title shall be liable in rem for any civil penalty assessed for such violation. Such penalty shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(4) Review of Civil Penalty.--Any person against whom a civil penalty is assessed under this subsection may obtain review in the United States district court for the appropriate district by filing a complaint in such court not later than 30 days after the date of such order.

(5) Collection of Penalties.--If any person fails to pay an assessment of a civil penalty under this section after it has become a final and unappealable order, or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall refer the matter to the Attorney General, who shall recover the amount assessed in any appropriate district court of the United States. In such action, the validity and appropriateness of the final order imposing the civil penalty shall not be subject to review.

(6) Compromise or Other Action by Secretary.--The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is or may be imposed under this section.

(e) FORFEITURE.--

(1) In General.--Any vessel (including the vessel's equipment, stores, and cargo) and other item used, and any sanctuary resource taken or retained, in any manner, in connection with or as a result of any violation of this title or of any regulation or permit issued under this title shall be subject to forfeiture to the United States pursuant to a civil proceeding under this subsection. The proceeds from forfeiture actions under this subsection shall constitute a separate recovery in addition to any amounts recovered as civil penalties under this section or as civil damages under section 312. None of those proceeds shall be subject to set-off.

(2) Application of the Customs Laws.--The Secretary may exercise the authority of any United States official granted by any relevant customs law relating to the seizure, forfeiture, condemnation, disposition, remission, and mitigation of property in enforcing this title.

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(3) Disposal of Sanctuary Resources.--Any sanctuary resource seized pursuant to this title may be disposed of pursuant to an order of the appropriate court or, if perishable, in a manner prescribed by regulations promulgated by the Secretary. Any proceeds from the sale of such sanctuary resource shall for all purposes represent the sanctuary resource so disposed of in any subsequent legal proceedings.

(4) Presumption.--For the purposes of this section there is a reputable presumption that all sanctuary resources found on board a vessel that is used or seized in connection with a violation of this title or of any regulation or permit issued under this title were taken or retained in violation of this title or of a regulation or permit issued under this title.

(f) PAYMENT OF STORAGE, CARE, AND OTHER COSTS.--

(1) Expenditures.--

(A) Notwithstanding any other law, amounts received by the United States as civil penalties, forfeitures of property, and costs imposed under paragraph (2) shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

(B) Amounts received under this section for forfeitures and costs imposed under paragraph (2) shall be used to pay the reasonable and necessary costs incurred by the Secretary to provide temporary storage, care, maintenance, and disposal of any sanctuary resource or other property seized in connection with a violation of this title or any regulation or permit issued under this title.

(C) Amounts received under this section as civil penalties and any amounts remaining after the operation of subparagraph (B) shall be used, in order of priority, to--

(i) manage and improve the national marine sanctuary with respect to which the violation occurred that resulted in the penalty or forfeiture;

(ii) pay a reward to any person who furnishes information leading to an assessment of a civil penalty, or to a forfeiture of property, for a violation of this title or any regulation or permit issued under this title; and

(iii) manage and improve any other national marine sanctuary.

(2) Liability for Costs.--Any person assessed a civil penalty for a violation of this title or of any regulation or permit issued under this title, and any claimant in a forfeiture action brought for such a violation, shall be liable for the reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation.

(g) SUBPOENAS.--In the case of any hearing under this section which is determined on the record in accordance with the procedures provided for under section 554 of title 5, United States Code, the Secretary may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, electronic files, and documents, and may administer oaths.

(h) USE OF RESOURCES OF STATE AND OTHER FEDERAL AGENCIES.--The Secretary shall, whenever appropriate, use by agreement the personnel, services, and facilities of State and other Federal departments, agencies, and instrumentalities, on a reimbursable or nonreimbursable basis, to carry out the Secretary's responsibilities under this section.

(i) COAST GUARD AUTHORITY NOT LIMITED.--Nothing in this section shall be considered to limit the authority of the Coast Guard to enforce this or any other Federal law under section 89 of title 14, United States Code.

(j) INJUNCTIVE RELIEF.--If the Secretary determines that there is an imminent risk of destruction or loss of or injury to a sanctuary resource, or that there has been actual destruction or loss of, or injury to, a sanctuary resource which may give rise to liability under section 312, the Attorney General, upon request of the Secretary, shall seek to obtain such relief as may be necessary to abate such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both. The district courts of the United States shall have jurisdiction in such a case to order such relief as the public interest and the equities of the case may require.

(k) AREA OF APPLICATION AND ENFORCEABILITY.--The area of application and enforceability of this title includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the United States exclusive economic zone, consistent with international law.

(l) NATIONWIDE SERVICE OF PROCESS.-- In any action by the United States under this title, process may be served in any district where the defendant is found, resides, transacts business, or has appointed an agent for the service of process.

Sec. 308. REGULATIONS.

The Secretary may issue such regulations as may be necessary to carry out this title.

Sec. 309. RESEARCH, MONITORING, AND EDUCATION.

(a) IN GENERAL-- The Secretary shall conduct, support, or coordinate research, monitoring, evaluation, and education programs consistent with subsections (b) and (c) and the purposes and policies of this title.

(b) RESEARCH AND MONITORING.--

(1) IN GENERAL.-- The Secretary may--

(A) support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in national marine sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment;

(B) develop and test methods to enhance degraded habitats or restore damaged, injured, or lost sanctuary resources; and

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(C) support, promote, and coordinate research on, and the conservation, curation, and public display of, the cultural, archeological, and historical resources of national marine sanctuaries.

(2) AVAILABILITY OF RESULTS.-- The results of research and monitoring conducted, supported, or permitted by the Secretary under this subsection shall be made available to the public.

(c) EDUCATION--

(1) IN GENERAL.-- The Secretary may support, promote, and coordinate efforts to enhance public awareness, understanding, and appreciation of national marine sanctuaries and the System. Efforts supported, promoted, or coordinated under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries and the System.

(2) EDUCATIONAL ACTIVITIES.-- Activities under this subsection may include education of the general public, teachers, students, national marine sanctuary users, and ocean and coastal resource managers.

(d) INTERPRETIVE FACILITIES.--

(1) IN GENERAL.-- The Secretary may develop interpretive facilities near any national marine sanctuary.

(2) FACILITY REQUIREMENT.-- Any facility developed under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries by providing the public with information about the conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or aesthetic qualities of the national marine sanctuary.

(e) CONSULTATION AND COORDINATION.-- In conducting, supporting, and coordinating research, monitoring, evaluation, and education programs under subsection (a) and developing interpretive facilities under subsection (d), the Secretary may consult or coordinate with Federal, interstate, or regional agencies, States or local governments.

Sec. 310. SPECIAL USE PERMITS

(a) ISSUANCE OF PERMITS.--The Secretary may issue special use permits that authorize the conduct of specific activities in a national marine sanctuary if the Secretary determines such authorization is necessary--

(1) to establish conditions of access to and use of any sanctuary resource; or

(2) to promote public use and understanding of a sanctuary resource.

(b) PUBLIC NOTICE REQUIRED.-- The Secretary shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a).

(c) PERMIT TERMS.--A permit issued under this section--

- (1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources;
 - (2) shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretary;
 - (3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and
 - (4) shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.
- (d) FEES.--
- (1) Assessment and Collection.--The Secretary may assess and collect fees for the conduct of any activity under a permit issued under this section.
 - (2) Amount.--The amount of a fee under this subsection shall be equal to the sum of--
 - (A) costs incurred, or expected to be incurred, by the Secretary in issuing the permit;
 - (B) costs incurred, or expected to be incurred, by the Secretary as a direct result of the conduct of the activity for which the permit is issued, including costs of monitoring the conduct of the activity; and
 - (C) an amount that represents the fair market value of the use of the sanctuary resource.
 - (3) Use of Fees.--Amounts collected by the Secretary in the form of fees under this section may be used by the Secretary--
 - (A) for issuing and administering permits under this section; and
 - (B) for expenses of managing national marine sanctuaries.
 - (4) WAIVER OR REDUCTION OF FEES.-- The Secretary may accept in-kind contributions in lieu of a fee under paragraph (2)(C), or waive or reduce any fee assessed under this subsection for any activity that does not derive a profit from the access to or use of sanctuary resources.
- (e) VIOLATIONS.--Upon violation of a term or condition of a permit issued under this section, the Secretary may--
- (1) suspend or revoke the permit without compensation to the permittee and without liability to the United States;
 - (2) assess a civil penalty in accordance with section 307; or
 - (3) both.

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(f) REPORTS.--Each person issued a permit under this section shall submit an annual report to the Secretary not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(g) FISHING.--Nothing in this section shall be considered to require a person to obtain a permit under this section for the conduct of any fishing activities in a national marine sanctuary.

Sec. 311. COOPERATIVE AGREEMENTS, DONATIONS, AND ACQUISITIONS

(a) AGREEMENTS AND GRANTS.--The Secretary may enter into cooperative agreements, contracts, or other agreements with, or make grants to, States, local governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of this title.

(b) AUTHORIZATION TO SOLICIT DONATIONS.--The Secretary may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of this title.

(c) DONATIONS.--The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this title. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.

(d) ACQUISITIONS.--The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title

(e) USE OF RESOURCES OF OTHER GOVERNMENT AGENCIES.--The Secretary may, whenever appropriate, enter into an agreement with a State or other Federal agency to use the personnel, services, or facilities of such agency on a reimbursable or nonreimbursable basis, to assist in carrying out the purposes and policies of this title.

(f) AUTHORITY TO OBTAIN GRANTS.--Notwithstanding any other provision of law that prohibits a Federal agency from receiving assistance, the Secretary may apply for, accept, and use grants from other Federal agencies, States, local governments, regional agencies, interstate agencies, foundations, or other persons, to carry out the purposes and policies of this title.

Sec. 312. DESTRUCTION OR LOSS OF, OR INJURY TO, SANCTUARY RESOURCES

(a) LIABILITY FOR INTEREST.--

(1) Liability to UNITED STATES.--Any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for an amount equal to the sum of--

(A) the amount of response costs and damages resulting from the destruction, loss, or injury; and

(B) interests on that amount calculated in the manner described under section 1005 of the Oil Pollution Act of 1990.

(2) Liability In Rem.--Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(3) Defenses.--A person is not liable under this subsection if that person establishes that--

(A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;

(B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law;
or

(C) the destruction, loss, or injury was negligible.

(4) Limits to Liability.-- Nothing in sections 4281-4289 of the Revised Statutes of the United States or section 3 of the Act of February 13, 1893, shall limit the liability of any person under this title.

(b) RESPONSE ACTIONS AND DAMAGE ASSESSMENT.--

(1) Response Actions.--The Secretary may undertake or authorize all necessary actions to prevent or minimize the destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risk of such destruction, loss, or injury.

(2) Damage Assessment.--The Secretary shall assess damages to sanctuary resources in accordance with section 302(6).

(c) CIVIL ACTIONS FOR RESPONSE COSTS AND DAMAGES.--

(1) The Attorney General, upon request of the Secretary, may commence a civil action against any person or vessel that may be liable under subsection (a) for response costs and damages. The Secretary, acting as trustee for sanctuary resources for the United States, shall submit a request for such an action to the Attorney General whenever a person may be liable for such costs or damages.

(2) An action under this subsection may be brought in the United States district court for any district in which-

(A) the defendant is located, resides, or is doing business, in the case of an action against a person;

(B) the vessel is located, in the case of an action against a vessel; or

(C) the destruction of, loss of, or injury to a sanctuary resource occurred.

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(d) USE OF RECOVERED AMOUNTS.--Response costs and damages recovered by the Secretary under this section shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9607(f)(1)), and used as follows:

(1) RESPONSE COSTS.- Amounts recovered by the United States for costs of response actions and damage assessments under this section shall be used, as the Secretary considers appropriate--

(A) to reimburse the Secretary or any other Federal or State agency that conducted those activities; and

(B) after reimbursement of such costs, to restore, replace, or acquire the equivalent of any sanctuary resource.

(2) OTHER AMOUNTS.--All other amounts recovered shall be used, in order of priority--

(A) to restore, replace, or acquire the equivalent of the sanctuary resources that were the subject of the action, including for costs of monitoring and the costs of curation and conservation of archeological, historical, and cultural sanctuary resources;

(B) to restore degraded sanctuary resources of the national marine sanctuary that was the subject of the action, giving priority to sanctuary resources and habitats that are comparable to the sanctuary resources that were the subject of the action; and

(C) to restore degraded sanctuary resources of other national marine sanctuaries.

(3) Federal-State Coordination.--Amounts recovered under this section with respect to sanctuary resources lying within the jurisdiction of a State shall be used under paragraphs (2)(A) and (B) in accordance with the court decree or settlement agreement and an agreement entered into by the Secretary and the Governor of that State.

(e) STATUTE OF LIMITATIONS.--An action for response costs or damages under subsection (c) shall be barred unless the complaint is filed within 3 years after the date on which the Secretary completes a damage assessment and restoration plan for the sanctuary resources to which the action relates.

SEC. 313. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary--

(1) to carry out this title--

(A) \$32,000,000 for fiscal year 2001;

(B) \$34,000,000 for fiscal year 2002;

(C) \$36,000,000 for fiscal year 2003;

(D) \$38,000,000 for fiscal year 2004;

(E) \$40,000,000 for fiscal year 2005; and

(2) for construction projects at national marine sanctuaries, \$6,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005.

Sec. 314. U.S.S. MONITOR ARTIFACTS AND MATERIALS

(a) CONGRESSIONAL POLICY.--In recognition of the historical significance of the wreck of the United States ship Monitor to coastal North Carolina and to the area off the coast of North Carolina known as the Graveyard of the Atlantic, the Congress directs that a suitable display of artifacts and materials from the United States ship Monitor be maintained permanently at an appropriate site in coastal North Carolina. [P.L. 102-587 authorized a grant for the acquisition of space in Hatteras Village, NC, for display of artifacts and administration and operations of the Monitor National Marine Sanctuary.

(b) DISCLAIMER.--This section shall not affect the following:

(1) Responsibilities Of Secretary.--The responsibilities of the Secretary to provide for the protection, conservation, and display of artifacts and materials from the United States ship Monitor.

(2) Authority Of Secretary.--The authority of the Secretary to designate the Mariner's Museum, located at Newport News, Virginia, as the principal museum for coordination of activities referred to in paragraph (1).

Sec. 315. ADVISORY COUNCILS

(a) ESTABLISHMENT.--The Secretary may establish one or more advisory councils (in this section referred to as an 'Advisory Council') to advise and make recommendations to the Secretary regarding the designation and management of national marine sanctuaries. The Advisory Councils shall be exempt from the Federal Advisory Committee Act.

(b) MEMBERSHIP.--Members of the Advisory Councils may be appointed from among--

(1) persons employed by Federal or State agencies with expertise in management of natural resources;

(2) members of relevant Regional Fishery Management Councils established under section 302 of the Magnuson-Stevens Act; and

(3) representatives of local user groups, conservation and other public interest organizations, scientific organizations, educational organizations, or others interested in the protection and multiple use management of sanctuary resources.

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(c) LIMITS ON MEMBERSHIP.--For sanctuaries designated after the date of enactment of the National Marine Sanctuaries Program Amendments Act of 1992, the membership of Advisory Councils shall be limited to no more than 15 members.

(d) STAFFING AND ASSISTANCE.--The Secretary may make available to an Advisory Council any staff, information, administrative services, or assistance the Secretary determines are reasonably required to enable the Advisory Council to carry out its functions.

(e) PUBLIC PARTICIPATION AND PROCEDURAL MATTERS.--The following guidelines apply with respect to the conduct of business meetings of an Advisory Council:

(1) Each meeting shall be open to the public, and interested persons shall be permitted to present oral or written statements on items on the agenda.

(2) Emergency meetings may be held at the call of the chairman or presiding officer.

(3) Timely notice of each meeting, including the time, place, and agenda of the meeting, shall be published locally and in the Federal Register, except that in the case of a meeting of an Advisory Council established to provide assistance regarding any individual national marine sanctuary the notice is not required to be published in the Federal Register.

(4) Minutes of each meeting shall be kept and contain a summary of the attendees and matters discussed.

Sec. 316. ENHANCING SUPPORT FOR NATIONAL MARINE SANCTUARIES

(a) AUTHORITY.--The Secretary may establish a program consisting of--

(1) the creation, adoption, and publication in the Federal Register by the Secretary of a symbol for the national marine sanctuary program, or for individual national marine sanctuaries or the System;

(2) the solicitation of persons to be designated as official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(3) the designation of persons by the Secretary as official sponsors of the national marine sanctuary program or of individual sanctuaries;

(4) the authorization by the Secretary of the manufacture, reproduction, or other use of any symbol published under paragraph (1), including the sale of items bearing such a symbol, by official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(5) the creation, marketing, and selling of products to promote the national marine sanctuary program, and entering into exclusive or nonexclusive agreements authorizing entities to create, market or sell on the Secretary's behalf;

(6) the solicitation and collection by the Secretary of monetary or in-kind contributions from official sponsors for the manufacture, reproduction or use of the symbols published under paragraph (1);

(7) the retention of any monetary or in-kind contributions collected under paragraphs (5) and (6) by the Secretary; and

(8) the expenditure and use of any monetary and in-kind contributions, without appropriation, by the Secretary to designate and manage national marine sanctuaries.

