

NOAA Fisheries Service

Pacific Islands Region

HAWAIIAN MONK SEAL RECOVERY

2009 - 2010

**Program Update and
Accomplishments Report**

Science, Service, Stewardship

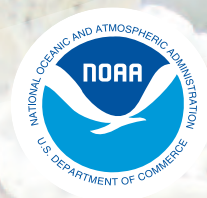




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INTRODUCTION

Recovery Goal:

To assure the long-term viability of the Hawaiian monk seal in the wild, allowing initially for reclassification from endangered to threatened status, and ultimately, removal from the List of Endangered and Threatened Wildlife.



The Hawaiian monk seal (*Monachus schauinslandi*) was listed as an endangered species under the Endangered Species Act (ESA) on November 23, 1976. The National Oceanic and Atmospheric Administration's (NOAA), National Marine Fisheries Service (NOAA Fisheries Service) 2007 recovery plan specifies the following recovery goal: "To assure the long-term viability of the Hawaiian monk seal in the wild, allowing initially for reclassification from endangered to threatened status, and ultimately, removal from the List of Endangered and Threatened Wildlife." Throughout this document, work and/or progress toward this goal is implied whenever the terms "recovery" and "recovery program" are used.

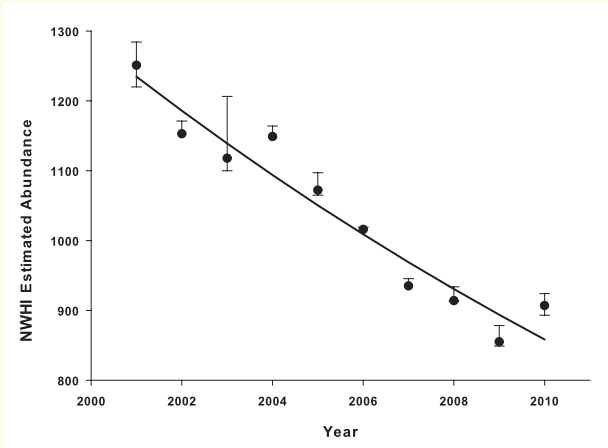
The NOAA Fisheries Pacific Islands Regional Office (PIRO) and the NOAA Fisheries Pacific Islands Fisheries Science Center (PIFSC) work collaboratively on Hawaiian monk seal recovery. In general, PIRO is responsible for policy and management activities, and PIFSC is responsible for science and research activities, although each office supports the other's core mission in various ways. Administratively, PIRO manages the "Hawaiian Monk Seal Recovery Program," and PIFSC manages the "Hawaiian Monk Seal Research Program," but in practical terms, both offices work together toward the overall goal of Hawaiian monk seal recovery. In addition to PIRO and PIFSC supporting recovery at a regional level, NOAA Fisheries Headquarters contributes to monk seal recovery via assistance with permitting, public education, grant administration, program administration and planning, and various other functions. Aside from organizational units within NOAA Fisheries Service, there are other federal, state and non-government partners (mentioned below in the Accomplishments section) that provide essential support for Hawaiian monk seal recovery. Thus, while NOAA Fisheries Service is the lead agency responsible for Hawaiian monk seal recovery, the overall effort is collaborative and supported by many diverse and invaluable partners.

This report provides a summary of accomplishments achieved by NOAA Fisheries Service and partners in working toward Hawaiian monk seal recovery. The report covers calendar years 2009 and 2010. This two-year period marks the start of what some may view as a new "era" in monk seal recovery. Compared to previous years, funding for Hawaiian monk seals in federal fiscal years 2009 and 2010 was increased substantially, and as a result, PIRO and PIFSC were able to significantly increase staffing and expand program efforts. This report summarizes many of the accomplishments achieved with the increased federal funds. Before discussing these accomplishments, however, the current status of the species and threats to recovery will be summarized below to help clarify current ecological and management contexts.



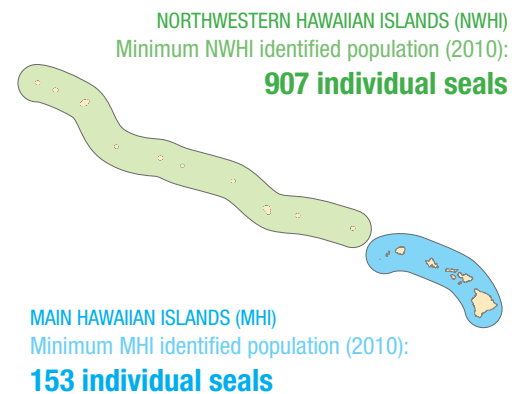
SPECIES STATUS

The Hawaiian monk seal population has been in a prolonged and steep decline, more or less continuously since the 1950's. Although this decline (about 4% per year) does not bode well for species recovery in the short-term, or even medium-term, there have been some recent encouraging developments, including significant growth of the small monk seal sub-population in the main Hawaiian Islands, and promising advances in juvenile seal survival enhancement, research and local community engagement.



The best estimate of the current total Hawaiian monk seal population is 1,060 seals – 907 in the Northwestern Hawaiian Islands (NWHI) and 153 in the main Hawaiian Islands (MHI) (note: this estimate does not include Nihoa or Necker). Since 2001, the total abundance at the six main NWHI sites (Kure Atoll, Midway Atoll, Pearl and Hermes Reef, Lisianski Island, Laysan Island and French Frigate Shoals) has been declining at an average annual rate of about 4.5 percent. The primary cause of the decline appears to be low juvenile survival in the NWHI, where less than 1 of every 5 seals survives to reproductive age.

The overall decline has been moderated by the increasing population of seals in the MHI. Although Hawaiian monk seals were only rarely reported in the MHI over most of recorded history, since 1990, an increasing number of seal sightings and births have occurred in the MHI. Sightings in the MHI increased from 77 individually identifiable monk seals in 2005, to 153 in 2010. This increase is due in part to intrinsic population growth, and also to the increased monitoring effort identifying individual seals. Documented annual births in the MHI have increased since the mid-1990s, with 25 births reported in 2010. The small but increasing population of seals in the MHI is perhaps the most promising aspect for Hawaiian monk seal recovery, but this growing seal population in areas that are heavily populated by humans is creating a new set of recovery challenges.





THREATS TO RECOVERY

Despite the fact that Hawaiian monk seals are one contiguous species, the subpopulations in the NWHI and MHI face different threats. In the NWHI, primary threats include food limitation for juveniles, shark predation on juveniles, entanglement in marine debris, male seal aggression on females and juveniles and shoreline habitat loss. Threats in the MHI include disease and various types of human-induced impacts, such as disturbance at haul-out areas, fishery interactions, feeding and other interactions that cause habituation to humans and most recently, intentional killings.