Monetary and in-kind contributions raised through the sale, marketing, or use of symbols and products related to an individual national marine sanctuary shall be used to support that sanctuary.

(b) **CONTRACT AUTHORITY.**--The Secretary may contract with any person for the creation of symbols or the solicitation of official sponsors under subsection (a).

(c) **RESTRICTIONS.**--The Secretary may restrict the use of the symbols published under subsection (a), and the designation of official sponsors of the national marine sanctuary program or of individual national marine sanctuaries to ensure compatibility with the goals of the national marine sanctuary program.

(d) **PROPERTY OF UNITED STATES.**--Any symbol that is adopted by the Secretary and published in the Federal Register under subsection (a) is deemed to be the property of the United States.

(e) **PROHIBITED ACTIVITIES.**--It is unlawful for any person--

(1) designated as an official sponsor to influence or seek to influence any decision by the Secretary or any other Federal official related to the designation or management of a national marine sanctuary, except to the extent that a person who is not so designated may do so;

(2) to represent himself or herself to be an official sponsor absent a designation by the Secretary;

(3) to manufacture, reproduce, or otherwise use any symbol adopted by the Secretary under subsection (a)(1), including to sell any item bearing such a symbol, unless authorized by the Secretary under subsection (a)(4) or subsection (f); or

(4) to violate any regulation promulgated by the Secretary under this section.

(f) **COLLABORATIONS.**--The Secretary may authorize the use of a symbol adopted by the Secretary under subsection (a)(1) by any person engaged in a collaborative effort with the Secretary to carry out the purposes and policies of this title and to benefit a national marine sanctuary or the System.

(g) **AUTHORIZATION FOR NON-PROFIT PARTNER ORGANIZATION TO SOLICIT SPONSORS.**--

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(1) IN GENERAL.--The Secretary may enter into an agreement with a non-profit partner organization authorizing it to assist in the administration of the sponsorship program established under this section. Under an agreement entered into under this paragraph, the Secretary may authorize the non-profit partner organization to solicit persons to be official sponsors of the national marine sanctuary system or of individual national marine sanctuaries, upon such terms as the Secretary deems reasonable and will contribute to the successful administration of the sanctuary system. The Secretary may also authorize the non-profit partner organization to collect the statutory contribution from the sponsor, and, subject to paragraph (2), transfer the contribution to the Secretary.

(2) REIMBURSEMENT FOR ADMINISTRATIVE COSTS.--Under the agreement entered into under paragraph (1), the Secretary may authorize the non-profit partner organization to retain not more than 5 percent of the amount of monetary contributions it receives from official sponsors under the agreement to offset the administrative costs of the organization in soliciting sponsors.

(3) PARTNER ORGANIZATION DEFINED.--In this subsection, the term 'partner organization' means an organization that--

(A) draws its membership from individuals, private organizations, corporation, academic institutions, or State and local governments; and

(B) is established to promote the understanding of, education relating to, and the conservation of the resources of a particular sanctuary or 2 or more related sanctuaries.

Sec. 318. DR. NANCY FOSTER SCHOLARSHIP PROGRAM.

(a) ESTABLISHMENT.--The Secretary shall establish and administer through the National Ocean Service the Dr. Nancy Foster Scholarship Program. Under the program, the Secretary shall award graduate education scholarships in oceanography, marine biology or maritime archeology, to be known as Dr. Nancy Foster Scholarships.

(b) PURPOSES- The purposes of the Dr. Nancy Foster Scholarship Program are--

(1) to recognize outstanding scholarship in oceanography, marine biology, or maritime archeology, particularly by women and members of minority groups ; and

(2) to encourage independent graduate level research in oceanography, marine biology, or maritime archeology.

(c) AWARD.--Each Dr. Nancy Foster Scholarship--

(1) shall be used to support graduate studies in oceanography, marine biology, or maritime archeology at a graduate level institution of higher education; and

(2) shall be awarded in accordance with guidelines issued by the Secretary.

(d) DISTRIBUTION OF FUNDS.--The amount of each Dr. Nancy Foster Scholarship shall be provided directly to a recipient selected by the Secretary upon receipt of certification that the

recipient will adhere to a specific and detailed plan of study and research approved by a graduate level institution of higher education.

(e) FUNDING--Of the amount available each fiscal year to carry out this title, the Secretary shall award 1 percent as Dr. Nancy Foster Scholarships.

(f) SCHOLARSHIP REPAYMENT REQUIREMENT--The Secretary shall require an individual receiving a scholarship under this section to repay the full amount of the scholarship to the Secretary if the Secretary determines that the individual, in obtaining or using the scholarship, engaged in fraudulent conduct or failed to comply with any term or condition of the scholarship.

(g) MARITIME ARCHEOLOGY DEFINED--In this section the term 'maritime archeology' includes the curation, preservation, and display of maritime artifacts.

Appendix IIIE: Species List

GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY

VERTEBRATES

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The following lists of vertebrate species occurring in the Gulf of the Farallones (GFNMS) National Marine Sanctuary, have been constructed. These lists include 36 mammal, 163 bird, 5 reptile, and 370 fish species that have been recorded or, for some species of reptiles and fish, suspected of occurring within the boundary of the GFNMS, including the waters of Tomales Bay, Drakes and Limantour Esteros, and Bolinas Lagoon. In addition to common and scientific names of each specific taxon, the lists include information or data on Federal listed status, estimated population size, population trend, seasonal and geographical distribution, longevity, and age of first breeding. A "Habitat Importance" designation is also given which reflects the importance of the sanctuary to that particular species. This designation is based on 1) the abundance of the species within the sanctuary, 2) the proportion of the overall range or population that occurs in the sanctuary, and 3) the importance of the sanctuary to breeding individuals.

Taxonomic classification, phylogenetic order, and all other information are according to references used for each class of vertebrates, listed below. Each class has slightly differing criteria for acceptance to the list. For mammals the list includes all marine species, including vagrants, that have been recorded within sanctuary waters. Only one fresh-water/estuarine species, river otter, is included based on occurrence in coastal bodies of water and because the GFNMS boundary includes estuarine habitats where these otters have been documented. For birds the list includes all marine species, including vagrants, that have been recorded in sanctuary waters and those species that are regularly found in the coastal esteros and lagoons. For a full list of over 400 bird species, including vagrant estuarine species and landbirds recorded on Southeast Farallon Island, see Pyle 2000 (cited below). For reptiles and fish the lists include

Appendix III E: Species List
GFNMS Management Plan

those species recorded in the sanctuary plus others suspected of occurring based on records both north and south of the sanctuary, but for which no definite records are currently known. Species just suspected of occurring in sanctuary waters are marked with a "?" in the GC column (see abbreviation codes below).

The headings of the vertebrate lists include the following categories:

COMMON NAME - The common (English) name of the species.

SCIENTIFIC NAME - The scientific (Latin) name of the species.

FED STATUS - The federal listed status as of August 16th, 2007 (as found at [//ecos.fws.gov/webpage/webpage_vip_listed.html](http://ecos.fws.gov/webpage/webpage_vip_listed.html)). These designations are given if any population or subspecies occurring in the sanctuary is so listed.

- E - Endangered
- T - Threatened
- D - Delisted

POP ESTIM - The estimated population size in a given location (LOCATION, see below). When numbers are given they represent 1000's of individuals. When no population estimates are available the terms "Common," "Uncommon," and "Rare" are used as general indicators of the worldwide population size. Population estimates for birds and mammals are estimates from 1999.

LOCATION - The geographic location (area) for which the population estimate applies, as follows:

- World - World
- N.Am - North America
- Pacif - Pacific Ocean or Pacific North American Coast
- Calif - California

Compare this with RANGE (below), as often the "World" population will be restricted to North America and so forth.

HABITAT IMPORT - The "Habitat Importance" of the sanctuary to the species. Codes are as follows:

- E - Extremely Important
- V - Very Important
- S - Somewhat Important
- No designation indicates the NMS is of little importance.

VERTEBRATES

Birds

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
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Birds

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Red-throated Loon	<i>Gavia stellata</i>		25	N.Am	V
Pacific Loon	<i>Gavia pacifica</i>		50	World	E
Common Loon	<i>Gavia immer</i>		500	N.Am	V
Yellow-billed Loon	<i>Gavia adamsii</i>		7	N.Am	
Pied-billed Grebe	<i>Podilymbus podiceps</i>		Common		V
Horned Grebe	<i>Podiceps auritus</i>		100	N.Am	V
Red-necked Grebe	<i>Podiceps grisegena</i>		45	N.Am	V
Eared Grebe	<i>Podiceps nigricollis</i>		4100	N.Am	E
Western Grebe	<i>Aechmophorus occidentalis</i>		Common		E
Clark's Grebe	<i>Aechmophorus clarkii</i>		Uncommon		E
Laysan Albatross	<i>Phoebastria immutabilis</i>		2600	World	S
Black-footed Albatross	<i>Phoebastria nigripes</i>		200	World	E
Short-tailed Albatross	<i>Diomedea albatrus</i>	E	1	World	S
Northern Fulmar	<i>Fulmarus glacialis</i>		1400	Pacif	E
Murphy's Petrel	<i>Pterodroma ultima</i>		Uncommon		S
Mottled Petrel	<i>Pterodroma inexpectata</i>		Uncommon		S
Dark-rumped Petrel	<i>Pterodroma phaeopygia</i>	E	70	World	
Pink-footed Shearwater	<i>Puffinus creatopus</i>		Common		E
Flesh-footed Shearwater	<i>Puffinus carneipes</i>		Uncommon		V
Buller's Shearwater	<i>Puffinus bulleri</i>		Uncommon		E
Sooty Shearwater	<i>Puffinus griseus</i>		Common		E
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>		Common		E
Manx Shearwater	<i>Puffinus puffinus</i>		1000	World	
Black-vented Shearwater	<i>Puffinus opisthomelas</i>		30	World	V
Wilson's Storm-Petrel	<i>Oceanites oceanicus</i>		Common		
Fork-tailed Storm-Petrel	<i>Oceanodroma furcata</i>		1	Calif	V
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa</i>		20	Calif	V
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>		7.5	Calif	E
Black Storm-Petrel	<i>Oceanodroma melania</i>		Uncommon		
Red-billed Tropicbird	<i>Phaethon aethereus</i>		Uncommon		
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>		31	Pacif	
Masked Booby	<i>Sula dactylatra</i>		Uncommon		
Brown Booby	<i>Sula leucogaster</i>		Common		
Red-footed Booby	<i>Sula sula</i>		292	Pacif	
Brown Pelican	<i>Pelecanus occidentalis</i>	E	150	Pacif	E
American White Pelican	<i>Pelecanus erythrorhynchos</i>		75	World	S
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>		125	Calif	E
Double-crested Cormorant	<i>Phalacrocorax auritus</i>		10	Calif	V
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>		25	Calif	E
Magnificent Frigatebird	<i>Fregata magnificens</i>		Common		
Great Frigatebird	<i>Fregata minor</i>		Common		
American Bittern	<i>Botaurus lentiginosus</i>		Uncommon		S
Great Blue Heron	<i>Ardea herodias</i>		Common		E

**Appendix III E: Species List
GFNMS Management Plan**

Birds

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Great Egret	<i>Ardea alba</i>		Common		E
Snowy Egret	<i>Egretta thula</i>		Common		V
Green Heron	<i>Butorides virescens</i>		Common		V
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		Common		E
Turkey Vulture	<i>Cathartes aura</i>		Common		S
Canada Goose (<i>B.c. leucopareia</i>)	<i>Branta canadensis</i>	D	4000	World	S
Brant	<i>Branta bernicla</i>		50	Pacif	E
Gadwall	<i>Anas strepera</i>		3000	N.Am	V
Eurasian Wigeon	<i>Anas penelope</i>		2500	World	S
American Wigeon	<i>Anas americana</i>		3100	N.Am	E
Mallard	<i>Anas platyrhynchos</i>		6000	N.Am	E
Blue-winged Teal	<i>Anas discors</i>		4333	N.Am	S
Cinnamon Teal	<i>Anas cyanoptera</i>		280	World	V
Northern Shoveler	<i>Anas clypeata</i>		2850	N.Am	E
Northern Pintail	<i>Anas acuta</i>		4500	N.Am	E
Green-winged Teal	<i>Anas crecca</i>		3032	N.Am	V
Greater Scaup	<i>Aythya marila</i>		700	N.Am	E
Lesser Scaup	<i>Aythya affinis</i>		4300	N.Am	S
Harlequin Duck	<i>Histrionicus histrionicus</i>		250	N.Am	S
Surf Scoter	<i>Melanitta perspicillata</i>		536	Pacif	E
White-winged Scoter	<i>Melanitta fusca</i>		675	N.Am	E
Black Scoter	<i>Melanitta nigra</i>		100	Pacif	E
Oldsquaw	<i>Clangula hyemalis</i>		2703	N.Am	S
Bufflehead	<i>Bucephala albeola</i>		1390	World	E
Common Goldeneye	<i>Bucephala clangula</i>		1250	N.Am	E
Red-breasted Merganser	<i>Mergus serrator</i>		237	Pacif	V
Ruddy Duck	<i>Oxyura jamaicensis</i>		650	N.Am	E
Osprey	<i>Pandion haliaetus</i>		Uncommon		E
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	100	World	S
Northern Harrier	<i>Circus cyaneus</i>		160	N.Am	S
Merlin	<i>Falco columbarius</i>		Uncommon		V
Peregrine Falcon	<i>Falco peregrinus</i>	D	Uncommon		E
Black Rail	<i>Laterallus jamaicensis</i>		6	Calif	E
Virginia Rail	<i>Rallus limicola</i>		Uncommon		V
Yellow Rail	<i>Coturnicops noveboracensis</i>		Rare		S
Sora	<i>Porzana carolina</i>		Uncommon		V
American Coot	<i>Fulica americana</i>		Common		V
Black-bellied Plover	<i>Pluvialis squatarola</i>		200	N.Am	E
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	T	16	N.Am	E
Semipalmated Plover	<i>Charadrius semipalmatus</i>		150	World	V
Killdeer	<i>Charadrius vociferus</i>		100	N.Am	V
Black Oystercatcher	<i>Haematopus bachmani</i>		1.5	Calif	E

Birds

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
American Avocet	<i>Recurvirostra americana</i>		450	World	V
Greater Yellowlegs	<i>Tringa melanoleuca</i>		100	World	V
Willet	<i>Catoptrophorus semipalmatus</i>		250	World	E
Wandering Tattler	<i>Heteroscelus incanus</i>		10	World	V
Spotted Sandpiper	<i>Actitis macularia</i>		150	World	V
Whimbrel	<i>Numenius phaeopus</i>		57	N.Am	V
Long-billed Curlew	<i>Numenius americanus</i>		20	World	E
Marbled Godwit	<i>Limosa fedoa</i>		100	World	E
Ruddy Turnstone	<i>Arenaria interpres</i>		235	N.Am	S
Black Turnstone	<i>Arenaria melanocephala</i>		80	World	E
Surfbird	<i>Aphriza virgata</i>		70	World	V
Red Knot	<i>Calidris canutus</i>		400	N.Am	S
Sanderling	<i>Calidris alba</i>		300	N.Am	E
Western Sandpiper	<i>Calidris mauri</i>		3500	World	E
Least Sandpiper	<i>Calidris minutilla</i>		600	World	E
Rock Sandpiper	<i>Calidris ptilocnemis</i>		150	World	S
Dunlin	<i>Calidris alpina</i>		1500	N.Am	E
Short-billed Dowitcher	<i>Limnodromus griseus</i>		320	World	V
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>		500	World	V
Common Snipe	<i>Gallinago gallinago</i>		2000	N.Am	V
Red-necked Phalarope	<i>Phalaropus lobatus</i>		2500	N.Am	E
Red Phalarope	<i>Phalaropus fulicaria</i>		1000	N.Am	E
South Polar Skua	<i>Catharacta maccormicki</i>		Uncommon		V
Pomarine Jaeger	<i>Stercorarius pomarinus</i>		Common		E
Parasitic Jaeger	<i>Stercorarius parasiticus</i>		Common		E
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>		250	World	V
Bonaparte's Gull	<i>Larus philadelphia</i>		Uncommon		V
Heermann's Gull	<i>Larus heermanni</i>		1500	World	E
Mew Gull	<i>Larus canus</i>		Uncommon		E
Ring-billed Gull	<i>Larus delawarensis</i>		3500	World	V
California Gull	<i>Larus californicus</i>		Common		E
Herring Gull	<i>Larus argentatus</i>		500	N.Am	V
Thayer's Gull	<i>Larus thayeri</i>		Uncommon		V
Western Gull	<i>Larus occidentalis</i>		60	Calif	E
Glaucous-winged Gull	<i>Larus glaucescens</i>		200	N.Am	E
Glaucous Gull	<i>Larus hyperboreus</i>		Uncommon		S
Sabine's Gull	<i>Xema sabini</i>		Uncommon		V
Swallow-tailed Gull	<i>Creagrus furcatus</i>		35	World	
Black-legged Kittiwake	<i>Rissa tridactyla</i>		2600	Pacif	V
Caspian Tern	<i>Sterna caspia</i>		35	N.Am	E
Elegant Tern	<i>Sterna elegans</i>		29	World	E
Common Tern	<i>Sterna hirundo</i>		100	N.Am	V
Arctic Tern	<i>Sterna paradisaea</i>		Common		V

Appendix III E: Species List
GFNMS Management Plan

Birds

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Forster's Tern	<i>Sterna forsteri</i>		400	World	E
California Least Tern	<i>Sterna antillarum browni</i>	E			
Common Murre	<i>Uria aalge</i>		800	Calif	E
Thick-billed Murre	<i>Uria lomvia</i>		5000	Pacif	
Pigeon Guillemot	<i>Cephus columba</i>		30	Calif	E
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	T	6.5	Calif	E
Long-billed Murrelet	<i>Brachyramphus perdix</i>		30	World	
Xantus's Murrelet	<i>Synthliboramphus hypoleucus</i>		8	World	S
Craveri's Murrelet	<i>Synthliboramphus craveri</i>		Rare		S
Ancient Murrelet	<i>Synthliboramphus antiquus</i>		1200	World	V
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>		75	Calif	E
Parakeet Auklet	<i>Aethia psittacula</i>		3000	World	
Least Auklet	<i>Aethia pusilla</i>		9000	World	
Crested Auklet	<i>Aethia cristatella</i>		Common		
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>		5	Calif	E
Horned Puffin	<i>Fratercula corniculata</i>		Common		S
Tufted Puffin	<i>Fratercula cirrhata</i>		0.7	Calif	E
Short-eared Owl	<i>Asio flammeus</i>		Uncommon		S
Belted Kingfisher	<i>Ceryle alcyon</i>		Common		V
Black Phoebe	<i>Sayornis nigricans</i>		Uncommon		S
Say's Phoebe	<i>Sayornis saya</i>		Common		S
Common Raven	<i>Corvus corax</i>		Common		V
Horned Lark	<i>Eremophila alpestris</i>		Common		V
Tree Swallow	<i>Tachycineta bicolor</i>		Common		S
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>		Common		V
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>		Common		S
Barn Swallow	<i>Hirundo rustica</i>		Common		S
Rock Wren	<i>Salpinctes obsoletus</i>		Uncommon		V
Marsh Wren	<i>Cistothorus palustris</i>		Common		V
American Pipit	<i>Anthus rubescens</i>		Common		S
Yellow-rumped Warbler	<i>Dendroica coronata</i>		Common		S
Savannah Sparrow	<i>Passerculus sandwichensis</i>		Common		V
Song Sparrow	<i>Melospiza melodia</i>		Common		V
Swamp Sparrow	<i>Melospiza georgiana</i>		Uncommon		S
Red-winged Blackbird	<i>Agelaius phoeniceus</i>		190000	N.Am	V
Western Meadowlark	<i>Sturnella neglecta</i>		Common		S

Mammals

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Blue Whale	<i>Balaenoptera musculus</i>	E	2	Pacif	E

Mammals

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Fin Whale	<i>Balaenoptera physalus</i>	E	1.2	C,O,W	S
Sei Whale	<i>Balaenoptera borealis</i>	E	rare	Pacif	S
Minke Whale	<i>Balaenoptera acutorostrata</i>		0.6	Calif	V
Humpback Whale	<i>Megaptera novaeangliae</i>	E	6	Pacif	E
Gray Whale	<i>Eschrichtius robustus</i>	D	26	World	V
Northern Right Whale	<i>Eubalaena glacialis</i>	E	0.2	Pacif	S
Harbor Porpoise	<i>Phocoena phocoena</i>		16.7	Cent-No. Ca	E
Dall's Porpoise	<i>Phocoenoides dalli</i>		117.5	C,O,W	E
Pacific White-sided Dolphin	<i>Lagenorhynchus obliquidens</i>		25.8	C,O,W	E
Northern Right Whale Dolphin	<i>Lissodelphis borealis</i>	E	13.7	C,O,W	E
Short-beaked Common Dolphin	<i>Delphinus delphis</i>		Common	C,O,W	S
Long-beaked Common Dolphin	<i>Delphinus capensis</i>		Common	C,O,W	S
Bottlenose Dolphin	<i>Tursiops truncatus</i>		1.2	Calif	S
Striped Dolphin	<i>Stenella coeruleoalba</i>		20.2	C,O,W	
Spotted Dolphin	<i>Stenella attenuata</i>		rare	Calif	
Rough-toothed Dolphin	<i>Steno bredanensis</i>		rare	Calif	
Risso's Dolphin	<i>Grampus griseus</i>		16.5	C,O,W	V
Killer Whale – southern resident	<i>Orcinus orca</i>	*E	1	C,O,W	V
Short-finned Pilot Whale	<i>Globicephala macrorhynchus</i>		60	World	
Sperm Whale	<i>Physeter macrocephalus</i>	E	1800	World	S
Pigmy Sperm Whale	<i>Kogia breviceps</i>		Uncommon		S
Dwarf Sperm Whale	<i>Kogia simus</i>		Rare		S
Cuvier's Beaked Whale	<i>Ziphius cavirostris</i>		Uncommon		V
Baird's Beaked Whale	<i>Berardius bairdii</i>		Rare		V
Hubb's Beaked Whale	<i>Mesoplodon calrhubbsi</i>		Rare		S
Blainsville's Beaked Whale	<i>Mesoplodon densirostris</i>		Rare		S
Steineger's Beaked Whale	<i>Mesoplodon stejnegeri</i>		Rare		S
Steller Sea Lion	<i>Eumetopius jubatus</i>	**T	0.4	Calif	E
California Sea Lion	<i>Zalophus californianus</i>		214	C,O,W	V
Northern Fur Seal	<i>Callorhinus ursinus</i>		4.3	Calif	V
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	T	7.4	World	S
Northern Elephant Seal	<i>Mirounga angustirostris</i>		84	Calif	E
Harbor Seal	<i>Phoca vitulina</i>		28	Calif	E
Sea Otter	<i>Enhydra lutris</i>	T	2.4	Calif	S
River Otter	<i>Lontra canadensis</i>		Uncommon		V

* In 2006, the Distinct Population Segment of southern killer whales (*Orcinus orca*) was designated as Endangered under the MMPA and ESA. Recent anecdotal information suggests that some of the migratory and feeding killer whales within the GFNMS, CBNMS and MBNMS maybe be part of this DPS and therefore have been noted as Endangered in the GFNMS species inventory.

** Critical habitat for Steller sea lions includes the rookeries at Año Nuevo Island within the MBNMS and South Farallon Islands within the GFNMS (see 50 CFR 226.202(b) and Table 1 to Part 226).

**Appendix III E: Species List
GFNMS Management Plan**

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Pacific Hagfish	<i>Eptatretus stoutii</i>		Common	Pacif	V
Black Hagfish	<i>Eptatretus deani</i>				
Pacific Lamprey	<i>Lampreta tridentata</i>		Common	Pacif	E
Western River Lamprey	<i>Lampetra ayersii</i>		Uncommon	Pacif	
Sevengill Shark	<i>Notorynchus cepedianus</i>		Common	Pacif	V
Sixgill Shark	<i>Hexanchus griseus</i>		Common	Pacif	E
Spiny Dogfish	<i>Squalus acanthias</i>		Common	Pacif	E
Pacific Sleeper Shark	<i>Somniosus pacificus</i>		Uncommon	Pacif	V
Prickly Shark	<i>Echinorhinus cookei</i>		Uncommon	Pacif	
Pacific Angel Shark	<i>Squatina californica</i>		Common	Pacif	V
Common Thresher	<i>Alopias vulpinus</i>		Common	Pacif	E
Basking Shark	<i>Cetorhinus maximus</i>		Common	Pacif	S
Brown Catshark	<i>Apristurus brunneus</i>		Uncommon	Pacif	E
Longnose Catshark	<i>Apristurus kampae</i>		Rare	Pacif	E
Filetail Catshark	<i>Parmaturus xaniurus</i>		Uncommon	Pacif	E
White Shark	<i>Carcharodon carcharias</i>		Uncommon	Pacif	E
Shortfin Mako Shark	<i>Isurus oxyrinchus</i>		Uncommon	Pacif	V
Salmon Shark	<i>Lamna ditropis</i>		Uncommon	Pacif	E
Leopard Shark	<i>Triakis semifasciata</i>		Common	Pacif	E
Gray Smoothhound Shark	<i>Mustelus californicus</i>		Common	Pacif	V
Brown Smoothhound Shark	<i>Mustelus henlei</i>		Common	Pacif	E
Soupfin Shark	<i>Galeorhinus galeus</i>		Common	Pacif	E
Blue Shark	<i>Prionace glauca</i>		Common	Pacif	E
Pacific Electric Ray	<i>Torpedo californica</i>		Common	Pacif	E
Pacific Thornback	<i>Platyrhinoidis triseriata</i>		Common	Pacif	S
Shovelnose Guitarfish	<i>Rhinobatos productus</i>		Common	Pacif	V
Sandpaper Skate	<i>Bathyraja kincaidii</i>		Uncommon	Pacif	V
Black Skate	<i>Bathyraja trachura</i>		Uncommon	Pacif	E
Big Skate	<i>Raja binoculata</i>		Common	Pacif	E
Broad Skate	<i>Amblyraja badia</i>				
California Skate	<i>Raja inornata</i>		Uncommon	Pacif	E
Longnose Skate	<i>Raja rhina</i>		Common	Pacif	E
Starry Skate	<i>Raja stellulata</i>		Uncommon	Pacif	E
White Skate	<i>Bathyraja spinosissima</i>		Rare	Pacif	V
Deepsea Skate	<i>Bathyraja abyssicola</i>		Rare	Pacif	E
Bering Skate	<i>Bathyraja interrupta</i>		Rare	Pacif	E
Alaska Skate	<i>Bathyraja parmifera</i>		Rare	Pacif	E
Manta	<i>Manta birostris</i>		Rare	Pacif	
Bat Ray	<i>Myliobatis californica</i>		Common	Pacif	E
Round Stingray	<i>Urolophus halleri</i>		Common	Pacif	
Diamond Stingray	<i>Dasyatis dipterura</i>		Common	Pacif	
Pelagic Stingray	<i>Dasyatis violacea</i>		Rare	Pacif	S
Pacific Ratfish	<i>Hydrolagus colliei</i>		Common	Pacif	E

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Green Sturgeon	<i>Acipenser medirostris</i>	T (southern pop.)	Common	Pacif	V
White Sturgeon	<i>Acipenser transmontanus</i>		Common	Pacif	V
Bonefish	<i>Albula vulpes</i>		Uncommon	Pacif	
Yellow Snake Eel	<i>Ophichthus zaphochir</i>		Rare	Pacif	
Spotted Snake Eel	<i>Ophichthus triserialis</i>		Rare	Pacif	
Threadfin Shad	<i>Dorosoma petense</i>		Rare	Pacif	
Pacific Herring	<i>Clupea pallasii</i>		Common	Pacif	E
Pacific Sardine	<i>Sardinops sagax</i>		Common	Pacif	E
American Shad	<i>Alosa sapidissima</i>		Common	Pacif	E
Northern Anchovy	<i>Engraulis mordax</i>		Common	Pacif	E
Rainbow (Steelhead) Trout (Southern California DPS)	<i>Oncorhynchus mykiss</i>	E	Common	Pacif	E
Rainbow (Steelhead) Trout (South-Central California DPS)	<i>Oncorhynchus mykiss</i>	T			
Rainbow (Steelhead) Trout (Central California Coast DPS)	<i>Oncorhynchus mykiss</i>	T			
Rainbow (Steelhead) Trout (California Central Valley DPS)	<i>Oncorhynchus mykiss</i>	T			
Rainbow (Steelhead) Trout (Northern California DPS)	<i>Oncorhynchus mykiss</i>	T			
Chum Salmon	<i>Oncorhynchus keta</i>	T	Uncommon	Pacif	
Sockeye Salmon	<i>Oncorhynchus nerka</i>		Rare	Pacif	
Pink Salmon	<i>Oncorhynchus gorbuscha</i>		Uncommon	Pacif	
Chinook Salmon (Sacramento River winter; ESU)	<i>Oncorhynchus tshawytscha</i>	E			
Chinook Salmon (Central Valley ESU)	<i>Oncorhynchus tshawytscha</i>	T			
Chinook Salmon (California Coastal ESU)	<i>Oncorhynchus tshawytscha</i>	T			
Coho Salmon (Central California Coastal ESU)	<i>Oncorhynchus kisutch</i>	E			
Coho Salmon (S. Oregon/N.CA Coastal ESU)	<i>Oncorhynchus kisutch</i>	T			
Longnose Lancetfish	<i>Alepisaurus ferox</i>		Uncommon	Pacif	V
California Slickhead	<i>Alepocephalus tenebrosus</i>		Uncommon	Pacif	E
Slender Snipe Eel	<i>Nemichthys scolopaceus</i>		Uncommon	Pacif	V
Threadfin Slickhead	<i>Talismaania bifurcata</i>		Rare	Pacif	E
Sawtooth Snipe Eel	<i>Serrivomer sector</i>		Rare	Pacif	E
Bobtail Snipe Eel	<i>Cyema atrum</i>		Rare	Pacif	
Surf Smelt	<i>Hypomesus pretiosus</i>		Common	Pacif	E
Whitebait Smelt	<i>Allosmerus elongatus</i>		Uncommon	Pacif	E
Night Smelt	<i>Spirinchus starksi</i>		Common	Pacif	V

DPS – Distinct Population Segment

ESU – Evolutionarily Significant Unit

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Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Longfin Smelt	<i>Spirinchus thaleichthys</i>		Common	Pacif	V
Benttooth Bristlemouth	<i>Cyclothone acclinidens</i>		Common	Pacif	V
Showy Bristlemouth	<i>Cyclothone signata</i>				
Bigeye Lightfish	<i>Daphnos oculatus</i>		Uncommon	Pacif	
Pacific Argentine	<i>Argentina sialis</i>		Uncommon	Pacif	E
California Smoothtongue	<i>Leoroglossus stilbius</i>		Common	Pacif	E
Snubnose Blacksmelt	<i>Bathylagus wesethi</i>		Uncommon	Pacif	
Popeye Blacksmelt	<i>Bathylagus ochotensis</i>		Uncommon	Pacif	
Robust Blacksmelt	<i>Bathylagus milleri</i>		Uncommon	Pacif	E
Pacific Blacksmelt	<i>Bathylagus pacificus</i>		Uncommon	Pacif	V
Stout Blacksmelt	<i>Pseudobathylagus milleri</i>				
Dollar Hatchetfish	<i>Sternoptyx sp.</i>		Uncommon	Pacif	
Spurred Hatchetfish	<i>Argyropelecus hemigymnus</i>		Uncommon	Pacif	
Silvery Hatchetfish	<i>Argyropelecus sladeni</i>		Uncommon	Pacif	V
Silver Hatchetfish	<i>Argyropelecus lychnus</i>		Uncommon	Pacif	V
Pacific Hatchetfish	<i>Argyropelecus affinis</i>				
Pacific Barreleye	<i>Macropinna microstoma</i>		Uncommon	Pacif	
Highfin Dragonfish	<i>Bathophilus flemingi</i>		Uncommon	Pacif	
Longfin Dragonfish	<i>Tactostoma macropus</i>		Uncommon	Pacif	E
Pacific Viperfish	<i>Chauliodus macouni</i>		Uncommon	Pacif	E
Daggertooth	<i>Anotopterus pharao</i>		Uncommon	Pacif	
Slender Barricudina	<i>Lestidium ringens</i>		Uncommon	Pacif	E
Northern Pearleye	<i>Benthalbella dentata</i>		Uncommon	Pacif	
California Lizardfish	<i>Synodus lucioceps</i>		Uncommon	Pacif	S
Shiny Loosejaw	<i>Aristostomias scintillans</i>		Rare	Pacif	
Scaly Paperbone	<i>Scopelosaurus harryi</i>		Rare	Pacif	
California Flashlightfish	<i>Protomyctophum crockeri</i>		Uncommon	Pacif	V
Northern Lampfish	<i>Stenobrachius leucopsaurus</i>		Uncommon	Pacif	V
Blue Lanternfish	<i>Tarletonbaenia crenularis</i>		Uncommon	Pacif	E
Diogenes Lanternfish	<i>Diogenichthys laternatus</i>				
Bigeye Lanternfish	<i>Protomyctophum thompsoni</i>				
Mexican Lampfish	<i>Triphoturus mexicanus</i>		Uncommon	Pacif	S
Broadfin Lampfish	<i>Lampanyctus ritteri</i>		Uncommon	Pacif	V
Dogtooth lampfish	<i>Ceratoscopelus townsendi</i>				
Plainfin Midshipman	<i>Porichthys notatus</i>		Common	Pacif	E
Spotted Cusk Eel	<i>Chilara taylori</i>		Common	Pacif	E
Basketweave Cusk Eel	<i>Ophidion scrippsae</i>		Uncommon	Pacif	E
Red Brotula	<i>Brosmophycis marginata</i>		Common	Pacif	V
Northern Clingfish	<i>Gobiesox meandricus</i>		Common	Pacif	V
Kelp Clingfish	<i>Rimicola muscarum</i>		Uncommon	Pacif	
California Grenadier	<i>Nezumia stelgidolepis</i>		Uncommon	Pacif	E
Pacific Grenadier	<i>Coryphaenoides acrolepis</i>		Uncommon	Pacif	E
Hundred Fathom Codling	<i>Physiculus rastrelliger</i>		Uncommon	Pacif	