Northwestern Hawaiian Islands

- **Food Limitation** – Limited food intake by juvenile seals is the dominant factor driving the steep population decline in the NWHI. In the NWHI, seals must compete for food with large populations of other apex predators, such as large jacks (Carangids) and sharks. Shifts in ecosystem productivity, caused by global climate change and/or cyclic changes, and extended periods of human-induced impacts (i.e. fishing) may be contributing to the current situation.
- **Shark Predation** - Predation by Galapagos sharks on pre-weaned or recently weaned seal pups at French Frigate Shoals has become a major cause of injury and mortality for this population. This is a unique and relatively recent type of seal mortality that appears to result from atypical behavior of a limited number of Galapagos sharks that prey on pre-weaned and recently weaned pups right on shore, often within just a few inches of water.
- **Entanglement** - Hawaiian monk seals have one of the highest documented entanglement rates of any pinniped species, and marine debris and derelict fishing gear are chronic forms of pollution affecting monk seal habitat in the NWHI. The number of monk seals found entangled each year has generally remained unchanged. While marine debris removal efforts, undertaken by various agencies within NOAA, the U.S. Coast Guard and various other partners have removed over 700 metric tons of debris since 1996, accumulation rates of marine debris in the NWHI appear to remain constant.
- **Male Aggression** - A significant cause of female and juvenile monk seal mortality, and overall population decline during the 1980s and early 1990s, was injury and death caused by aggression from multiple male seals (especially at Laysan, Lisianski and French Frigate Shoals). NOAA Fisheries Service has found that removal of specific aggressive males appears to be an effective method to address this threat. PIFSC also works to intervene with individual males who aggressively attack and injure recently weaned and juvenile seals. This includes harassment or removal of the aggressor and treating injured seals as appropriate. This threat continues to be a concern, even though it tends to be episodic, geographically limited and largely manageable provided necessary resources are available.
- **Habitat Loss** - The loss of terrestrial habitat is a significant issue in the NWHI, which are mostly low-lying atolls subject to beach loss from storm erosion and sea level rise. Some habitat loss, such as the disappearance of Whale-Skate Island at French Frigate Shoals, has already been observed, and sea level rise over the longer term may threaten a large portion of the resting and pupping habitat in the NWHI.

Main Hawaiian Islands

- **Human Impacts** - Impacts caused by humans (disturbance, injury and death) are a primary threat to the small, but growing population of Hawaiian monk seals in the MHI. Beaches that are popular for human recreation are also increasingly used by monk seals for “hauling out” (resting) and molting. Female monk seals are also increasingly pupping on popular recreational beaches. These “pupping events” entail mother-pup pairs remaining on the beach to nurse for up to 7 weeks, during which time they are particularly vulnerable to human disturbance.

Main Hawaiian Islands threats cont.

- **Fishery Interactions** - Due to recent fishing restrictions, hookings and entanglements in active fishing gear have become virtually non-existent in the NWHI. However, in the MHI, the growing seal population has led to increased fishery interactions. Over the past two years, several seals have required removal of embedded recreational fishing hooks. Twelve hookings were reported in 2009 and at least two seals drowned in lay gillnets over the reporting period.
- **Human-Seal Interactions** - Intentional feeding and/or other direct interaction, such as swimming with juvenile seals, has recently become a serious concern for the MHI population. These human-seal interactions have increased over the past two years, and relocation of “conditioned” seals to remote locations has been required in at least three cases.
- **Disease** - Recent MHI monk seal deaths have heightened concern about monk seal exposure to diseases not previously encountered, such as leptospirosis and toxoplasmosis. There is also the threat of emergent diseases which have yet to make it to Hawaii. The lack of antibodies in monk seals to these diseases makes them extremely vulnerable to potential infection. At least two seals died over the reporting period where toxoplasmosis was identified as the most likely cause of death.
- **Intentional Killing** - Finally, intentional killing is an extreme example of negative human impacts, and unfortunately appears to be a growing problem in the MHI. Over the past two years, at least three seals have died from apparent gunshots, and foul play could not be ruled out as the cause of death for at least three other seals.

ACCOMPLISHMENTS: 2009 - 2010

During 2009 and 2010, increased federal funding (for FY 2009 and FY 2010) supported a suite of new and enhanced Hawaiian monk seal recovery activities conducted by NOAA Fisheries Service PIRO and PIFSC and partners. These accomplishments have all been achieved as part of various research and/or management activities undertaken to directly address the threats listed above, as well as the recovery strategies and actions specified in the most recent version of the Hawaiian Monk Seal Recovery Plan (2007). The accomplishments presented below are arranged into four categories that correspond closely to the four overarching recovery strategies specified in the recovery plan. The overarching recovery strategies are:

1. Enhance survival of female seals, especially juveniles, born in the NWHI
2. Ensure natural population growth and reduce human-seal interactions in the main Hawaiian Islands
3. Prevent and mitigate disease and build seal health care capacity
4. Administer recovery program for maximum effectiveness, integration and partnerships

RECOVERY STRATEGY #1 – *Enhance survival of female seals, especially juveniles, born in the NWHI*

Chronic poor juvenile survival in the NWHI is the principal factor driving the steep population decline. Hawaiian monk seal recovery is dependent in large part on improving the survival of juvenile female seals in the NWHI in order to recruit new mothers into the breeding population. NOAA Fisheries Service has therefore made this the primary objective in developing and implementing an integrated suite of enhancement and research activities. These activities, when implemented in concert, promise to give juvenile female seals the best chances to contribute to species recovery.



Chronic poor juvenile survival in the NWHI is the principal factor driving the steep population decline.

Programmatic EIS and ESA-MMPA Permit for Research and Enhancement Activities

A new Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) permit will be required to test and implement the full suite of monk seal research and enhancement activities over the next 5 – 10 years. In the summer of 2010, NOAA Fisheries Service began working on the process to obtain this permit, including the preparation of a Programmatic Environmental Impact Statement (PEIS) pursuant to the National Environmental Policy Act (NEPA).

By the end of 2010, NOAA Fisheries Service staff and contractors had achieved the following:

- Developed a range of PEIS alternatives, including a proposed alternative specifying an integrated suite of research and enhancement activities for improving juvenile seal survival in the NWHI
- Conducted five public scoping meetings (on Kauai, Oahu, Maui, Molokai and the island of Hawaii) attended by a wide range of local community members and stakeholders
- Conducted a scoping meeting for government agencies, attended by numerous federal, state and local government agencies
- Extended the 45-day public scoping comment period to 60 days in response to a request from the Hawaiian Monk Seal Recovery Team's Native Hawaiian representative

A draft PEIS is expected to be ready for public review in August 2011. PIRO, PIFSC and NOAA Fisheries Service Headquarters Office of Protected Resources (OPR) are working closely together so that the NEPA and ESA-MMPA permitting processes, including the ESA Section 7 consultation, are conducted with maximum coordination and efficiency. All of these processes are expected to be completed by mid 2012, so that the full suite of research and enhancement activities described below can be implemented in the 2012 summer field season, as appropriate and budget permitting.