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Finescale Codling	<i>Antimora microlepis</i>		Uncommon	Pacif	E
Pacific Hake	<i>Merluccius productus</i>		Common	Pacif	E
Pacific Cod	<i>Gadus microcephalus</i>		Uncommon	Pacif	V
Pacific Tomcod	<i>Microgadus proximus</i>		Common	Pacif	E
Walleye Pollock	<i>Theragra chalcogramma</i>		Rare	Pacif	V
Whiptail ribbonfish	<i>Desmodema lorum</i>				
Giant Grenadier	<i>Albatrossia pectoralis</i>		Rare	Pacif	E
Shoulderspot Grenadier	<i>Coelorinchus scaphopsis</i>		Rare	Pacif	E
Bearded Eelpout	<i>Lycinema barbatus</i>		Uncommon	Pacif	
Black Eelpout	<i>Lycodes diapterus</i>		Common	Pacif	E
Flatcheek Eelpout	<i>Embryx crotalina</i>		Rare	Pacif	
Bigfin Eelpout	<i>Aprodon cortezianus</i>		Common	Pacif	E
Blackbelly Eelpout	<i>Lycodopsis pacifica</i>		Common	Pacif	E
Midwater Eelpout	<i>Melanostigma pammelas</i>		Uncommon	Pacif	E
Twoline Eelpout	<i>Bothrocara brunneum</i>		Common	Pacif	E
Soft Eelpout	<i>Bothrocara molle</i>		Uncommon	Pacif	
Blackmouth Eelpout	<i>Lycodapus fierasfer</i>		Rare	Pacif	
Pallid Eelpout	<i>Lycodapus mandibularis</i>		Rare	Pacif	E
California Flyingfish	<i>Cypselurus californicus</i>		Common	Pacif	
California Needlefish	<i>Strongylura exilis</i>		Common	Pacif	S
Pacific Saury	<i>Cololabris saira</i>		Common	Pacif	E
California Grunion	<i>Leuresthes tenuis</i>		Common	Pacif	S
Jacksmelt	<i>Atherinopsis californiensis</i>		Common	Pacif	E
Topsmelt	<i>Atherinops affinis</i>		Common	Pacif	E
Opah	<i>Lampris regius</i>		Uncommon	Pacif	S
Flapjack Devilfish	<i>Opisthoteuthis californiana</i>		Rare	Pacif	E
Fangtooth	<i>Anoplogaster cornuta</i>		Rare	Pacif	E
Veilfin	<i>Caristius macropus</i>		Rare	Pacif	
California headlightfish	<i>Diaphus theta</i>				
Crested Bigscale	<i>Poromitra crassiceps</i>		Uncommon	Pacif	
Twospine Bigscale	<i>Scopelogadus mizolepis</i>		Uncommon	Pacif	V
Highsnout Bigscale	<i>Melamphaes lugubris</i>		Rare	Pacif	E
King-of-the-salmon	<i>Trachipterus altivelis</i>		Uncommon	Pacif	
Tubesnout	<i>Aulorhynchus flavidus</i>		Uncommon	Pacif	
Threespine Stickleback	<i>Gasterosteus aculeatus</i>		Common	Pacif	E
Kelp Pipefish	<i>Syngnathus californiensis</i>		Common	Pacif	
Bay Pipefish	<i>Syngnathus leptorhynchus</i>		Common	Pacif	V
Snubnose Pipefish	<i>Cosmocampus arctus</i>		Uncommon	Pacif	V
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>		Common	Pacif	E
Longspine Thornyhead	<i>Sebastolobus altivelis</i>		Uncommon	Pacif	E
Copper Rockfish	<i>Sebastes caurinus</i>		Common	Pacif	E
Whitebelly Rockfish	<i>Sebastes vexilaris</i>		Common	Pacif	
Calico Rockfish	<i>Sebastes dallii</i>		Common	Pacif	V

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Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Silvergray Rockfish	<i>Sebastes brevispinis</i>		Rare	Pacif	V
Treefish	<i>Sebastes serriceps</i>		Common	Pacif	V
China Rockfish	<i>Sebastes nebulosus</i>		Common	Pacif	E
Black and Yellow Rockfish	<i>Sebastes chrysomelas</i>		Common	Pacif	V
Gopher Rockfish	<i>Sebastes carnatus</i>		Common	Pacif	E
Brown Rockfish	<i>Sebastes auriculatus</i>		Common	Pacif	E
Quillback Rockfish	<i>Sebastes maliger</i>		Uncommon	Pacif	E
Grass Rockfish	<i>Sebastes rastrelliger</i>		Common	Pacif	V
Kelp Rockfish	<i>Sebastes atrovirens</i>		Common	Pacif	V
Black Rockfish	<i>Sebastes melanops</i>		Common	Pacif	E
Blue Rockfish	<i>Sebastes mystinus</i>		Common	Pacif	E
Squarespot Rockfish	<i>Sebastes hopkinsi</i>		Uncommon	Pacif	V
Speckled Rockfish	<i>Sebastes ovalis</i>		Common	Pacif	E
Widow Rockfish	<i>Sebastes entomelas</i>		Common	Pacif	E
Olive Rockfish	<i>Sebastes serranoides</i>		Common	Pacif	E
Starry Rockfish	<i>Sebastes constellatus</i>		Common	Pacif	E
Rosy Rockfish	<i>Sebastes rosaceus</i>		Common	Pacif	V
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>		Uncommon	Pacif	E
Swordspine Rockfish	<i>Sebastes ensifer</i>		Uncommon	Pacif	V
Pink Rockfish	<i>Sebastes eos</i>		Common	Pacif	E
Greenspotted Rockfish	<i>Sebastes chlorostictus</i>				
Greenblotched Rockfish	<i>Sebastes rosenblatti</i>		Common	Pacif	E
Shortbelly Rockfish	<i>Sebastes jordani</i>		Common	Pacif	E
Flag Rockfish	<i>Sebastes rubrivinctus</i>		Common	Pacif	E
Redbanded Rockfish	<i>Sebastes babcocki</i>		Common	Pacif	E
Greenstriped Rockfish	<i>Sebastes elongatus</i>		Common	Pacif	E
Bocaccio	<i>Sebastes paucispinis</i>		Common	Pacif	E
Chameleon rockfish	<i>Sebastes phillipsi</i>				
Chilipepper	<i>Sebastes goodei</i>		Common	Pacif	E
Yellowtail Rockfish	<i>Sebastes flavidus</i>				
Cowcod	<i>Sebastes laevis</i>		Common	Pacif	E
Rougheye rockfish	<i>Sebastes aleutianus</i>				
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>		Common	Pacif	E
Splitnose Rockfish	<i>Sebastes diploproa</i>		Common	Pacif	E
Aurora Rockfish	<i>Sebastes aurora</i>		Common	Pacif	E
Tiger Rockfish	<i>Sebastes nigrocinctus</i>				
Blackgill Rockfish	<i>Sebastes melanostomus</i>		Common	Pacif	E
Redstripe Rockfish	<i>Sebastes proriger</i>		Uncommon	Pacif	E
Bank Rockfish	<i>Sebastes rufus</i>		Common	Pacif	E
Pacific Ocean Perch	<i>Sebastes alutus</i>		Common	Pacif	E
Canary Rockfish	<i>Sebastes pinniger</i>		Common	Pacif	E
Vermilion Rockfish	<i>Sebastes miniatus</i>		Common	Pacif	E
Darkblotched Rockfish	<i>Sebastes crameri</i>		Uncommon	Pacif	E

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Stripetail Rockfish	<i>Sebastes saxicola</i>		Common	Pacif	E
Halfbanded Rockfish	<i>Sebastes semicinctus</i>		Common	Pacif	E
Sharpchin Rockfish	<i>Sebastes zacentrus</i>		Uncommon	Pacif	E
Pygmy Rockfish	<i>Sebastes wilsoni</i>		Rare	Pacif	E
Lumptail Searobin	<i>Prionotus stephanophrys</i>		Uncommon	Pacif	
Sablefish	<i>Anoplopoma fimbria</i>		Common	Pacif	E
Skilfish	<i>Erilepis zonifer</i>		Rare	Pacif	
Shortspine Combfish	<i>Zaniolepis frenata</i>		Uncommon	Pacif	V
Longspine Combfish	<i>Zaniolepis latipinnis</i>		Uncommon	Pacif	E
Painted Greenling	<i>Oxylebius pictus</i>		Common	Pacif	E
Lingcod	<i>Ophiodon elongaus</i>		Common	Pacif	E
Atka Mackerel	<i>Pleurogrammus monopterygius</i>		Rare	Pacif	V
Kelp Greenling	<i>Hexagrammos decagrammus</i>		Common	Pacif	E
Rock Greenling	<i>Hexagrammos superciliosus</i>		Common	Pacif	E
Grunt Sculpin	<i>Rhamphocottus richardsonii</i>		Uncommon	Pacif	V
Rosylip Sculpin	<i>Ascelichthys rhodorus</i>		Uncommon	Pacif	V
Manacled Sculpin	<i>Synchirus gilli</i>		Uncommon	Pacif	V
Cabezon Sculpin	<i>Scorpaenichthys marmoratus</i>		Common	Pacif	E
Longfin Sculpin	<i>Jordania zonope</i>		Uncommon	Pacif	V
Thornback Sculpin	<i>Paricelinus hopliticus</i>		Rare	Pacif	V
Sailfin Sculpin	<i>Nautichthys oculo fasciatus</i>		Uncommon	Pacif	V
Silverspotted Sculpin	<i>Belpsius cirrhosus</i>		Uncommon	Pacif	V
Brown Irishlord	<i>Hemilepidotus spinosus</i>		Uncommon	Pacif	E
Red Irishlord	<i>Hemilepidotus hemilepidotus</i>		Common	Pacif	V
Staghorn Sculpin	<i>Leptocottus armatus</i>		Common	Pacif	V
Buffalo Sculpin	<i>Enophrys bison</i>		Common	Pacif	V
Bull Sculpin	<i>Enophrys taurina</i>		Uncommon	Pacif	E
Yellowchin Sculpin	<i>Icelinus quadriseriatus</i>		Uncommon	Pacif	V
Frogmouth Sculpin	<i>Icelinus oculatus</i>		Rare	Pacif	V
Dusky Sculpin	<i>Icelinus burchami</i>		Rare	Pacif	V
Threadfin Sculpin	<i>Icelinus filamentosus</i>		Uncommon	Pacif	E
Spotfin Sculpin	<i>Icelinus tenuis</i>		Uncommon	Pacif	V
Roughback Sculpin	<i>Chitonotus pugetensis</i>		Uncommon	Pacif	E
Snubnose Sculpin	<i>Orthonopias triacis</i>		Common	Pacif	S
Corraline Sculpin	<i>Artedius corallinus</i>		Common	Pacif	V
Smoothhead Sculpin	<i>Artedius lateralis</i>		Common	Pacif	V
Padded Sculpin	<i>Artedius fenestralis</i>		Uncommon	Pacif	V
Bonyhead Sculpin	<i>Artedius notospilotus</i>		Uncommon	Pacif	V
Puget Sound Sculpin	<i>Artedius meanyi</i>		Rare	Pacif	E
Scalyhead Sculpin	<i>Artedius harringtoni</i>		Uncommon	Pacif	V
Darter Sculpin	<i>Radulinus boleoides</i>		Rare	Pacif	V
Flabby Sculpin	<i>Zesticelus profundurum</i>		Rare	Pacif	
Saddleback Sculpin	<i>Oligocottus rimensis</i>		Common	Pacif	V

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Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Tidepool Sculpin	<i>Oligocottus maculosus</i>		Common	Pacif	V
Fluffy Sculpin	<i>Oligocottus snyderi</i>		Common	Pacif	V
Rosy Sculpin	<i>Oligocottus rubellio</i>		Common	Pacif	V
Wooly Sculpin	<i>Clinocottus analis</i>		Common	Pacif	V
Sharpnose Sculpin	<i>Clinocottus acuticeps</i>		Uncommon	Pacif	V
Calico Sculpin	<i>Clinocottus embryum</i>		Common	Pacif	V
Mosshead Sculpin	<i>Clinocottus globiceps</i>		Common	Pacif	V
Bald Sculpin	<i>Clinocottus recalvus</i>		Common	Pacif	V
Blob Sculpin	<i>Psychrolutes phrictus</i>		Rare	Pacif	E
Rockhead Poacher	<i>Bothragonus swanii</i>		Rare	Pacif	V
Kelp Poacher	<i>Agonomalus sp.</i>		Rare	Pacif	
Warty Poacher	<i>Chesnonia verrucosa</i>		Common	Pacif	V
Pricklebreast Poacher	<i>Stellerina xyosterna</i>		Uncommon	Pacif	V
Beardless Spearnose Poacher	<i>Ganoides vulsus</i>		Rare	Pacif	
Northern Spearnose Poacher	<i>Agonopsis emmelane</i>		Uncommon	Pacif	V
Smooth Alligatorfish	<i>Anoplagonus inermis</i>		Rare	Pacif	E
Pygmy Poacher	<i>Odontopyxis trispinosa</i>		Common	Pacif	E
Blackfin Poacher	<i>Bathyagonus nigripinnis</i>		Rare	Pacif	E
Bigeye Poacher	<i>Bathyagonus pentacantha</i>		Uncommon	Pacif	V
Bluespotted Poacher	<i>Xeneretmus triacanthus</i>		Common	Pacif	V
Blackedge Poacher	<i>Xeneretmus latifrons</i>		Uncommon	Pacif	E
Blacktail Snailfish	<i>Careproctus melanurus</i>		Uncommon	Pacif	E
Showy Snailfish	<i>Liparis pulchellus</i>		Uncommon	Pacif	V
Slipskin Snailfish	<i>Liparis fuscensis</i>		Uncommon	Pacif	V
Ringtail Snailfish	<i>Liparis rutteri</i>		Uncommon	Pacif	V
Tidepool Snailfish	<i>Liparis florum</i>		Common	Pacif	V
Slimy Snailfish	<i>Liparis mucosus</i>		Uncommon	Pacif	V
Blackfin Snailfish	<i>Careproctus cypselurus</i>		Rare	Pacif	E
Salmon Snailfish	<i>Careproctus rastrinus</i>		Rare	Pacif	E
Striped Bass	<i>Morone saxatilis</i>		Common	Pacif	E
Giant Sea Bass	<i>Stereolepis gigas</i>		Common	Pacif	V
Broomtail Grouper	<i>Mycteroperca xenarcha</i>		Rare	Pacif	V
Kelp Bass	<i>Paralabrax clathratus</i>		Common	Pacif	V
Ocean Whitefish	<i>Caulotilus princeps</i>		Common	Pacif	V
White Suckerfish	<i>Remorina albescens</i>		Rare	Pacif	
Remora	<i>Remora remora</i>		Uncommon	Pacif	V
Jack Mackerel	<i>Trachurus symmetricus</i>		Common	Pacif	E
Yellowtail	<i>Seriola lalandi</i>		Common	Pacif	V
Dolphinfish	<i>Coryphaena hippurus</i>		Uncommon	Pacif	S
Pacific Pomfret	<i>Brama japonica</i>		Uncommon	Pacif	V
Queenfish	<i>Seriphus politus</i>		Common	Pacif	V
White Seabass	<i>Atractoscion nobilis</i>		Common	Pacif	V
White Croaker	<i>Genyonemus lineatus</i>		Common	Pacif	E