Northwestern Hawaiian Islands Population Assessment and Enhancement

PIFSC continued its long-term population assessment program in the NWHI - collecting, analyzing and reporting detailed data on seal births, deaths and other population statistics for the seal sub-populations at the 6 primary atoll breeding sites in the NWHI. This program entails deploying up to 15 seasonal field staff over the summer months to remote field camps. The field camps not only collect population data, but conduct enhancement and response work such as disentanglement, male aggression mitigation, mom-pup reunification and marine debris removal. To ensure effective and safe operations, extensive training and detailed logistics planning and coordination for equipment, supplies, vessel transport, etc., are required. PIFSC also recently initiated a new NWHI winter field camp program based on recommendations from the Hawaiian Monk Seal Recovery Team, Marine Mammal Commission, NGOs and other stakeholders. Although central Pacific weather and sea conditions during the winter months





create some daunting challenges, the new winter camps have generated new population assessment data at key sites and allowed important enhancement activities to be conducted.

Highlights of the population assessment program include:

- Generated accurate and up-to-date data on monk seal sub-populations at primary breeding sites around 6 remote locations in the NWHI (Kure Atoll, Midway Atoll, Pearl and Hermes Reef, Lisianski Island, Laysan Island and French Frigate Shoals)
- Conducted training for staff in data and sample collection, database maintenance, necropsy methods, wilderness first aid and small boat safety
- Initiated extended field camps at Laysan Island and Kure Atoll to provide additional insight into the current population decline by identifying mortality causes and timing over the winter, and enhance the potential to mitigate some sources of mortality, such as entanglement
- Research by scientists from University of Hawaii at Manoa and PIFSC revealed that Hawaiian monk seals have extremely low genetic diversity, compared to other endangered species populations

Population assessment in the NWHI will continue to be essential to provide the data needed to report and follow population trends and to evaluate the effectiveness of new research and enhancement activities designed to improve juvenile seal survival in the NWHI. Budget permitting, NWHI field camps, and all associated training, logistics, etc., will continue to be implemented by PIFSC as a core component of the overall Hawaiian monk seal research and recovery programs.

Responses/Interventions in the NWHI

	2009	2010
Human-assisted mom/pup reunifications	2	2
Disentanglements	7	5
Interrupted potential pup drownings by aggressive adult seals	3	6
Interrupted male aggression on juveniles and females	2	0





Translocation Program

Translocation of juvenile seals from areas of low survival to areas of higher survival is a promising research and enhancement activity that NOAA Fisheries Service is considering expanding to an archipelago-wide activity from its current limited extent within the NWHI. Over the reporting period, PIFSC continued its long-term and successful program of translocating weaned pups within the NWHI to protect them from shark predation occurring at three areas within the French Frigate Shoals atoll (see “Shark Predation” under Threats to Recovery on page 6). PIFSC plans to continue this activity, pending continued funding and ESA-MMPA authorization.

PIFSC has also recently developed a novel “two-stage translocation” strategy and decision support system to address the low juvenile seal survival in the NWHI. The objective is to reduce early mortality of these young seals, which is exceptionally high in the first two years of life, but less so after the seals reach three years of age (see “Food Limitation” under “Threats to Recovery” on page 6). The strategy entails moving weaned female pups to more favorable locations for juveniles, allow them to mature, and then after three years return them to their natal site. PIFSC presented this translocation strategy and decision support system as a “white paper,” and commissioned the Society for Conservation Biology to convene a panel of independent experts to prepare an external review.

NOAA Fisheries Service plans to continue to implement and further develop the translocation program, provided that funding and other necessary resources remain available. Translocations within the NWHI have proven to be effective in at least partially mitigating shark predation at French Frigate Shoals, and the recently-proposed two-stage translocation strategy should continue to be developed. More than any other strategy conceived thus far, this strategy promises to give juvenile females from the NWHI a better chance to survive to reproductive age and have pups, which are essential to species recovery.

NOAA Fisheries Service recognizes that the idea of bringing seals from the NWHI to the MHI, even if only on a temporary basis, creates numerous questions and concerns within various communities and stakeholder groups. However, NOAA Fisheries Service has made a commitment to address these questions and concerns to the maximum extent possible via the PEIS and ESA-MMPA permitting process, as well as via various other activities further discussed in the section below “Seal Behavior Management” in the MHI (page 21).

Translocation program highlights include:

- Conducted controlled research study and demonstrated the enhancement value of translocation from areas of high mortality in the NWHI to areas of lower mortality in the NWHI
- Translocated 14 pups in 2009 and 17 pups in 2010 from islets of high shark predation at French Frigate Shoals to other islets within the atoll that have lower predation
- Completed a two year translocation study of 12 weaned seal pups from French Frigate Shoals to Nihoa Island in the NWHI
- Developed a novel two-stage translocation strategy designed to enhance juvenile survival in the NWHI and commissioned independent review by external experts





Shark Predation Mitigation

As indicated in the “Threats to Recovery” section, Galapagos sharks preying on pre-weaned and recently weaned pups at French Frigate Shoals (FFS) has become a recovery threat, removing up to 35% of a cohort. Over the past two years, PIFSC continued to implement activities designed to address this problem with minimal adverse impact on other natural resources in the NWHI. The final stage in this shark predation mitigation has entailed translocation of the pups to safer areas, but it is essential to keep the pups safe from shark attack until they wean and can be safely translocated. In previous years, PIFSC tested various shark deterrence methods at FFS, yet none proved effective. Most recently, in coordination with Native Hawaiian cultural practitioners, experts in shark biology, PIRO staff and others, PIFSC developed and implemented shark removal methods that targeted a small number of Galapagos sharks frequenting the shallow waters around pupping islets during the monk seal breeding season at FFS. In 2010, practitioners from the Native Hawaiian community collaborated with PIFSC staff to instill an awareness of the cultural value of natural resources, including sharks. The practitioners also performed Hawaiian ceremonial practices at the beginning of the season’s shark predation mitigation activities.

PIFSC and PIRO believe that shark monitoring and predation mitigation activities should continue, budget permitting, as long as Galapagos shark predation on nursing pups continue to adversely impact the recovery of this important subpopulation.

Important achievements made in mitigating shark predation include:

- Obtained Papahānaumokuākea Marine National Monument (PMNM) permits to conduct shark monitoring and predation mitigation activities at FFS
- Completed a 2-year controlled study to test the effectiveness of devices to deter shark predation on Hawaiian monk seal pups at FFS
- Supported abundance and movement research on Galapagos and tiger sharks to better understand the species’ ecology and estimate the number of Galapagos sharks involved in pup predation
- Installed a temporary remote camera system at Trig Islet. This camera system, along with systematic shark monitoring by PIFSC staff, facilitated the detection of shark activity in the nearshore areas
- Conducted selective removal of Galapagos sharks around Trig Islet at FFS using a variety of fishing methods
- Conducted a pup behavioral study and continued translocation of pups (14 in 2009 and 17 in 2010) upon weaning from islets of historical high shark activity to those islets with low activity
- Collaborated with Native Hawaiian cultural practitioners and incorporated Native Hawaiian practices and protocols in monk seal recovery work



De-Worming

Previous research indicates that juvenile monk seals infected with tapeworms are in worse body condition than those that are uninfected. Food limitation is a major cause of juvenile mortality in the NWHI and high parasite loads likely add to the nutritional stress that juvenile seals experience. De-worming is a treatment that rids animals of intestinal parasites (such as tapeworms or roundworms), similar to what is typically done for domestic pets. NOAA Fisheries Service is examining the use of de-worming treatments to boost juvenile seal survival.



De-worming study highlights include:

- Tested the efficacy of three different routes for administering anti-helminthics (oral, injectable and topical dewormer) on a monk seal in captivity
- Conducted a feasibility trial of an oral anti-helminthic on 12 wild seals at Laysan Island
- Designed and implemented a controlled study to test the effectiveness of an injectable anti-helminthic in improving condition and survival of juvenile seals at Laysan Island. All weaned seals aged three years and younger were included; half were treated with injectable anti-helminthic, half served as controls.

PIFSC is preparing permit applications to test a newly available, topical anti-helminthic on monk seals in the wild that was designed to eradicate tapeworms and roundworms in domestic cats. The topical delivery is expected to be less invasive than oral and injectable drug delivery. Trials of the topical anti-helminthic in California sea lions proved effective. Future plans include field studies of the topical anti-helminthic on juvenile monk seals. PIFSC continues to test the use of deworming treatments to increase survival and has a permit to test a topical deworming drug that should reduce parasite loads without the need to handle seals to apply it.



RECOVERY STRATEGY #2 – *Ensure natural population growth, and reduce human-seal interactions in the main Hawaiian Islands*

As discussed in the “Species Status” section, one of the more encouraging recent developments for Hawaiian monk seals is the growth over the past several years of the sub-population in the MHI. The best data available indicate that there are over 150 seals now using the MHI as their primary habitat, with the western islands having more seals than the islands in the eastern part of the chain. However, this surge in monk seal population in the islands populated by humans, is relatively new. Many local fishermen and ocean users have spent their lives on and in the ocean around the main islands and have never, or only recently, encountered a monk seal. This growing population of seals in the MHI, while good for recovery, presents new and complex challenges. NOAA Fisheries Service has developed and begun implementing several research and management programs designed to address these challenges. They are designed to manage seals and promote their natural population growth, while minimizing adverse human-seal interactions and adverse impacts on the human community.

Response Network

The Marine Mammal Response Network (MMRN) responds to strandings and haul-outs of all marine mammals, including monk seals, in the Pacific Islands Region. NOAA Fisheries Service manages the MMRN in partnership with several government agencies, including the Hawaii Department of Land and Natural Resources (DLNR), the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS), U.S. Coast Guard (USCG), and the National Park Service (NPS). In addition to government partners, NGO partners include the University of Hawaii at Hilo (UHH) and the Hawaiian Monk Seal Response Team Oahu (HMSRTO), a newly formed non-profit organization. MMRN volunteers, managed directly by NOAA Fisheries Service and/or our partners, donate thousands of hours to provide a significant portion of the day-to-day human-seal management in the main Hawaiian Islands. Volunteers on Oahu and Kauai logged almost 20,000 hours in 2010. Staff and volunteers largely depend on public reports to respond to monk seal haul-outs, birthing events, and any entangled, hooked, injured or dead seals.





Important achievements by the Response Network include:

- Expanded the response and rescue program to 9 island coordinators and approximately 400 volunteers
- One volunteer group, HMSRTO, incorporated as federal 501(c)(3) non-profit organization
- Staged thousands of responses to normal monk seal haul-outs and stranding emergencies in partnership with the Hawaii DLNR (funded in part via ESA Section 6 grant), HIHWNMS, UHH, USCG and various other government partners and NGO's
- Conducted 3 monk seal responses on Niihau Island in 2010, in close partnership with the island's owners and residents
- Received 13 instances of USCG assistance to transport animals in 2009-2010

The MMRN is continuing to build support in local communities throughout Hawaii, and there is a growing partnership between the response network and the Hawaiian cultural network to provide cultural practitioners at stranding events. The MMRN is also developing outreach to increase awareness about the importance of reporting sightings, interactions and injured or dead animals. In the future, the response network will continue to build on relationships with partners to improve the capacity to provide veterinary care, drawing on temporary care in the field, urgent care and longer-term captive care facilities.



Local Community Engagement

PIRO has started a suite of programs designed to improve local community support for, and participation in, Hawaiian monk seal recovery and marine mammal response in the MHI. The programs include hiring a Native Hawaiian liaison, organizing a Native Hawaiian cultural practitioner network, community liaison programs and other community engagement with our partners and stakeholders.

As the community programs move forward, they are expected to facilitate increased community involvement in recovery efforts, public outreach by our community liaisons, and support for the recovery program across the islands. In FY 2011, budget permitting, PIRO will continue to support community projects to build on growing local community support of monk seals.

Community engagement milestones include:

- Hired Native Hawaiian liaison for NOAA Fisheries Hawaiian Monk Seal Recovery Program
- Developed Native Hawaiian cultural practitioner network for Hawaiian Monk Seal Recovery Program and Marine Mammal Response Network
- Started community liaison programs on Kauai, Oahu, Molokai and Maui to help improve communication and coordination with local communities

Hawaiian Monk Seal News on the Web

What is new in the monk seal world? For frequent reports about monk seal movements and news from volunteers and partners, you can visit the following websites:

- **Monk Seal Mania** (<http://monksealmania.blogspot.com/>): Daily updates and photos of monk seals around Oahu.
- **Kauai Seals** (<http://kauaiseals.wordpress.com/>): News and information about the seals frequenting the island of Kauai.
- **Hoailona's Journey: Travels with KP2** (<http://www.monkseal.ucsc.edu/>): Follow Hoailona's health and scientific research progress as well as updates about conservation issues and his eventual return to Hawaii.
- **Monachus Guardian** (<http://www.monachus-guardian.org/>): Website with news and information dedicated to monk seals around the world (Mediterranean, Hawaiian, and Caribbean) and their threatened habitats.
- **Na Mea Hulu** (<http://nameahulu.org/>): News and information about Hawaiian monk seals in Hawaii

Note: The views and information presented in the on-line material above do not necessarily reflect the positions or policies of NOAA Fisheries Service.



Foraging Studies in the Main Hawaiian Islands

Understanding the diet, foraging behavior and habitat use of Hawaiian monk seals is critical for managing the species in the MHI. Understanding seal ecology will help us understand the impact of population growth on marine resources and help managers develop strategies for dealing with fisheries issues. PIFSC has recently made great advances in defining the ecology of seals in the MHI.

In FY 2011, PIFSC will continue its partnership with the Navy and deploy another 15 cellphone tags. PIFSC will also partner with the National Geographic Society and University of New England to conduct a study looking at the presence of commercial bottomfish species in the diet of monk seals using fecal DNA. Other planned studies include using fatty-acid analysis and stable isotopes to further define the diet of monk seals in the MHI and a study quantifying fisheries interactions in the MHI.

Main Hawaiian Islands Population Monitoring

The MHI is becoming an ever more significant proportion of the total species abundance. It is important to monitor the status and population trends in the MHI, as it will ultimately be a key region for the eventual recovery of the species. Each year, NOAA Fisheries Service gains more knowledge about the MHI monk seal population through its own efforts, a network of volunteers and reports from the public and partner agencies including the State of Hawaii, Kahoolawe Island Reserve Commission, HIHWNMS, NPS, USFWS, etc. This is an extremely valuable and low-cost method of amassing large amounts of data; there is still much to learn about this population.