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Opaleye	<i>Girella nigricans</i>		Common	Pacif	V
Halfmoon	<i>Medialuna californiensis</i>		Common	Pacif	V
Pelagic Armorhead	<i>Pentaceros richardsoni</i>		Rare	Pacif	V
Rubberlip Surfperch	<i>Rhacochilus toxotes</i>		Common	Pacif	V
Black Surfperch	<i>Embiotoca jacksoni</i>		Common	Pacif	V
Barred Surfperch	<i>Amphistichus argenteus</i>		Common	Pacif	E
Calico Surfperch	<i>Amphistichus koelzi</i>		Common	Pacif	V
Redtail Surfperch	<i>Amphistichus rhodoterus</i>		Common	Pacif	V
Spotfin Surfperch	<i>Hyperprosopon anale</i>		Uncommon	Pacif	E
Walleye Surfperch	<i>Hyperprosopon argenteum</i>		Common	Pacif	V
Silver Surfperch	<i>Hyperprosopon ellipticum</i>		Common	Pacif	V
Shiner Surfperch	<i>Cymatogaster aggregata</i>		Common	Pacif	E
Pink Surfperch	<i>Zalembius rosaceus</i>		Uncommon	Pacif	E
Rainbow Surfperch	<i>Hypsurus caryi</i>		Common	Pacif	V
Striped Surfperch	<i>Embiotoca lateralis</i>		Common	Pacif	V
Kelp Surfperch	<i>Brachyistius frenatus</i>		Common	Pacif	V
Dwarf Surfperch	<i>Micrometrus minimus</i>		Common	Pacif	S
Reef Surfperch	<i>Micrometrus aurora</i>		Common	Pacif	S
Pile Surfperch	<i>Damalichthys vacca</i>		Common	Pacif	V
White Surfperch	<i>Phanerodon furcatus</i>		Common	Pacif	V
Sharpnose Surfperch	<i>Phanerodon atripes</i>		Uncommon	Pacif	S
California Barracuda	<i>Sphyræna argentea</i>		Common	Pacif	V
California Sheephead	<i>Semicossyphus pulcher</i>		Common	Pacif	
Senorita	<i>Oxyjulis californica</i>		Common	Pacif	S
Pacific Sandfish	<i>Trichodon trichodon</i>		Rare	Pacif	V
Stripefin Ronquil	<i>Rathbunella hypoplecta</i>		Common	Pacif	V
Northern Ronquil	<i>Ronquilus jordani</i>		Rare	Pacif	V
Wolf Eel	<i>Anarrhichthys ocellatus</i>		Common	Pacif	E
Onespot Fringehead	<i>Neoclinus uniornatus</i>		Uncommon	Pacif	S
Sarcastic Fringehead	<i>Neoclinus blanchardi</i>		Uncommon	Pacif	S
Giant Kelpfish	<i>Heterostichus rostratus</i>		Common	Pacif	V
Striped Kelpfish	<i>Gibbonsia metzi</i>		Common	Pacif	V
Crevice Kelpfish	<i>Gibbonsia montereyensis</i>		Common	Pacif	V
Dwarf Wrymouth	<i>Lyconectes aleutensis</i>		Uncommon	Pacif	V
Monkeyface Eel	<i>Cebidichthys violaceus</i>		Common	Pacif	V
High Cockscomb	<i>Anoplarchus purpurescens</i>		Common	Pacif	V
Black Prickleback	<i>Xiphister atropurpureus</i>		Common	Pacif	V
Rock Prickleback	<i>Xiphister mucosus</i>		Common	Pacif	V
Ribbon Prickleback	<i>Phytichthys chirus</i>		Uncommon	Pacif	V
Mosshead Warbonnet	<i>Chirolophis nugator</i>		Uncommon	Pacif	V
Whitebarred Prickleback	<i>Poroclinus rothrocki</i>		Uncommon	Pacif	V
Bluebarred Prickleback	<i>Plectrobranchus evides</i>		Uncommon	Pacif	V
Penpoint Gunnel	<i>Apodichthys flavidus</i>		Common	Pacif	V

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COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Rockweed Gunnel	<i>Apodichthys fucorum</i>		Common	Pacif	V
Red Gunnel	<i>Pholis schultzi</i>		Uncommon	Pacif	V
Saddleback Gunnel	<i>Pholis ornata</i>		Uncommon	Pacif	V
Graveldiver	<i>Scytalina cerdale</i>		Uncommon	Pacif	
Pacific Sand Lance	<i>Ammodytes hexapterus</i>		Common	Pacif	V
Prowfish	<i>Zaprora silenus</i>		Rare	Pacif	E
Pacific Fat Sleeper	<i>Dormitator latofrons</i>		Rare	Pacif	
Ragfish	<i>Icosteus enigmaticus</i>		Uncommon	Pacif	V
Blackeye Goby	<i>Coryphopterus nicholsii</i>		Common	Pacif	V
Tidewater Goby	<i>Eucyclogobius newberryi</i>	E	Common	Pacif	E
Longjaw Mudsucker	<i>Gillichthys mirabilis</i>		Common	Pacif	V
Bay Goby	<i>Lepidogobius lepidus</i>		Common	Pacif	V
Yellowfin Goby	<i>Acanthogobius flavimanus</i>		Common	Pacif	E
Cheekspot Goby	<i>Ilypnus gilberti</i>		Common	Pacif	S
Arrow Goby	<i>Clevelandia ios</i>		Common	Pacif	V
Pacific Scabbardfish	<i>Lepidopus xantusi</i>		Uncommon	Pacif	V
Escolar	<i>Lepidocybrium flavobrunneum</i>		Rare	Pacif	
Pacific Mackerel	<i>Scomber japonicus</i>		Common	Pacif	E
Skipjack	<i>Euthynnus pelamis</i>		Common	Pacif	V
Pacific Bonito	<i>Sarda chiliensis</i>		Common	Pacif	V
Albacore	<i>Thunnus alalunga</i>		Common	Pacif	V
Bigeye Tuna	<i>Thunnus obesus</i>		Rare	Pacif	
Pacific Bluefin Tuna	<i>Thunnus orientalis</i>		Common	Pacif	V
Swordfish	<i>Xiphias gladius</i>		Common	Pacif	
Shortbill Spearfish	<i>Tetrapturus angustirostris</i>		Rare	Pacif	
Sailfish	<i>Istiophorus platypterus</i>		Rare	Pacif	
Striped Marlin	<i>Tetrapturus audax</i>		Common	Pacif	
Louvar	<i>Louvarus imperialis</i>		Uncommon	Pacif	V
Medusafish	<i>Ichthyoscyops lockingtoni</i>		Common	Pacif	E
Smalleye Squaretail	<i>Tetrogonurus cuvieri</i>		Rare	Pacif	
Pacific Pompano	<i>Peprilus simillimus</i>		Common	Pacif	E
California Tonguefish	<i>Symphurus atricauda</i>		Common	Pacif	V
California Halibut	<i>Paralichthys californicus</i>		Common	Pacif	E
Pacific Halibut	<i>Hippoglossus stenolepis</i>		Uncommon	Pacif	E
Southern Rock Sole	<i>Lepidopsetta bilineata</i>		Common	Pacif	E
Curlfin Turbot	<i>Pleuronichthys decurrens</i>		Common	Pacif	E
Hornyhead Turbot	<i>Pleuronichthys verticalis</i>		Common	Pacif	E
C-O Turbot	<i>Pleuronichthys coenosus</i>		Common	Pacif	V
Sand Sole	<i>Psettichthys melanostictus</i>		Common	Pacif	E
Diamond Turbot	<i>Hypopsetta guttulata</i>		Common	Pacif	V
English Sole	<i>Parophrys vetulus</i>		Common	Pacif	E
Butter Sole	<i>Isopsetta isolepis</i>		Common	Pacif	E

Fish

COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP EST	LOCATION	HABITAT IMPORT
Starry Flounder	<i>Platichthys stellatus</i>		Common	Pacif	E
Pacific Sanddab	<i>Citharichthys sordidus</i>		Common	Pacif	E
Speckled Sanddab	<i>Citharichthys stigmaeus</i>		Common	Pacif	E
Rex Sole	<i>Glyptocephalus zachirus</i>		Common	Pacif	E
Deepsea Sole	<i>Embassichthys bathybius</i>		Uncommon	Pacif	E
Greenland Halibut	<i>Reinhardtius hippoglossoides</i>		Uncommon	Pacif	V
Arrowtooth Flounder	<i>Atheresthes stomias</i>		Uncommon	Pacif	E
Dover Sole	<i>Mocrostomus pacificus</i>		Common	Pacif	E
Slender Sole	<i>Lyopsetta exilis</i>		Uncommon	Pacif	E
Petrale Sole	<i>Eopsetta jordani</i>		Common	Pacif	E
Roughscale sole	<i>Clidoderma asperrimum</i>				
Finescale Triggerfish	<i>Balistes polylepis</i>		Rare	Pacif	
Stripefin ronquil	<i>Rathbunella alleni</i>				
Black Durgon	<i>Melichthys niger</i>		Rare	Pacif	
Oceanic Pufferfish	<i>Lagocephalus lagocephalus</i>		Rare	Pacif	V
Spotted Porcupinefish	<i>Diodon hystrix</i>		Rare	Pacif	
Smooth-eye Poacher	<i>Xeneretmus leiops</i>				
Northern Spearnose Poacher	<i>Agonopsis vulsa</i>				
Tubenose Poacher	<i>Pallasina barbata</i>				
Oxeye Oreo	<i>Alloctytus folletti</i>				
Shining Tubeshoulder	<i>Sagamichthys abei</i>				
Balloonfish	<i>Diodon holocanthus</i>		Rare	Pacif	
Common Mola	<i>Mola mola</i>		Common	Pacif	E

Reptiles

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	POP EST	LOCATION	HABITAT IMPORT
Green Sea Turtle	<i>Chelonia mydas</i>	E/T*	Common	World	
Pacific (Olive) Ridley	<i>Lepidochelys olivacea</i>	E/T*	Uncommon	World	
Loggerhead Turtle	<i>Caretta caretta</i>	T	Uncommon	World	
Leatherback Turtle	<i>Dermodochelys coriacea</i>	E	Rare	World	E

* In the Pacific Ocean, breeding colony populations on the Pacific coast of Mexico of both gree turtles and olive ridley turtles are listed as endangered; all others are listed at threatened.

Appendix III F: Invertebrates and Algae

GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY

INVERTEBRATES AND ALGAE

Compiled by Natalie Cosentino-Manning
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The following lists of algae and invertebrate species occurring within and adjacent to the GFNMS have been constructed. In addition to common (when applicable) and scientific names of each specific taxon, the lists include information on the known range, and status within the sanctuary and along its known range. Status is classified as relative abundance within the Sanctuary and throughout the known ranges. Range abbreviations are the same as above, in the vertebrate section. This list does not constitute a complete list. There are over 500 species of invertebrates and algae found in the intertidal regions alone. Species listed are represented at most intertidal sites within GFNMS as well as some offshore organisms. Species list does include species found at the Farallon Islands, Tomales Bay and Bolinas Lagoon.

The headings of the invertebrate and algae lists include the following categories:

COMMON NAME - The common (English) name of the species.

SCIENTIFIC NAME - The scientific (Latin) name of the species.

POPEST (Sanctuary) – No population or density estimate are available for invertebrates or plants so relative abundance within the GFNMS is given.

Abundant (Ab) - Organism covers all suitable or available space throughout a given depth or zone.

Common (Co) - Organism is seen in dense patches or in numerous numbers throughout a given depth or zone.

Uncommon (UnCo) -

Occasional (Oc) - Organism is seen, but sparse throughout a given depth or zone.

Rare (rare) - Organism is only seen once or twice throughout a given depth or zone.

POPEST (N.E. Pacific) – No population or density estimate are available for invertebrates or plants so relative abundance within the north eastern Pacific is given.

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Abundant (Ab)- Organism covers all suitable or available space throughout a given depth or zone.

Common (Co)- Organism is seen in dense patches or in numerous numbers throughout a given depth or zone.

Uncommon (UnCo) -

Occasional (Oc)- Organism is seen, but sparse throughout a given depth or zone.

Rare (rare)- Organism is only seen once or twice throughout a given depth or zone.

RANGE - The overall range of the species along the northern eastern Pacific.

Abbreviations have been used and are given in the form, e.g., "s.CA-AK" to indicate southern California to Alaska. Common abbreviations are as follows:

BC - British Columbia, Canada

Baja - Baja, California, Mexico

AK- Alaska

GCA - Gulf of California

s.CA - southern California (Pt. Conception south)

c.CA - central California (Pt. Conception to Bodega Bay)

n.CA - northern California (Bodega Bay north)

MEX-Mexico

OR - Oregon

Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
Annelida				
	<i>Arabella iricolor</i>			
	<i>Cheilonereis cyclurus</i>			
	<i>Errantia spp.</i>			
Polycheate	<i>Nereis guberi</i>			
	<i>Phragmatopoma californica</i>			
	<i>Phyllochaetopterus prolifica</i>			
	<i>Platynereis bicanaliculata</i>			
Tube worm	<i>Serpula vermicularis</i>			
	<i>Spirorbis borealis</i>			
	<i>Stylantheca prophyra</i>			
	<i>Terribellidae</i>			
	<i>Thelepus crispus</i>			
	<i>Typosyllis aciculata</i>			
Arthropoda				
	<i>Acanthomysis sp.</i>			
	<i>Achelia chelata</i>			
	<i>Achelia nudiscula</i>			
	<i>Achelia spinoseta</i>			
	<i>Allorchestes anceps</i>			

Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Alpheus dentipes</i>			
	<i>Ammothea hilgendorfi</i>			
	<i>Amphiodia occidentalis</i>			
	<i>Amphissa columbiana</i>			
	<i>Anatanaïs normani</i>			
	<i>Balanus amphitrite</i>			
Barnacle	<i>Balanus cariosus</i>			
Barnacle	<i>Balanus glandula</i>			
Barnacle	<i>Balanus nubilus</i>			
	<i>Cancer antennarius</i>			
	<i>Cancer magister</i>			
	<i>Cancer productus</i>			
	<i>Caprella californica</i>			
	<i>Chthamalus dalli</i>			
	<i>Cirolana harfordi</i>			
	<i>Elasmopus serricatus</i>			
	<i>Emerita analoga</i>			
	<i>Euphausia pacifica</i>			
	<i>Exosphaeroma inornata</i>			
	<i>Exosphaeroma rhomburum</i>			
	<i>Fabia subquadrata</i>			
	<i>Hemigrapsus nudus</i>			
	<i>Hildenbrandia prototypus</i>			
	<i>Hyale frequens</i>			
	<i>Hyale grandicornis</i>			
	<i>Ianiropsis kincaidi</i>			
	<i>Idotea fewkesi</i>			
	<i>Idotea resecata</i>			
	<i>Idotea schmitti</i>			
	<i>Idotea sp.</i>			
	<i>Idotea stenops</i>			
	<i>Idotea urotoma</i>			
	<i>Idotea wosnesenskii</i>			
	<i>Lecythorychus hilgendorfi</i>			
	<i>Ligia occidentalis</i>			
	<i>Ligia pallasii</i>			
	<i>Limnoria algarum</i>			
	<i>Littorophiloscia richardsonae</i>			
	<i>Lophopanopeus leucomanus</i>			
Crab	<i>Loxorhynchus crispatus</i>			
	<i>Melita californica</i>			
	<i>Metacaprella anomala</i>			