Recent progress includes:

- PIFSC continued to manage the large volume of information collected by the sightings network and associated databases
- Conducted a pilot project to evaluate methods for conducting systematic inventories of monk seal populations in the MHI
- In 2010, conducted enhanced population surveys to better quantify MHI seal population, including flipper tagging pups and mature seals and bleach marking fur for identification
- Made great strides in developing a partnership with the Niihau Island owners, including obtaining population data from island residents
- Published a manuscript providing first estimates of MHI population growth, survival and reproductive rates.
- Conducted annual community-based monk seal counts in 2009 and 2010

Highlights of foraging studies in the main Hawaiian Islands:

- Completion of analyses for a graduate student project on “Foraging ecology of monk seals in the MHI” using satellite telemetry and fecal analysis to understand the basic ecology of the species
- Initiated foraging studies using novel cellphone and GPS technology to develop a more refined understanding of the foraging behavior of monk seals; this project was done with support from the U.S. Department of Defense (DOD - Navy)



Map depicting the movements over 6 days of a seal instrumented with a cellphone tag.

Future plans for MHI population monitoring include continuation and expansion of population monitoring efforts in the MHI, with a focus on learning more about seal use of harder to survey locations, including Niihau, Lehua Rock, Kahoolawe, etc. A web-based portal for data entry is also planned to facilitate and increase efficiency of data processing. The 8th Semi-Annual Monk Seal count was conducted with community support in April 2011.

A total of 5 seal mortalities were documented in the MHI in 2009 and 8 mortalities in 2010. NOAA Fisheries Service and partners identified 2 entanglements in 2010 (1 adult and 1 juvenile – drowned in gillnet) and 12 hookings (3 adults, 2 subadults, 5 juveniles, 3 weaned pups, 1 unknown).

Documented MHI Monk Seal Deaths in 2009

Size/Sex	Cause of Death
Subadult/Male	Gunshot
Pup/Male?	unknown
Adult /Female (pregnant with near-term male)	Gunshot
Adult/ Male	Gunshot
Pup (neonate)/Unknown	Swept out to sea

Documented MHI Monk Seal Deaths in 2010

Size/Sex	Cause of Death
Adult/Male	Meningoencephalitis due to protozoal infection
Subadult/Male	unknown
Subadult/Female	unknown
Juvenile/Female	Entanglement/Drowning
Juvenile/Female	Blunt trauma
Pup/Male	Protozoal infection
Pup (fetus)/Female	Stillborn/fetal stress
Pup/unknown	unknown





State of Hawaii Partnership

NOAA Fisheries Service continued its productive partnership with State of Hawaii DLNR to increase fishermen’s awareness and promote seal-friendly fishing practices. These efforts are funded in part via an ESA Section 6 grant administered by NOAA Fisheries Headquarters. PIRO also provides direct funds for staff and program needs associated with Hawaiian monk seal recovery. Over the past two years, DLNR has maintained a full-time marine mammal health and response support staff person on Kauai, as well as an Oahu-based marine wildlife program manager and planning and policy analyst. A response coordinator funded jointly by PIRO and the HIHWNMS also provided essential response and outreach support on the island of Hawaii. DLNR efforts have focused on response support and community outreach and education, especially outreach to fishermen and other local ocean users.

State of Hawaii partnership milestones:

- Received multi-year ESA Section 6 grant from NOAA to support Hawaiian monk seal and green sea turtle recovery efforts
- Maintained full-time marine mammal health and stranding response support staff person on Kauai, as well as a marine wildlife program manager and a planning/policy analyst on Oahu

With continued NOAA Fisheries Service support, DLNR is moving forward on hiring additional outreach and education staff to work on Kauai, Oahu, Maui, and Hawaii Island, to work in close coordination with community-based programs (see “Local Community Engagement”) and to support the MMRN with monk seal responses.



Education and Outreach

During 2009 and 2010, there were many enhancements and additions to education and outreach promoting Hawaiian monk seal recovery. Several new outreach products were developed and distributed state-wide, including two full-color brochures providing information about monk seals and responsible wildlife viewing guidelines, new signage, FAQ sheets, and a short documentary about monk seals in Hawaiian culture. A contractor was also hired and began conducting a Hawaiian monk seal knowledge, attitudes and perception survey for targeted audience groups. In addition to outreach products, numerous events and activities were conducted to support monk seal recovery. Volunteers and staff conducted public outreach and education across the state, reaching over 10,000 members of the public through:

- Partnerships with over 30 businesses
- 50+ school presentations
- 100+ schools receiving “An Endangered Treasure,” the volunteer-created, monk seal school presentation and curriculum CD
- Outreach presentations and materials distributed to over 30 hotels and condos

Important education and outreach achievements include:

- Brochure presenting general information about monk seal biology and summarizing NOAA Fisheries Service research and recovery program efforts
- Brochure intended for wildlife enthusiasts presenting responsible wildlife viewing guidelines for monk seals, as well as for sea turtles and other whales and dolphins in Hawaii
- Signage about Hawaiian monk seals on all public transit buses run by the City and County of Honolulu
- New mom and pup resting signs
- 10-min documentary titled “A Privilege To See,” that explores the value of monk seals in Hawaiian culture (funded in part by the Hawai‘i Tourism Authority)





Hawaiian monk seal education and outreach activities and projects slated for 2011 include:

- An animated training video for volunteers and the public about how and why to prevent human-socialized monk seals (funded from FY 2010)
- A public high school lesson plan based on concepts presented in the video “A Privilege to See”
- Community “talk-story” sessions about monk seals
- Developing strategic messaging and delivery for targeted audiences based on the results of the public perception survey
- Developing fishery interactions guidelines for outreach with fishermen
- Large HMS-focused public events at the Waikiki Aquarium and other venues across the islands, such as the public campaign “Monk Seals in Your Neighborhood”
- Acquisition of life sized monk seal models to assist in monk seal outreach and education
- A revised volunteer manual that includes Hawaiian cultural elements
- Increased partnered outreach events with other NOAA offices
- Increased partnerships with the tourism sector

Monk Seals in Schools ...

Several community groups in Hawaii work very hard to educate school children about the unique, native animals with which we share our ocean and beaches:

Kauai Monk Seal Watch Program (KMSWP) has been giving presentations about monk seals to 4th grade classrooms on Kauai since 2001. Since 2003, 100% of 4th grade classes on Kauai have hosted a KMSWP program. KMSWP is now in its 5th year of conducting the same program in classrooms on Molokai, with over 11,000 students reached on the two islands. KMSWP has also conducted 5 years of scheduled weekly hotel outreach programs and produced 9 television and 9 radio PSA spots. All can be viewed or heard on their website at <http://www.kauaimonkseal.com>.

Volunteers with the Hawaiian Monk Seal Response Team Oahu (HMSRTO) have produced and distributed a monk seal school presentation and curriculum CD, “An Endangered Treasure,” to over 100 schools on Oahu. They are now expanding to offer the presentation and curriculum to schools on the neighbor islands. For more information, go to <http://www.hmsrto.org>.



Seal Behavior Management

As the Hawaiian monk seal population continues to naturally increase in the main Hawaiian Islands, the probability of seal-human interactions will increase. A primary goal is to prevent seals from becoming habituated to humans and to keep humans and seals safe. To that end, NOAA Fisheries Service is developing tools and procedures to manage seals using theories of classical and operant conditioning including positive reinforcement, aversive conditioning and counter conditioning.

Behavioral Management milestones:

1. Conducted workshop on methods for aversive conditioning and behavior modification to prevent and mitigate “habituated” and/or “conditioned” seals
2. Developed behavior research program design
3. Aversive techniques successfully used by the MMRN when seals have been in imminent danger of injury
4. Currently developing an animated video depicting how seals can become habituated to humans and how to prevent that through human behavior change and awareness

Although some basic techniques are currently in use, NOAA Fisheries Service will be assessing the viability of a suite of techniques and determining the most appropriate application of these techniques as a management tool. Budget permitting, PSD plans to further develop the behavioral management research program and hire a behavioral ecologist to quantitatively investigate behavioral modification in monk seals in the MHI.



NOAA Fisheries Service's goal is to prevent seals from becoming habituated to humans and to keep humans and seals safe.



Critical Habitat

In response to the July 9, 2008 petition from three conservation groups, NOAA Fisheries Service released a 12-month finding in June of 2009 stating its intention to move forward with a proposed rule to revise Hawaiian monk seal critical habitat. The 2009-2010 efforts on this revision have been directed towards meeting all of the regulatory requirements necessary to move forward with the publication of a proposed rule that will outline the habitat essential for Hawaiian monk seal conservation.



Critical habitat revision milestones:

- Critical Habitat Review Team convened and determined the proposed designation (including identification of essential features, 4(a)(3) INRMP reviews and proposed 4(b)(2) determinations)
- All corresponding reports written: draft biological report, draft economic analysis, draft 4(b)(2), proposed rule
- Proposed designation and proposed rule cleared through the Pacific Islands Region and sent for final review at the Department of Commerce and NOAA Fisheries Office of Management and Budget

The proposed rule is subject to review by NOAA Fisheries Service headquarters and the Office of Management and Budget. Once it has been reviewed, the proposed rule will be published and open for public comment. During the public comment period, NOAA Fisheries Service will also hold public hearings. Following the comment period, NOAA Fisheries Service will begin work on the final rule.

RECOVERY STRATEGY #3 – Prevent and mitigate disease, and build seal health care capacity

Historically, infectious diseases have not been recognized as a major mortality factor for Hawaiian monk seals. However, biomedical sampling and epidemiological surveys in the NWHI between 1997 and 2001 have demonstrated evidence of exposure to some potential pathogens. Given their relative isolation, Hawaiian monk seals may not have immunity to many pathogens commonly found in other marine mammals. Hawaiian monk seals in the MHI in particular may be at risk of increased exposure to several infectious disease agents associated with terrestrial animals that are known to cause disease in other marine mammals and to contaminate marine habitats via runoff. To address this potential threat, PIFSC has developed and maintained a Health and Disease Program to investigate and address problems in the field, and NOAA Fisheries Service is building its capacity for captive care, in many cases through partnerships with other facilities.

Health Screening and Disease Surveillance

The PIFSC Health and Disease Program (HDP) studies the role that infectious diseases, parasites and toxins (anthropogenic and naturally occurring biotoxins) play in the recovery of the Hawaiian monk seal population. This team biomedically samples live seals, conducts thorough necropsies on dead seals, and uses samples collected to determine the prevalence of disease in the monk seal population and identify causes of death. Aside from accomplishing the important tasks of studying seals and monitoring for disease, the PIFSC spent considerable effort reviewing and improving many aspects of the program.

Health Screening and Disease Surveillance milestones:

- PIFSC hosted a workshop with external expert scientists to review the program, more clearly specify the scope, direction and focus of the HDP, and devise a strategy for moving toward this goal
- Continued health screening of free-ranging MHI seals to determine disease prevalence, including infectious disease screening and ciguatera analysis
- Began a study of organochlorine and other contaminants in Hawaiian monk seals in the main Hawaiian Islands with Hawaii Pacific University
- Improved data and sample tracking by reorganizing archived samples and implementing new strategy for incoming specimens to maximize space and minimize handling time
- Completed necropsies across the archipelago (approximately 10 in the MHI and 17 in the NWHI) to collect biological samples and attempt to assess causes of mortality
- More than 6,000 specimens collected in 2009 and 2010 with almost 1,000 sent for analysis to external laboratories
- Assessed current and emerging threats, expanding recovery activities and emergency response

The priorities for PIFSC will be incorporating the external review recommendations into the Health and Disease Program. The primary recommendations include the hiring of a staff veterinarian, as well as enhanced and refined disease surveillance, budget permitting.



Hawaiian monk seals may not have immunity to many pathogens commonly found in other marine mammals. Hawaiian monk seals in the MHI in particular may be at risk of increased exposure to several infectious disease agents associated with terrestrial animals.



Captive Care Facilities

NOAA Fisheries Service has facilitated development of a network of captive care facilities at various locations in partnership with The Marine Mammal Center (TMMC), Waikiki Aquarium, Sea Life Park, Natural Energy Laboratory Hawaii Authority (NELHA), and others. The network anchor facility is nearing construction phase at NELHA, Kona, Hawaii. TMMC, in coordination with NOAA Fisheries Service, is leading this initiative to build a facility to hold up to six seals for treatment, rehabilitation and other purposes. NOAA Fisheries Service and TMMC finalized a supporting stranding response agreement in 2010. Project approval by the NELHA Board has been secured, land parcel selected, and lease negotiations are nearing completion. TMMC has identified a contractor and initiated facility design. This project is being implemented without direct NOAA Fisheries Service funding support. Private fund raising is currently underway by TMMC to support facility construction and operation.

Captive Care Facility milestones:

- Four pools and water treatment facilities have been installed at the new NOAA buildings at Ford Island, Pearl Harbor
- Completed final renovations to the urgent care facility at Waikiki Aquarium
- Initiated NOAA Fisheries Service partnership with Sea Life Park for non-releasable monk seal permanent holding
- Several seals successfully held in captivity for short term care under the NOAA Fisheries MMRN:
 - 4DP seal with suspected hook in stomach at Waikiki Aquarium captured 6-24-08, released 6-27-08
 - R042 seal with behavioral problems Marine Corp Base Hawaii (MCBH) spring 2009 for one week
 - KP2 seal with behavioral problems MCBH 9-28-2008 to 12-16-2008 and at Waikiki Aquarium 10-16-2009 to 11-24-2009
 - RW34 seal with hook lodged in esophagus captured 6-20-2009; after successful procedure, released back to the wild 6-25-2009

TMMC anticipates opening the facility at NELHA in mid 2012. Other captive care network facilities include: Waikiki Aquarium for short-term care (currently operational), Sea Life Park for permanent care with outreach component (anticipated opening in late 2011), and a complex of holding pools at the new NOAA facility currently under construction at Ford Island, Pearl Harbor (pools should be operational by the end of 2011).