**Appendix III F: Invertebrates and Algae
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Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Metacaprella kennerlyi</i>			
	<i>Nymphopsis spinosissima</i>			
	<i>Oedignathus inermis</i>			
	<i>Oligochinus lighti</i>			
	<i>Pachycheles rudis</i>			
Crab	<i>Pachygrapsus crassipes</i>			
	<i>Pachygrapsus nudus</i>			
	<i>Pagurus granosimanus</i>			
Hermit crab	<i>Pagurus hirsutiussculus</i>			
	<i>Pagurus samuelensis</i>			
	<i>Pagurus sp.</i>			
	<i>Paracerceis cordata</i>			
	<i>Paradynoides benedicti</i>			
	<i>Parallorchestes ochotensis</i>			
	<i>Paranthura elegans</i>			
	<i>Paraxanthia taylorii</i>			
	<i>Petrolisthes cinctipes</i>			
	<i>Pinnixa franciscana</i>			
	<i>Pollicipes polymerus</i>			
	<i>Polycheria osborni</i>			
	<i>Porcellio americanus</i>			
Crab	<i>Pugettia fragilissima</i>			
Crab	<i>Pugettia gracilis</i>			
Crab	<i>Pugettia producta</i>			
Sea spider	<i>Pycnogonum rickettsi</i>			
Sea spider	<i>Pycnogonum stearnsi</i>			
Crab	<i>Scyra acutifrons</i>			
Barnacle	<i>Semibalanus cariosus</i>			
	<i>Semibalanus sp.</i>			
Barnacle	<i>Tetraclita rubescens</i>			
	<i>Thysanoessa spinifera</i>			
Chordata				
	<i>Aplidium arenatum</i>			
Tunicate	<i>Aplidium californicum</i>	Co	Co	BC - Baja
Tunicate	<i>Cystodytes lobatus</i>	Co	Co	BC - Baja
Tunicate	<i>Didemnum carnulentum</i>	Co	Co	OR - c.AM
	<i>Polyclinum planum</i>			
Tunicate	<i>Pycnoclayella stanleyi</i>	Co	Co	BC - Baja
Tunicate	<i>Ritterella aequalisphonis</i>	Ab	Co	WA - s. CA+
Cnidaria				
Fern hydroid	<i>Abietinaria sp.</i>	Co	Co	AK - s.CA

Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Aglaophenia inconspicua</i>			
Ostrich-plume hydroid	<i>Aglaophenia latirostris</i>	Ab	Co	AK - s. CA
	<i>Aglaophenia sp</i>			
Aggregating anemone	<i>Anthopleura elegantissima</i>	Ab	Ab	AK - Baja
Giant green anemone	<i>Anthopleura xanthogrammica</i>	Co	Co	AK - C. Am
	<i>Aurelia aurita</i>			
Orange cup coral	<i>Balanophyllia elegans</i>	Co	Co	OR - s. CA
	<i>Corynactis californica</i>			
Poliferating anemone	<i>Epiactis prolifera</i>	Co	Co	AK - s.CA
	<i>Eudendrium californicum</i>			
	<i>Garveia annulata</i>	Ab	Co	AK - s. CA
White-plumed anemone	<i>Metridium senile</i>	Co	Co	AK - s. CA
	<i>Obelia sp.</i>			n.CA+
	<i>Sertularella turgida</i>			
	<i>Sertularia sp.</i>			
Sea pen	<i>Stylatula elongata</i>	Co	Co	n. CA - s. CA
	<i>Tealia crassicornis</i>	Co	Co	AK - c.CA+
	<i>Tealia lofotensis</i>	Co	Co	WA - s. CA
	<i>Tubularia crocea</i>			
	<i>Urticina crassicornia</i>			
	<i>Urticina lofotensis</i>			
Echinodermata				
	<i>Amphipholis squamata</i>			
	<i>Asterina miniata</i>			
Sea cucumber	<i>Cucumaria curata</i>	rare	rare	c.CA
Sea cucumber	<i>Cucumaria pseudocurata</i>	Co	Co	BC -c. CA
Leather star	<i>Dermasterias imbricata</i>	Co	Co	AK - s.CA
Blood star	<i>Henricia leviuscula</i>	Co	Co	AK - Baja
	<i>Leptasterias aequalis</i>			
6-rayed star	<i>Leptasterias hexactis</i>	Co	Co	WA - s.CA
	<i>Leptasterias puscilla</i>			
	<i>Ophiopholis aculeata</i>			
	<i>Ophioplocus papillosa</i>			
Brittle star	<i>Ophiothrix spiculata</i>	Co	Co	c.CA - s.Am
Sea cucumber	<i>Parastichopus parvimensis</i>	UnCo	Co	c.CA - Baja
Bat star	<i>Patiria miniata</i>	Co	Co	AK - Baja
	<i>Pisaster giganteus</i>			
Ochre star	<i>Pisaster ochraceus</i>	Ab	Co	Ak - c.CA
Sunflower star	<i>Pycnopodia helianthoides</i>	Co	Co	AK - s.CA
	<i>Strongylocentrotus droebachiensis</i>			

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Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
Red sea urchin	<i>Strongylocentrotus franciscanus</i>	Co	Unco	AK - Baja+
Purple sea urchin	<i>Strongylocentrotus purpuratus</i>	Ab	Co	BC - Baja
Ectoprocta				
	<i>Barentsia benedeni</i>			
Bryozoan	<i>Bugula californica</i>	Ab	Co	BC - s. Am
	<i>Crisia maxima</i>			
Bryozoan	<i>Dendrobeania laxa</i>	Ab	Ab	BC - s.CA
	<i>Dendrobeania lichenoides</i>			
	<i>Eurystomella bilabiata</i>			
Bryozoan	<i>Flustrellidra corniculata</i>	Co	Co	AK - c.CA
	<i>Tricellaria occidentalis</i>			
	<i>Tricellaria sp</i>			
	<i>Tricellaria ternata</i>			
Mollusca				
Angular unicorn	<i>Acanthina spirata</i>	Co	Co	n. CA -Baja
	<i>Acanthina spp.</i>			
	<i>Acanthodoris nanaimoensis</i>			
	<i>Aclis shepardiana</i>			
White capped limpet	<i>Acmaea mitra</i>	Co	Co	AK - Baja
Shag-rug nudibranch	<i>Aeolidia papillosa</i>	Co	Co	n.CA -s.CA+
	<i>Alia carinata</i>			
Variegated amphissa	<i>Amphissa versicolor</i>	Co	Co	n. CA - Baja
Sea lemon	<i>Anisodoris noblis</i>	Co	Co	BC - Baja
	<i>Antiopella barbarensis</i>			
Monterey dorid	<i>Archidoris montereyensis</i>	Co	Co	AK - s.CA
	<i>Balcis thersites</i>			
	<i>Baptodoris mimetica</i>			
Snail	<i>Barleeia haliotiphila</i>			
Snail	<i>Barleeia subtenuis</i>			
Horn snail	<i>Batillaria attramentaria</i>	Co	Co	BC - c. CA
Threaded bittium	<i>Bittium eschrichtii</i>	Unco	Co	AK - Baja
	<i>Bittium purpureum</i>			
	<i>Bittium schrichtii</i>			
	<i>Cadlina luteomarginata</i>			
Yellow-edged cadlina	<i>Cadlina modesta</i>	Co	Co	BC - Baja
Channeled top snail	<i>Calliostoma canaliculatum</i>	Co	Co	AK - Baja
Blue top snail	<i>Callistoma ligatum</i>	Co	Co	AK - s.CA
	<i>Ceratostoma foliatum</i>			
	<i>Cerithiopsis carpenteri</i>			
	<i>Chama arcana</i>			
	<i>Collisella scabra</i>			

Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Corolla spectabilis (Pteropod)</i>			
Pacific oyster	<i>Crassostrea gigas</i>	Co	Co	BC - s.CA
Hooked slipper snail	<i>Crepidula adunca</i>	Co	Co	BC - Baja
	<i>Crepidula nummaria</i>			
	<i>Crepidula perforans</i>			
	<i>Crepidatella lingulata</i>			
Gumboot chiton	<i>Cryptochiton stelleri</i>	Rare	Co-Rare	AK - s.CA+
	<i>Cryptomya californica</i>			
	<i>Cymakra aspera</i>			
	<i>Daphana californica</i>			
	<i>Diaphana californica</i>			
Ring spotted dorid	<i>Diaulula sandiegensis</i>	Co	Co	AK - Baja
	<i>Diplodonta orbella</i>			
	<i>Discurria scutum</i>			
	<i>Dirona picta</i>			
	<i>Doto columbiana</i>	Unco	Unco	BC - n.CA
	<i>Entodesma saxicola</i>			
Snail	<i>Epitonium tinctum</i>			
	<i>Fissurella volcano</i>			
	<i>Fusinus luteopictus</i>			
	<i>Granula margaritula</i>			
Black Abalone	<i>Haliotis cracherodii</i>	UnCo	Co	c. CA - Baja
	<i>Haliotis racherodii</i>			
Red Abalone	<i>Haliotis rufescens</i>	Co	Unco	OR - Baja
Hermisenda	<i>Hermisenda crassicornis</i>	Co	Co	AK - Baja
	<i>Hiatella arctica</i>			
	<i>Hinnites giganteus</i>			
Hoof snail	<i>Hipponix craniodes</i>	Co	Co	BC - Baja+
Hopkin's Rose	<i>Hopkinsia rosacea</i>	Co	Co	OR -Baja
	<i>Irus lamellifer</i>			
Chiton	<i>Ischnochiton regularis</i>			
Chiton	<i>Katharina tunicata</i>			
	<i>Kellia laperousii</i>			
	<i>Lacuna cistula</i>			
Chink snail	<i>Lacuna marmorata</i>	Co	Co	AK - s.CA
	<i>Lacuna porrecta</i>			
	<i>Lacuna unifasciata</i>			
	<i>Lasaea cistula</i>			
Clam	<i>Lasaea subviridis</i>	Ab	Co	AK - Baja
Chiton	<i>Lepidochitona dentiens</i>			
	<i>Lepidozona sinudentata</i>			

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Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Littorina keanae</i>			
Eroded periwinkle	<i>Littorina planaxis</i>	Ab	Ab	WA - Baja
Checkered periwinkle	<i>Littorina scutulata</i>	Ab	Ab	AK - Baja
	<i>Littorina sitkana</i>			
	<i>Littorina sp.</i>			
	<i>Lottia asmi</i>			
Ribbed limpet	<i>Lottia digitalis</i>	Ab	Co	AK - Baja
Owl limpet	<i>Lottia gigantea</i>	Ab	Co	WA - Baja
Unstable seaweed limpet	<i>Lottia instabilis</i>	Ab	Co	AK - s.CA
File limpet	<i>Lottia limantula</i>	Co	Ab	OR - s.Baja
Shield limpet	<i>Lottia pelta</i>	Co	Co	AK - Baja
	<i>Lottia strigatella</i>			
Triangular limpet	<i>Lottia triangularis</i>	Co	Co	AK - Baja
Rough limpet	<i>Macclintockia scabra</i>	Ab	Co	OR - Baja
	<i>Milneria minima</i>			
	<i>Mitrella carinata</i>			
	<i>Mitrella tuberosa</i>			
Fat horse mussel	<i>Modiolus capax</i>	Co	Co	c.CA -S.AM
	<i>Modiolus carpenti</i>			
Hairy chiton	<i>Mopalia ciliata</i>	Co	Co	AK - Baja
Mossy chiton	<i>Mopalia muscosa</i>	Co	Co	BC - Baja
Pygmy mussel	<i>Musculus pygmaeus</i>	Ab	Co	c.CA
	<i>Mytilimeria nuttallii</i>			
California mussel	<i>Mytilus californianus</i>	Ab	Ab	AK - Baja
Bay mussel	<i>Mytilus edulis</i>	Co	Co	AK - Baja+
	<i>Nassarius mendicus</i>			
Limpet	<i>Notoacmea insessa</i>			
Limpet	<i>Notoacmea persona</i>			
Channeled dogwinkle	<i>Nucella canaliculata</i>	Ab	Co	Ak - c.CA
Emarginate dogwinkle	<i>Nucella emarginata</i>	Ab	Co	Ak - n. Baja
Chiton	<i>Nuttallina californica</i>	Co	Co	WA - s. CA
	<i>Ocenebra atropurpurea</i>			
	<i>Ocenebra interfossa</i>			
	<i>Ocenebra lurida</i>			
	<i>Octopus dofleini</i>			
	<i>Octopus rubescens</i>			
	<i>Octopus sp.</i>			
	<i>Odostomia sp.</i>			
	<i>Onchidella borealis</i>			
	<i>Opalia wroblewskyi</i>			
Olympic oyster	<i>Ostrea lurida</i>	Rare	Rare-Co	AK - Baja

Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Palciphorella velatta</i>			
	<i>Penitella conradi</i>			
	<i>Penitella turnerae</i>			
	<i>Petalococonchus montereyensis</i>			
	<i>Petricola carditoides</i>			
	<i>Philobrya setosa</i>			
Abalone jingle	<i>Pododesmus cepio</i>	Co	Co	AK - Baja
	<i>Protothaca staminea</i>			
Red sponge nudibranch	<i>Rostanga pulchra</i>	Ab	Ab	BC - Baja
Dire welk	<i>Searlesia dira</i>	Co	Co	AK - c.CA
	<i>Stenoplax heathiana</i>			
Streaked stiliger	<i>Stiliger fuscovittatus</i>	Ab	Ab	WA - Baja
	<i>Tectura insessa</i>			
	<i>Tectura persona</i>			
	<i>Tectura scutum</i>			
Brown turban snail	<i>Tegula brunnea</i>	Ab	Ab	OR - s. CA
Black turban snail	<i>Tegula funebris</i>	Ab	Co-Ab	BC - Baja
Lined chiton	<i>Tonicella lineata</i>	Ab	Co	AK - s.CA+
	<i>Transennella tantilla</i>			
Reticulate button snail	<i>Trimusculus reticulatus</i>	Co	Co	OR - MEX
Sea-clown nudibranch	<i>Triopha catalinae</i>	Co	Co	AK - Baja
	<i>Triopha maculata</i>			
	<i>Trivia californica</i>			
	<i>Velutina velutina</i>			
Nemertea				
	<i>Emplectonema gracile</i>			
	<i>Tubulanus sexlineatus</i>			
Porifera				
Sponge	<i>Acarus erithacus</i>			
	<i>Allopora porphyra</i>			
Sponge	<i>Anaata spongigartina</i>			
	<i>Antho lithophoenix</i>			
Keratose sponge	<i>Aplysilla glacialis</i>	Ab	Ab	
	<i>Aplysilla polyraphis</i>			
Sponge	<i>Axocelita originalis</i>			
	<i>Clathria sp.</i>			
	<i>Cliona celata</i>			
Sponge	<i>Geodia mesotriaence</i>	Co	Co	AK - Mex
Crumb-of-bread sponge	<i>Halichondria panicea</i>	Ab	Ab	n.CA
	<i>Halichondria sp.</i>			

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Invertebrates

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Haliclona permollis</i>			
Sponge	<i>Haliclona sp.</i>	Ab	Ab	n. CA +
	<i>Higginsia sp.</i>			
	<i>Hinksia sandriana</i>			
	<i>Hymedesmia sp.</i>			
	<i>Hymenamphiastra cyanocrypta</i>			
Sponge	<i>Leucandra heathi</i>			
Sponge	<i>Leucilla nuttingi</i>			
Sponge	<i>Leucosolenia eleanor</i>			
Sponge	<i>Lissodendoryx firma</i>			
Sponge	<i>Lissodendoryx topsenti</i>			
Sponge	<i>Mycale psila</i>			
	<i>Myxilla incrustans</i>			
Sponge	<i>Ophlitaspongia pennata</i>	Ab	Co	BC - Mex
	<i>Scypha sp.</i>			
	<i>Spongia idia</i>			
Sponge	<i>Stelletta clarella</i>			
Sponge	<i>Suberites sp.</i>			
Sponge	<i>Tedania gurjanovae</i>			
Sponge	<i>Tethya aurantia</i>	Co	Co	BC - Mex+
Sponge	<i>Toxidocia sp.</i>			
Sponge	<i>Xestospongia vanilla</i>			
Sponge	<i>Zygherpe hyaloderma</i>			
Sipuncula				
	<i>Phascolosoma agassizii</i>			
Urochordata				
	<i>Archidistoma ritteri</i>			
	<i>Styela montereyensis</i>	Co	Co	BC - Baja
	<i>Styela truncata</i>	Co	Co	AK - s.CA

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
CHLOROPHYTA				
	<i>Acrosiphonia coalita</i>			
	<i>Blidingia minima var. vexata</i>			
Moss-like algae	<i>Bryopsis corticulans</i>	Co	Co	BC - Baja
Pin cushion algae	<i>Cladophora columbiana</i>	Co	Ab	BC - Baja
	<i>Cladophora graminea</i>			
	<i>Cladophora sp.</i>			

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
Dead man's fingers	<i>Codium fragile</i>	UnCo	Co	AK - Baja
Sponge weed	<i>Codium setchellii</i>	UnCo	Co	AK - Baja
	<i>Derbesia marina</i>			
	<i>Endocladia viridis</i>			
	<i>Endophyton ramosum</i>			
	<i>Enteromorpha flexuosa</i>			
	<i>Enteromorpha clathrata</i>			
	<i>Enteromorpha compressa</i>			
Intestine algae	<i>Enteromorpha intestinalis</i>	Co	Co	AK - Mex
	<i>Halicystis ovalis</i>			
	<i>Prasiola meridionalis</i>			
	<i>Ulothrix flacca</i>			
	<i>Ulothrix laetevirens</i>			
	<i>Ulothrix pseudoflacca</i>			
	<i>Ulva californica</i>			
	<i>Ulva conglobata</i>			
	<i>Ulva expansa</i>			
	<i>Ulva lactuca</i>			
	<i>Ulva lobata</i>			
Sea lettuce	<i>Ulva</i> spp.	Co	Co	BC - Baja
	<i>Ulva taeniata</i>			
	<i>Urophoro</i> sp.			
HETEROKONTO-PHYTA				
Winged kelp	<i>Alaria marginata</i>	Ab	Ab	AK - c. CA
Barefoot, Matsumo	<i>Analipus japonicus</i>	Co	Co	AK -c.CA
	<i>Coilodesme californica</i>			
	<i>Colpomenia peregrina</i>			
	<i>Compsomena serpens</i>			
	<i>Costaria costata</i>			
Bladder chain	<i>Cystoseira osmundacea</i>	Ab	Co	OR - Baja
	<i>Desmarestia herbacea</i>			
Acid seaweed	<i>Desmarestia ligulata</i>	Ab	Ab	AK - S. Am
	<i>Desmarestia munda</i>			
Nerve net	<i>Dictyoneurum californicum</i>	Co	Co	BC - c. CA
Feather Boa	<i>Egregia menziesii</i>	Ab	Co	AK - Baja
Rock weed	<i>Fucus gardneri</i>	Co	Ab	N. WA - c. CA
	<i>Hinckesia sandriana</i>			
	<i>Laminaria ephemera</i>			
	<i>Laminaria farlowii</i>			
Split blade oarweed/Kombu	<i>Laminaria setchellii</i>	Co	Co	AK-MEX

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Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
Oar weed/Kombu	<i>Laminaria sinclarii</i>	Ab	Ab	BC - s.CA
	<i>Laminaria sp.</i>			
	<i>Leathesia difformis</i>			
	<i>Macrocystis integrifolia</i>			
Giant Kelp	<i>Macrocystis pyrifera</i>	UnCo	Co	AK - Baja
	<i>Melanosiphon intestinalis</i>			
Bull whip kelp	<i>Nereocystis luetkeana</i>	Co	Co	c.CA-AK
Bull Kelp	<i>Nereocystis luetkeana</i>	Unco	Co	AK - c. CA
Little rock weed	<i>Pelvetia fastigiata</i>	Co	Ab	BC - Baja
Tiny rock weed	<i>Pelvetiopsis limitata</i>	Co	Co	BC - c. CA
	<i>Petalonia fascia</i>			
	<i>Phaeostrophion irregulare</i>			
	<i>Pilayella sp.</i>			
Sea palm	<i>Postelsia palmaeformis</i>	Co	Ab	BC - c. CA
	<i>Pterygophora californica</i>			
Tar spot	<i>Ralfsia pacifica</i>	Co	Co	OR - Baja
	<i>Ralfsia sp.</i>			
	<i>Sargassum muticum</i>			
Leather tube	<i>Scytosiphon simplicissimus</i>	Co	Ab	AK - Baja
	<i>Scytosiphon dotyii</i>			
	<i>Scytosiphon lomentaria</i>			
	<i>Scytosiphon simplicissimus</i>			
	<i>Soranothera ulvoidea</i>			
	<i>Spongonema tomentosum</i>			
	<i>Streblonema sp.</i>			
RHODOPHYTA				
Dreadlock algae	<i>Acrochaetium prophyrae</i>	Ab	Ab	AK - c. CA
Epiphytic algae	<i>Acrochaetium sp.</i>	Ab	Ab	BC - c. CA
Garlic algae	<i>Ahnfeltia cornucopiae</i>	Co	Co	AK - c. CA
Mastocarpus crust	<i>Ahnfeltia fastigiata</i>	Ab	Co	BC - Baja
	<i>Ahnfeltiopsis leptophylla</i>			
	<i>Ahnfeltiopsis linearis</i>			
Red membrane	<i>Anotrichium furcellatum</i>	Ab	Co	BC - MX
	<i>Antithamnion dendroidum</i>			
	<i>Antithamnion densum</i>			
Tooth branch	<i>Audouinella subimmersa</i>	Co	Ab	BC - c. CA
Braided hair algae	<i>Bangia sp.</i>	Co	Co	BC - MX
	<i>Bornetia californica</i>			
	<i>Bossiella corymbifera</i>			
	<i>Bossiella dichotoma</i>			
	<i>Bossiella plumosa</i>			

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Bossiella schmittii</i>			
	<i>Branchioglossum bipinnatifidum</i>			
	<i>Branchioglossum undulatum</i>			
	<i>Calliarthron tuberculosum</i>			
	<i>Callithamnion biseriatum</i>			
	<i>Callithamnion pikeanum</i>			
	<i>Callophyllis cheilosporioides</i>			
	<i>Callophyllis crenulata</i>			
	<i>Callophyllis flabellulata</i>			
	<i>Callophyllis heanophylla</i>			
	<i>Callophyllis linearis</i>			
	<i>Callophyllis obtusifolia</i>			
	<i>Callophyllis pinnata</i>			
	<i>Callophyllis sp.</i>			
	<i>Callophyllis violacea</i>			
	<i>Centroceras clavulatum</i>			
	<i>Ceramium gardneri</i>			
	<i>Ceramium pacificum</i>			
	<i>Chiharaea bodegensis</i>			
	<i>Chondracanthus canaliculatus</i>			
	<i>Chondracanthus corymbiferus</i>			
	<i>Chondracanthus exasperatus</i>			
	<i>Chondracanthus harveyanus</i>			
	<i>Chondracanthus spinosus</i>			
	<i>Cirriliarpus sp.</i>			
	<i>Clathromorphum parcum</i>			
	<i>Constantinea simplex</i>			
	<i>Corallina officinalis</i>			
	<i>Corallina pinnatifolia</i>			
	<i>Corallina vancouveriensis</i>			
	<i>Corallophila eatoniana</i>			
	<i>Crustose corallines</i>			
	<i>Cryptopleura farlowiana</i>			
	<i>Cryptopleura corallinara</i>			
	<i>Cryptopleura violacea</i>			
	<i>Cryptopleura crispa</i>			
	<i>Cryptopleura lobulifera</i>			
	<i>Cryptopleura rosacea</i>			
	<i>Cryptopleura ruprechtiana</i>			
	<i>Cumagloia andersonii</i>			
	<i>Delesseria decipiens</i>			

**Appendix III F: Invertebrates and Algae
GFNMS Management Plan**

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Dilsea californica</i>			
Beautifully jointed	<i>Endocladia muricata</i>	Ab	Co	AK - Baja
	<i>ErythroGLOSSUM californicum</i>			
Wool weed	<i>Erythrophyllum delesseriodes</i>	Ab	Co	AK- s.CA
	<i>Erythrotrichia carnea</i>			
	<i>Erythrotrichia pulvinata</i>			
	<i>Farlowia compressa</i>			
	<i>Farlowia conferta</i>			
	<i>Farlowia mollis</i>			
	<i>Faucheia fryeana</i>			
	<i>Faucheia laciniata</i>			
	<i>Faucheocolax attenuata</i>			
Beautiful leaf	<i>Gastroclonium subarticulatum</i>	Co	Ab	WA - Baja
	<i>Gastroclonium subarticulatum</i>			
Candy cane seaweed	<i>Gelidium coulteri</i>	Co	Co	WA - Baja
Arrow weed	<i>Gelidium purpurascens</i>	Co	Co	OR - Baja
	<i>Gelidium pusillum</i>			
	<i>Gelidium robustum</i>			
	<i>Gelidium sp.</i>			
	<i>Gloiosiphonia verticillaris</i>			
	<i>Goniotrichopsis sublittoralis</i>			
	<i>Gracilariophila oryzoides</i>			
Turkish towel	<i>Gracilariopsis sjoestedtii</i>	Co	Co	WA - Baja
	<i>Gracilariopsis lemaneiformis</i>			
	<i>Grateloupia doryphora</i>			
	<i>Grateloupia filicina</i>			
	<i>Griffithsia pacifica</i>			
	<i>Gymnogongrus chiton</i>			
Turkish towel	<i>Halosaccion glandiforme</i>	Ab	Co	BC - Baja
	<i>Halymenia schizymenioides</i>			
	<i>Halymenia templetonii</i>			
	<i>Herposiphonia parva</i>			
	<i>Herposiphonia plumula</i>			
	<i>Hildenbrandia occidentalis</i>			
	<i>Hildenbrandia rubra</i>			
Narrow turkish towel	<i>Hildenbrandia spp.</i>	Co	Ab	WA - Baja
	<i>Hommersandia palmatifolia</i>			
	<i>Hymenena coccinea</i>			
	<i>Hymenena flabelligera</i>			
	<i>Hymenena multiloba</i>			
	<i>Janczewskia gardneri</i>			

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Leachiella pacifica</i>			
	<i>Lithophyllum dispar</i>			
	<i>Lithophyllum grumosum</i>			
	<i>Lithophyllum proboscideum</i>			
Narrow turkish towel	<i>Lithothamnium sp.</i>	Unco	Co	c.CA - Baja
Cup and saucer algae	<i>Lithothrix aspergillum</i>	Co	Ab	BC - c. CA
	<i>Maripelta rotata</i>			
Small coral	<i>Mastocarpus jardinii</i>	Ab	Ab	AK - S. Am
Hidden ribs	<i>Mastocarpus papillatus</i>	Co	Ab	BC - Baja
	<i>Mazzaella affinis</i>			
	<i>Mazzaella californica</i>			
	<i>Mazzaella cordata</i>			
Nail brush	<i>Mazzaella cornucopiae</i>	Ab	Ab	AK - Baja
Red leaf	<i>Mazzaella flaccida</i>	Ab	Co	AK - c. CA
Belly branch	<i>Mazzaella heterocarpa</i>	Ab	Co	BC - Baja
	<i>Mazzaella leptorhynchos</i>			
	<i>Mazzaella linearis</i>			
	<i>Mazzaella rosea</i>			
Agarweed	<i>Mazzaella splendens</i>	Ab	Ab	WA - Baja
	<i>Mazzaella volans</i>			
	<i>Melobesia marginata</i>			
Agarweed	<i>Melobesia mediocris</i>	Ab	Co	WA - Baja
	<i>Membranoptera dimorpha</i>			
	<i>Mesophyllum conchatum</i>			
	<i>Mesophyllum lamellatum</i>			
Spaghetti weed	<i>Microcladia borealis</i>	Co	Co	BC- c.Am
Sea sac	<i>Microcladia coulteri</i>	Co	Ab	WA - c. CA
	<i>Myriogramme sp.</i>			
	<i>Myriogramme spectabilis</i>			
	<i>Myriogramme variegata</i>			
	<i>Neoptilota densa</i>			
	<i>Neoptilota hypnoides</i>			
	<i>Neoptilota sp.</i>			
Wine crust	<i>Neorhodomela larix</i>	Co	Co	BC - Baja
	<i>Nienburgia andersoniana</i>			
	<i>Nitophyllum sp.</i>			
	<i>Nitophyllum sp.</i>			
crustose coralline	<i>Odonthalia floccosa</i>	Co	Co	BC - Baja
Stone hair	<i>Opuntiella californica</i>	Co	Ab	BC - Baja
Little turkish towel	<i>Osmundea spectabilis</i>	Co	Co	BC - c. CA
Little turkish towel	<i>Petrocelis franciscana</i>	Ab	Co	AK - Baja

**Appendix III F: Invertebrates and Algae
GFNMS Management Plan**

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Petrospongium rugosum</i>			
	<i>Peyssonelliopsis epiphytica</i>			
	<i>Peyssonnelia meridionalis</i>			
	<i>Peyssonnelia pacifica</i>			
	<i>Phycodryas setchellii</i>			
	<i>Pikea californica</i>			
	<i>Pikea pinnata</i>			
	<i>Pleonosporium vancouverianum</i>			
Bunny ears algae	<i>Plocamium cartilagineum</i>	Co	UnCo	AK- n. CA
	<i>Plocamium cartilagineum var. pacificum</i>			
	<i>Plocamium oregonum</i>			
	<i>Plocamium pacificum</i>			
	<i>Plocamium sp.</i>			
	<i>Plocamium violaceum</i>			
Iridesent seaweed	<i>Polyneura latissima</i>	Ab	Ab	AK - Baja
Warty algae	<i>Polysiphonia hendryi</i>	Co	Co	AK- s.CA
	<i>Polysiphonia pacifica</i>			
	<i>Polysiphonia saraticeri</i>			
	<i>Polysiphonia sp.</i>			
Many veined algae	<i>Porphyra gardneri</i>	Ab	Ab	BC - Baja
Many siphon algae	<i>Porphyra lanceolata</i>	Ab	Ab	OR - Baja
Nori/laver	<i>Porphyra nereocystis</i>	Co	Co	AK - Baja
Iridesent seaweed	<i>Porphyra perforata</i>	Co	Ab	BC - Baja
Serrated red weed	<i>Porphyra sp.</i>	Ab	Co	BC - Baja
	<i>Prionitis angusta (formerly filiformis)</i>			
	<i>Prionitis australis</i>			
	<i>Prionitis cornea</i>			
Phyllospadix crust	<i>Prionitis lanceolata</i>	Co	Co	BC - Baja
	<i>Prionitis linearis</i>			
	<i>Prionitis lyallii</i>			
	<i>Prionitis filiformis</i>			
	<i>Prionitis sp.</i>			
	<i>Pseudolithophyllum neofarlowii</i>			
	<i>Pterochondria woodii</i>			
	<i>Pterocladia caloglossoides</i>			
	<i>Pterocladia capillacea</i>			
	<i>Pterocladella caloglossoides</i>			
	<i>Pterocladella capillacea</i>			
	<i>Pterosiphonia baileyi</i>			
	<i>Pterosiphonia bipinnata</i>			
	<i>Pterosiphonia dendroidea</i>			

Algae

COMMON NAME & CLASSIFICATION	SCIENTIFIC NAME	POPEST (Sanctuary)	POPEST (N.E. Pacific)	RANGE
	<i>Pterothamnion villosum</i>			
	<i>Ptilota filicina</i>			
	<i>Ptilothamnionopsis lejolisea</i>			
Cactus weed	<i>Rhodochorton purpureum</i>	UnCo	Co	AK - Baja
Small branch	<i>Rhodymenia californica</i>	Co	Co	AK - c. CA
	<i>Rhodymenia callophyllidoides</i>			
	<i>Rhodymenia pacifica</i>			
	<i>Rhodymeniocolax botryoides</i>			
	<i>Sahlingia subintegra</i>			
	<i>Sarcodiotheca gaudichaudii</i>			
	<i>Schimmelemannia plumosa</i>			
	<i>Schizymenia pacifica</i>			
	<i>Scinaia confusa</i>			
	<i>Smithora naiadum</i>			
	<i>Stenogramma interrupta</i>			
	<i>Stylonema alsidii</i>			
	<i>Tiffaniella snyderae</i>			
	<i>Titanoderma dispar</i>			
	<i>Weeksia reticulata</i>			
VASCULAR				
Surf grass	<i>Phyllospadix scouleri</i>	Ab	Ab	BC - Baja
	<i>Phyllospadix torreyi</i>			
Eel grass	<i>Zostera marina</i>	Ab	Ab	OR -s.CA

Appendix III G: Introduced species

GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY

INVERTEBRATES AND ALGAE

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The Introduce Species list is for species in and around the Gulf of the Farallones National Marine Sanctuary (GFNMS), the Northern Management Area, and the Cordell Bank National Marine Sanctuary (CBNMS). The list was obtained by comparing lists of species within and around sanctuary waters to lists of known invaders within California, Bodega Harbor, Tomales Bay, and Elkhorn Slough. The list should therefore be regarded as conservative, including some species that may not yet be within Sanctuary waters per se, but given their geographic proximity, have a high probability of invading in the near future. Some of these species (e.g. *Ficopomatus enigmaticus*), may therefore qualify for the so-called “dirty-dozen” status based on impacts in other habitats despite not being found within Sanctuary waters. The sources used and their abbreviations are noted in column “Listing Sources(s).”

- cb Current species list for CBNMS as provided by Dan Howard (2002)
- nma Current species list for the Northern Management Area (2002)
- bird Species list from the Bird Rock Area of Special Biological Significance (ASBS) Report
- nas The USGS Nonindigenous Aquatic Species listing for California, found at <http://nas.er.usgs.gov>
- bth List of species identified during the all taxa biological inventory by Leslie Harris
- gf Current species list for GFNMS as provided by Jan Roletto (2002)
- bod Listing of introduced species in Bodega Harbor by Jim Carlton
- neers Listing of introduced species within the Elkhorn Slough National Estuarine Research Reserve System (NERRS) site
- cdfg California Department of Fish and Game’s (CDFG) Nonindigenous Aquatic Species list
- amer Species list from the Estero Americano and Estero de San Antonion ASBS report (1977)
- fitz Species list from the Fitzgerald Reserve ASBS report (1979)
- elk Updated list of invasive species in and around the Elkhorn Slough NERRS site provided by Kirsten Wasson
- bth CDFG’s amended list of introduced species in Bodega Bay and Tomales Bay

* Entries marked with a * indicate that while the species may not have been included in a given list, there was an entry for the genus listed as a “sp.”. Entries who only have starred listing sources should be viewed with caution.