Vaccinations

Vaccinations would help protect Hawaiian monk seals in the case of an infectious disease, such as West Nile or distemper, reaching the population. Hawaiian monk seals have been isolated from other pinniped (seal and sea lion) populations and so may not have the same immunities to disease. As a result, an infectious disease reaching Hawaii's monk seals could quickly sweep through and decimate the already small population. The PIFSC in collaboration with SeaWorld and The Marine Mammal Center have begun work developing vaccines for monk seals focusing on morbillivirus and West Nile virus.

NOAA Fisheries Service will continue to develop plans as stated above and consider the expansion of vaccinations for use in other situations as warranted.

Vaccination milestones:

- Reviewed vaccine use in pinnipeds worldwide to select appropriate vaccine
- Began testing vaccines on surrogate species and captive monk seals
- Developed plans for future testing on other captive monk seals
- Initiated planning of application of vaccines to wild population and/or responding to emergency response

An infectious disease reaching Hawaii's monk seals could quickly sweep through and decimate the already small population.

RECOVERY STRATEGY #4 – *Administer recovery program for maximum effectiveness, integration, and partnerships*

In 2009 and 2010, the NOAA Fisheries Service made important improvements in the implementation of the Recovery Plan, including building partnerships with other agencies and NGOs, improved recovery program coordination, and building community and within-agency capacity for monk seal recovery activities.

Partnerships

NOAA Fisheries Service has partnered extensively with State of Hawaii, DLNR, the U.S. DOD, U.S. Navy, U.S. Coast Guard, HIWHNMS, NPS Kalaupapa National Historical Park, USFWS, and various other government agencies and NGOs in conducting numerous actions discussed in this report. Here, we highlight some of the accomplishments of partner organizations on behalf of the overall monk seal recovery cause, with little or no direct funding from NOAA Fisheries Service.

American Girl Doll and Kauai Monk Seal Watch Program

American Girl and Kauai Monk Seal Watch Program (KMSWP) have brought Hawaiian monk seals and their plight to the national stage: American Girl is a line of dolls, books and accessories that focus on the lives of teen girls in various periods of American history. The 2011 American Girl doll of the year is Kanani Akina, whose story is set in Hawaii. In the accompanying books, Kanani is from Kauai and helps save a Hawaiian monk seal pup. American Girl's executive editor and the author of both books worked with KMSWP's Projects Coordinator during the development of the books (and associated products) to highlight monk seals as the major subplot. The first book focuses on marine debris entanglement/disentanglement, and the second revolves around a poster campaign the girls conduct to raise money for monk seal awareness. In both books, the "Kauai Monk Seal Foundation" is modeled on KMSWP. KMSWP received a donation, and a portion of the profits from a monk seal stuffed animal accessory go to National Wildlife Federation endangered species education.



KP2 at the Long Marine Laboratory, University of California Santa Cruz

KP2, short for “Kauai pup two,” otherwise known as Hoailona, was abandoned as a pup on Kauai and was removed from the wild due to habituation to humans, KP2 was unsuitable for re-release because of vision problems. Hoailona has been residing at the Long Marine Laboratory (LML) in Santa Cruz, California since February 2010 and has been learning to participate in scientific research on physiology and energy use that will provide data for the preservation of wild seals (NOAA Fisheries Service permit #932-1905/MA-009526). He has also played a key role in the development of de-worming and vaccination strategies to help wild seals. LML maintains a webpage (<http://www.monkseal.ucsc.edu>) and Facebook page to chronicle Hoailona’s journey, research updates, and raise awareness of marine debris and wildlife entanglement. The name Hoailona (roughly meaning “sign or omen” in Hawaiian) was given to KP2 by residents of Molokai who developed a deep affection for the young seal during the months he frequented the wharf at Kaunakakai. These Molokai residents continue to track the seal’s status via the LML Facebook fan page.



Worldwide Waste Reduction Day – Touching Toes

As part of Worldwide Waste Reduction Day, school children from Mount Madonna School in Santa Cruz, CA, Kaunakakai Elementary School on Molokai, and Laie Elementary School on Oahu, all touched their toes to the ocean at the same time following a beach cleanup. The toe touch, at 11:30 a.m. in California and 9:30 a.m. in Hawaii, was intended to draw attention to human trash in the oceans and efforts to prevent the destruction of the shared marine environment that threatens sea otters in California and endangered Hawaiian monk seals in Hawaii.



New State of Hawaii Legal Protections

In addition to being made the Hawaii state mammal, on June 8th, 2010, the State of Hawaii enacted a law making it a class C felony to intentionally harm, harass or kill Hawaiian monk seals and other federally listed endangered or threatened species. In the wake of several apparent intentional killings of monk seals on Kauai and Molokai, the new state law extends the misdemeanor punishment already imposed by violations to the federal Endangered Species Act, which includes a fine of up to \$50,000 and five years in prison.

B.E.A.C.H. and HMSRTO Beach Cleanup

B.E.A.C.H. (Beach Environmental Awareness Campaign Hawaii) and HMSRTO (Hawaiian Monk Seal Response Team Oahu) teamed up to organize and train a group for beach cleanup in the name of monk seals. Several HMSRTO volunteers saw large amounts of debris washing up near favorite monk seal haul outs, particularly an area frequented by a 22-week old monk seal pup. As a result, the two non-profit groups worked together and held a beach clean-up day near Kahuku Point, the northernmost tip of Oahu, to clean up marine debris along the coastline. About 30 volunteers removed two full truck-loads of rope, plastics, buoys and fishing line – all entanglement hazards for monk seals.



Recovery Team

The Hawaiian monk seal recovery team continued to provide important technical and policy guidance to NOAA Fisheries Service during the reporting period. The team held annual meetings on November 30 – December 2, 2009; and on February 8 – 10, 2011. These 3-day meetings included numerous presentations by NOAA Fisheries Service staff and partners on various aspects of monk seal science and management, which facilitated extensive discussions among the team regarding a wide variety of research and recovery-related issues. As a result of each meeting, the team generated a set of recommendations regarding several issues, ranging from shark predation on seal pups at French Frigate Shoals to managing human-seal interactions in the MHI. Budget permitting, NOAA Fisheries Service is considering conducting regular consultation with the team during the development of a MHI management plan for monk seals. This would probably entail holding more frequent meetings and adding new team members with knowledge and expertise in the visitor industry, law enforcement, and other fields related to monk seal recovery issues in the MHI.

Staff

With the increased federal funding allocated to the Hawaiian monk seal program in FY 2009 and FY 2010, NOAA Fisheries Service hired a full-time recovery coordinator, an assistant recovery coordinator, a survival enhancement ecologist, and other additional research staff. NOAA Fisheries Service funds have also helped to support a regional response program coordinator, assistant response program coordinator, and local response coordinators for the islands of Kauai and Maui. Pending available funds, PIFSC has prioritized the hiring of a staff veterinarian to manage the Health and Disease Program (and participate in various field activities), and a behavioral ecologist to conduct research and develop protocols for dealing with seal-human interactions in the MHI. Maintaining the current staffing level over the next several years will be necessary to hold on to the recovery gains made thus far, including crucial research in the NWHI, and progress in addressing human-seal interactions in the MHI.