INTRODUCED SPECIES

Algae

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
	<i>Aglaothamnion cordatum</i>		btc	btc
Dead Man's Fingers	<i>Codium fragile tomentosoides</i>	btc	btc, cdfg	
	<i>Gelidium vagum</i>	<i>Gelidium sp.</i>	btc, nma*	btc, cdfg
Red Siphonweed	<i>Polysiphonia denudata</i>	<i>Polysiphonia sp.</i>	nma*	cdfg
British Wireweed	<i>Sargassum muticum</i>		nma, elk	elk, cdfg
Wakame	<i>Undaria pinnatifida</i>		elk	elk, cdfg

Marsh Plants

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
Brassbuttons	<i>Cotula coronopifolia</i>		bod	bod
European Sea Rocket	<i>Cakile maritima</i>		bod	bod
Russian Thistle	<i>Salsola soda</i>		bod	cdfg, bod

Sponges

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
	<i>Cliona celata</i>	<i>Cliona sp.</i>	neers, nma, elk, bird*	neers, elk, neers*
	<i>Cliona lobata</i>	<i>Cliona sp.</i>	neers	neers
	<i>Halichondria bowerbanki</i>	<i>Halichondria panicea</i> , <i>Halichondria coalita</i> , <i>Halichondria sp.</i>	btc, bird, neers, elk, cb*, nma*	btc, cdfg, neers, elk
	<i>Haliclona loosanoffi</i>	<i>Haliclona sp.</i>	neers, elk, bod, bird*, gf*, nma*	cdfg, neers, elk, bod, nas*
	<i>Hymeniacidon sinapium</i>	<i>Hymeniacidon sp.</i>	neers, elk, bird*	neers, elk, cdfg*
	<i>Prosuberites sp.</i>		bird	cdfg

Cnidarians

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
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**Appendix III G: Introduced species
GFNMS Management Plan**

	<i>Amphinema sp.</i>		bod	bod
Moon Jelly	<i>Aurelia aurita</i>	<i>Aurelia dubia</i> , <i>Aurelia</i> <i>flavidula</i>	gf, nma	cdfg
	<i>Cordylophora caspia</i>		neers, elk	cdfg, neers, elk
San Francisco Anemone	<i>Diadumene franciscana</i>		btc, neers, elk	btc, cdfg, neers, elk
White Anemone	<i>Diadumene leucolena</i>	<i>Cylista leucolena</i>	neers, elk	cdfg, neers, elk
	<i>Haliplanella lineata</i>	<i>Diadumene lineata</i>	bod, neers, elk	cdfg, bod, neers, elk
Doubletoothed Hydroid	<i>Obelia bidentata</i>	<i>Obelia sp.</i>	bird*, gf*, nma*	cdfg, nas
Sea Thread Hydroid	<i>Obelia dichotoma</i>	<i>Obelia sp.</i>	bod, bird*, gf*, nma*	nas, cdfg, bod
Clapper Hydromedusa	<i>Sarsia tubulosa</i>	<i>Oceania tubulosa</i>	neers	cdfg, neers
	<i>Tubularia crocea</i>	<i>Ectopleura crocea</i>	amer, gf, nma, neers, elk	cdfg, neers, elk

Platyhelminthes

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
	<i>Cercaria batillariae</i>		neers, elk	cdfg, neers, elk
Annelids				
	<i>Apoprionospio pygmaea</i>		btc	btc
Bristleworm	<i>Capitella capitata</i> Complex	<i>Capitella sp.</i>	btc, tmh*	btc,
	<i>Ctenodrilus serratus</i>	<i>Parthenope serratus</i>	btc	btc
	<i>Dipolydora socialis</i>		btc, tmh	btc
	<i>Euchone limnicola</i>		btc, tmh	btc
	<i>Exogone lourei</i>		btc, tmh	btc
Tube Worm	<i>Ficopomatus enigmaticus</i>	<i>Mercierella enigmatica</i>	neers, elk	cdfg, neers, elk
polychate	<i>Glycera americana</i>		btc	btc
polychate	<i>Harmothoe imbricata</i>	<i>Aphrodita imbricata</i>	btc, bird	btc
polychate	<i>Heteromastus filiformis</i>		neers, elk	cdfg, neers, elk
polychate	<i>Mediomastus ambiseta</i>		btc	btc
polychate	<i>Neanthes succinea</i>	<i>Nereis succinea</i> , <i>Nereis limbata</i>	btc	btc, cdfg
polychate	<i>Notomastus hemipodus</i>		btc	btc
polychate	<i>Platynereis bicanaliculata</i>		btc, bird, nma	btc
spionid	<i>Polydora amarincola</i>	<i>Polydora sp.</i>	bird*, amer*	cdfg
Mud Worm	<i>Polydora cornuta</i>	<i>Polydora sp.</i>	bod, bird*, amer*	nas, cdfg, bod
Mud Worm	<i>Polydora ligni</i>	<i>Polydora sp.</i>	neers, elk, bird*, amer*	cdfg, neers, elk

**Appendix III G: Introduced Species
GFNMS Management Plan**

spionid	<i>Pseudopolydora kemp</i>		btc, bod, tmh	btc, cdfg, bod,
spionid	<i>Pseudopolydora paucibranchiata</i>	btc, neers, elk, bod	btc, cdfg, neers, elk, bod	
spionid	<i>Streblospio benedicti</i>		btc, amer, neers, elk, bod, tmh	btc, cdfg, neers, elk, bod,

Crustaceans

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
	<i>Ampelisca abdita</i>		btc	btc, cdfg
	<i>Ampelisca agassizi</i>	<i>Ampelisca compressa</i> , <i>Ampelisca vera</i>	btc	btc
	<i>Ampithoe lacertosa</i>	<i>Ampithoe sp.</i>	btc, bird*	btc
	<i>Ampithoe valida</i>	<i>Ampithoe sp.</i>	neers, elk, bod, tmh, bird*	cdfg, neers, elk, bod, nas
	<i>Caprella acanthogaster</i>		btc	btc, cdfg
	<i>Caprella californica</i>		btc, gf, nma	btc
Skeleton Shrimp	<i>Caprella mutica</i>		btc, neers	btc, cdfg, neers
	<i>Corophium acherusicum</i>		elk, bod	cdfg, elk, bod
	<i>Corophium alienense</i>		btc, bod	btc, cdfg, bod
	<i>Corophium insidiosum</i>		btc, elk, bod	btc, cdfg, elk, bod
	<i>Corophium uenoi</i>		elk	cdfg, elk
	<i>Erichthonius brasiliensis</i>		btc	btc, cdfg
	<i>Grandidierella japonica</i>		btc, neers, elk	btc, cdfg, neers, elk
	<i>Jassa carltoni</i>		btc	btc
	<i>Jassa marmorata</i>		btc, neers, elk, bod	btc, cdfg, neers, elk, bod
	<i>Jassa slatteryi</i>		btc	btc
	<i>Leucothoe alata</i>		btc	btc, cdfg
	<i>Melita nitida</i>		neers, elk	cdfg, neers, elk
	<i>Monocorophium acherusicum</i>	btc, neers	btc, cdfg, neers	
	<i>Monocorophium insidiosum</i>		neers	neers
	<i>Monocorophium uenoi</i>		neers	neers
	<i>Parapleustes derzhavini</i>		btc, neers, elk	btc, cdfg, neers, elk
	<i>Sinocorophium alienense</i>		btc	btc, cdfg
	<i>Sinocorophium heteroceratum</i>	btc	btc, cdfg	
	<i>Iais californica</i>		neers, elk, bod, tmh	cdfg, neers, elk, bod,
	<i>Ianiropsis tridens</i>		btc	btc, cdfg
	<i>Laticorophium baconi</i>		btc, tmh	btc
	<i>Limnoria quadripunctata</i>		neers	cdfg, neers
	<i>Limnoria tripunctata</i>		bod	cdfg, bod
	<i>Paranthura elegans</i>		btc, nma, tmh	btc, cdfg

**Appendix III G: Introduced species
GFNMS Management Plan**

Sphaeromatid Isopod	<i>Sphaeroma quoyanum</i>		btc, neers, elk	btc, cdfg, neers, elk
mysid	<i>Acanthomysis aspera</i>	<i>Acanthomysis sp.</i>	gf*, nma*	cdfg, nas
mysid	<i>Acanthomysis bowmani</i>	<i>Acanthomysis sp.</i>	gf*, nma*	cdfg, nas
barnacle	<i>Balanus amphitrite</i>	<i>Balanus sp.</i>	nma, nma*	cdfg, cdfg
barnacle	<i>Balanus improvisus</i>	<i>Balanus sp.</i>	neers, elk, nma*	cdfg, neers, elk, nas
Green Crab	<i>Carcinus maenas</i>	<i>Carcinides maenas</i>	btc, neers, bod	btc, cdfg, neers, bod
cumacean	<i>Cumella vulgaris</i>		btc	btc
tanaid	<i>Leptochelia dubia</i>	<i>Leptochelia affinis,</i> <i>Leptochelia algicola,</i> <i>Leptochelia corsica,</i> <i>Leptochelia durbanensis,</i> <i>Leptochelia edwardsii,</i> <i>Leptochelia incerta ,</i> <i>Leptochelia lifuensis ,</i> <i>Leptochelia neapolitana ,</i> <i>Leptochelia savignyi ,</i> <i>Paratanais algicola ,</i> <i>Paratanais edwardsii ,</i> <i>Paratanais kroyerii ,</i> <i>Paratanais savignyi ,</i> <i>Tanaiomera columbina ,</i> <i>Tanais dubius ,</i> <i>Tanais durbanensis ,</i> <i>Tanais edwardsi ,</i> <i>Tanais filum</i>	btc	btc
Red Worm (copepod)	<i>Mytilicola orientalis</i>		neers, elk	cdfg, neers, elk
Asian cumacean	<i>Nippoleucon hinumensis</i>		btc	btc, cdfg
Korean Shrimp	<i>Palaemon macrodactylus</i>		neers	cdfg, neers
copepod	<i>Pseudodiaptomus marinus</i>		btc	btc, cdfg
tanaid	<i>Sinelobus sp.</i>		neers, elk	cdfg, neers, elk

Molluscs

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
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Pacific Giant Oyster	<i>Crassostrea gigas</i>		gf, nma	cdfg
Amethyst Gemclam	<i>Gemma gemma</i>		btc, neers, bod	btc, cdfg, neers, bod
Blacktip Shipworm	<i>Lyrodus pedicellatus</i>		neers, elk	cdfg, neers, elk
Baltic Macoma	<i>Macoma balthica</i>		bod	cdfg, bod
Northern Quahog	<i>Mercenaria mercenaria</i>	<i>Venus mercenaria</i>	btc	btc, cdfg
Green Mussel	<i>Musculista senhousia</i>		btc, neers, bod	btc, cdfg, neers, bod
Softshell Clam	<i>Mya arenaria</i>		btc, amer, neers, bod	btc, cdfg, neers, bod
Mediterranean mussel	<i>Mytilus galloprovincialis</i>		neers, elk, bod	cdfg, neers, elk, bod
Mahogany Clam	<i>Nuttallia nutallia</i>		elk	elk
Purple-Mahogany Clam	<i>Nuttallia obscurata</i>		neers	neers
Edible oyster	<i>Ostrea edulis</i>		btc	btc, cdfg
Olympia Oyster	<i>Ostrea lurida</i>		gf, nma	cdfg
Wing Oyster	<i>Pteria sterna</i>		btc	btc, cdfg
Asian semele	<i>Theora lubrica</i>		btc	btc, cdfg
Japanese Littleneck Clam	<i>Venerupis philippinarum</i>		btc, neers, bod	btc, cdfg, neers, bod
Japanese False Cerith	<i>Batillaria attramentaria</i>		btc, gf, neers, nma, elk	btc, cdfg, neers, elk
Japanese oyster drill	<i>Ceratostoma inornatum</i>		btc	btc, cdfg
European Melampus	<i>Myosotella myosotis</i>		neers, elk, bod	cdfg, neers, elk, bod
Eastern Mud Snail	<i>Nassarius obsoletus</i>	<i>Ilyanassa obsoleta</i> , <i>Nassa obsoleta</i>	btc	btc, cdfg
Flat Okenia	<i>Okenia plana</i>		neers, elk	cdfg, neers, elk
nudibranch	<i>Philine auriformis</i>		btc, neers, bod	btc, cdfg, neers, bod
nudibranch	<i>Philine orientalis</i>		bod	bod
Miniature Aeolis	<i>Tenellia adspersa</i>	<i>Embletonia pallida</i>	neers, elk	cdfg, neers, elk
Atlantic Oyster Drill	<i>Urosalpinx cinerea</i>		btc, neers	btc, cdfg, neers

Bryozoans

CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
	<i>Alcyonidium gelatinosum</i>		btc	btc, cdfg
	<i>Alcyonidium parasiticum</i>		btc	btc
	<i>Alcyonidium polyoum</i>		btc	btc, cdfg
	<i>Amathia vidovici</i>		neers, elk	cdfg, neers, elk
	<i>Barentsia benedeni</i>		gf, neers, nma, elk	cdfg, neers, elk

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	<i>Bowerbankia gracilis</i>		btc, neers, elk, bod	btc, cdfg, neers, elk, bod
	<i>Bugula neritina</i>		btc, bird, neers, elk, bod	btc, cdfg, neers, elk, bod
	<i>Bugula stolonifera</i>		neers, elk	cdfg, neers, elk
	<i>Conopeum tenuissimum</i>		neers, elk	cdfg, neers, elk
	<i>Cryptosula pallasiana</i>		btc, neers, elk, bod	btc, cdfg, neers, elk, bod
Single Horn Bryozoan	<i>Schizoporella unicornis</i>	<i>Lepralia unicornis</i>	btc, neers, elk, bod	btc, cdfg, neers, elk, bod
	<i>Victorella pavida</i>		btc	btc, cdfg
	<i>Watersipora subtorquata</i>		btc, neers, elk, bod	btc, cdfg, neers, elk, bod

Chordates

CLASSIFICATION & COMMON NAME	SCIENTTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status Source(s)
tunicate	<i>Ascidia zara</i>		btc	btc, nas, cdfg
tunicate	<i>Botrylloides perspicuum</i>		btc	btc, nas, cdfg
tunicate	<i>Botrylloides violaceus</i>		btc, neers, elk, bod	btc, nas, neers, elk, bod
tunicate	<i>Botryllus schlosseri</i>		btc, gf, bod	btc, cdfg, bod
tunicate	<i>Ciona intestinalis</i>	<i>Ascidia intestinalis</i>	btc, gf	btc, cdfg
tunicate	<i>Ciona savignyi</i>		btc	btc, nas, cdfg
tunicate	<i>Didemnum lahillei</i>	<i>Didemnum vexillum</i>	--	nas
tunicate	<i>Diplosoma listerianum</i>		btc	btc, cdfg
tunicate	<i>Molgula manhattensis</i>	<i>Ascidia manhattensis</i> , <i>Gymnocystis manhattensis</i>	btc, neers, elk	btc, cdfg, neers, elk
tunicate	<i>Polyandrocarpa zorritensis</i>		btc	btc, cdfg
tunicate	<i>Styela clava</i>		btc, neers, elk	btc, cdfg, neers, elk
Yellowfin goby	<i>Acanthogobius flavimanus</i>		gf, nma, elk	cdfg, elk
Atlantic Shad	<i>Alosa sapidissima</i>		gf, nma, elk	cdfg, elk
European Carp	<i>Cyprinus carpio</i>		amer	cdfg
Mosquitofish	<i>Gambusia affinis</i>	<i>Gambusia patruelis</i>	elk, amer	cdfg, elk
Rainwater Killifish	<i>Lucania parva</i>		amer	cdfg
Striped Bass	<i>Morone saxatilis</i>	<i>Roccus saxatilis</i>	gf, nma, elk	cdfg, elk
North American Bullfrog	<i>Rana catesbeiana</i>		amer	cdfg

Chordates

CLASSIFICATION & COMMON NAME	SCIENTTIFIC NAME	Synonyms	Listing Source(s)	Invasive Status
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NAME				Source(s)
ciliate	<i>Prionospio pygmaea</i>	<i>Ancistrocoma pelseneeri</i>	btc	btc, cdfg
foraminifera	<i>Trochammina hadai</i>		bod	cdfg, bod