LOOKING AHEAD

Most of the accomplishments listed above were made possible with increased federal funding allocated in FY 2009 and FY 2010. Given the normal lag in funding allocation and procurement processes, some accomplishments associated with this increased funding have not been fully realized. In particular, the community-based programs, such as the community liaison programs were only initiated in late 2010, and some important results from these efforts, including enhanced community support and participation in Hawaiian monk seal recovery, are still forthcoming. PIRO looks forward to working with PIFSC, NOAA Fisheries Service, and others in preparing follow on reports for these and other accomplishments as they are realized. As summarized in this report, NOAA Fisheries Service and its partners have efficiently applied the increased funding in FY 2009 and FY 2010 to valuable projects for monk seal recovery. As this report is being written, it appears very likely that comparable funding will not be available for FY 2011 and FY 2012, and NOAA Fisheries Service will probably need to at least temporarily eliminate or scale back important aspects of the Hawaiian monk seal recovery program. It is hoped that this report serves to highlight the important projects and accomplishments that can and will be achieved when sufficient federal funding is available.



All of the programs and associated accomplishments described in this report directly address strategies and actions specified in the Hawaiian Monk Seal Recovery Plan, and as such should be continued to the maximum extent possible.

In particular, it is essential to:

- Ensure the programmatic EIS and ESA-MMPA permitting processes for new enhancement and research are completed to allow for full implementation of an integrated suite of survival enhancement activities for juvenile seals in the NWHI
- Ensure that new and existing MHI management and research activities continue to foster nascent Native Hawaiian support, enhance promising government and non-government partnerships and mitigate resentment of monk seals within some of the local fishing community
- Ensure that NOAA Fisheries Service and its partners retain the staffing and administrative capacity necessary to actively pursue actions that enhance monk seal survival

NOAA Fisheries Service has made important advances in understanding the threats to the population and development of effective management tools. However, the species still faces a steep decline and the potential for novel and catastrophic threats continues. NOAA Fisheries Service and its partners remain committed to increasing cooperation and coordination, both within the agency and with others. NOAA Fisheries Service will continue to use innovative science to explore monk seal biology and interactions with humans and the environment, and apply the best available science to guide our management and recovery plans for monk seals.



LESSONS LEARNED

To close this report, we present an overview of some of the most important lessons learned in the course of developing and implementing the recovery program over the past two years. Although much more has been learned, the following are some overarching themes that NOAA Fisheries Service will incorporate in its future Hawaiian monk seal recovery efforts:

- Education and outreach, for both the public and partners, is essential to reduce threats and accomplish goals across the species range.
- NOAA Fisheries Service meets diverse threats to monk seals and management issues across the inhabited and uninhabited Hawaiian Islands archipelago. Looking forward, the recovery program will benefit by achieving increased synergy between research and management. Management can be informed by the best available science, and research can be guided by management needs.
- Based on the best available science and understanding of threats, NOAA Fisheries Service has identified important research and management activities to recover Hawaiian monk seals. Recent increased funding has helped ensure that priorities are being adequately addressed. Adequate program funding helps ensure the success of those activities and serves as an incentive for broad coordination and partnering to best apply all available resources to monk seal conservation and recovery.



Appendix A

NOAA Fisheries Service Programs Supporting Hawaiian Monk Seal Recovery

Several organizational units within NOAA Fisheries Service support Hawaiian monk seal recovery directly and indirectly. This overview focuses on four units that most directly support recovery, but it is important to recognize that many other units, including other divisions within PIRO, PIFSC and NOAA Fisheries Headquarters, and regional administrative units and acquisitions offices, provide invaluable support as well. In addition to NOAA Fisheries Service staff and programs, monk seal recovery receives invaluable support from numerous other government agencies and non-government organizations. These partners and their contributions are described throughout the accomplishments section.

PIRO PRD

The PRD is dedicated to protecting and recovering endangered and threatened species of sea turtles, monk seals and cetaceans as mandated by the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). As discussed in the introduction above, PRD is tasked with overall coordination of Hawaiian monk seal recovery. With additional funding provided in FY 09 and FY 10, PRD has added staff, and developed and implemented many of the projects and programs described in the accomplishments report. PRD has continued to serve as the lead “management” unit, leading education, outreach, regulatory, field response and policy and planning activities. In addition to serving as a traditional management unit, PRD has strived over the past two years to improve its effectiveness as an overall coordinator of all programs and activities supporting monk seal recovery. This coordination entails finding opportunities, such as outreach events, field responses, community meetings, internal meetings, and even the preparation of this report, that bring together NOAA Fisheries Service scientists, managers, regulatory staff, enforcement personnel and administrators to promote more effective and efficient efforts that work in concert towards monk seal recovery.

PIFSC PSD

The mission of the PSD is to provide the scientific foundation for conservation and sustainability of federally protected species within the Pacific Islands Region, including Hawaiian monk seals. Within PSD, the Hawaiian Monk Seal Research Program (HMSRP) is dedicated to a wide variety of research efforts, all of which provide scientific information essential for Hawaiian monk seal recovery. These efforts include maintaining an extensive population assessment program, that assesses Hawaiian monk seal abundance, demographics and sources of mortality that may limit population growth in the NWHI and MHI. The HMSRP also has programs focused on foraging ecology, health and disease issues, and survival enhancements strategies.

OPR

OPR is a headquarters program office of NOAA Fisheries Service with responsibility for protecting marine mammals and endangered marine life, including Hawaiian monk seals. OPR works to conserve, protect and recover species under the ESA and MMPA in conjunction with Regional Offices, Science Centers and various partners. OPR houses several programs and staff that support monk seal recovery, and have become increasingly engaged in recovery support over the past two years. All of the following four OPR divisions support monk seal recovery in one way or another: Permits, Conservation, and Education Division (F/PR1), Marine Mammal and Sea Turtle Conservation Division (F/PR2), Endangered Species Division (F/PR3), and Planning and Program Coordination Division (F/PR4). For instance, OPR administers the national ESA Section 6 program that oversees cooperation with state conservation agencies on endangered species, and in the case of Hawaiian monk seals, the program administers a grant to the State of Hawaii, Department of Land and Natural Resources (DLNR), that supports a variety of DLNR staff and activities intended to promote monk seal recovery (see “Partnerships” in the accomplishments section below). OPR is also responsible for issuing permits under the ESA and MMPA, and OPR permits staff have provided essential support for Hawaiian monk seal recovery by ensuring research and management activities that entail the “take” of monk seals are conducted in compliance with the ESA and MMPA (see description of the PEIS process in the accomplishments section below). OPR also manages the national marine mammal health and stranding response program, which provides essential support and oversight for the regional Hawaiian monk seal response program and health and disease program, among other efforts. OPR also houses the national ESA recovery program and education and administrative staff that all assist PRD and PSD in monk seal recovery efforts.

OLE and GC

The Office of Law Enforcement (OLE) and NOAA General Counsel (GC) provide enforcement support required for Hawaiian monk seal recovery. Enforcement is a broad management strategy that entails laws, programs, personnel and activities associated with enforcing prohibitions and other regulations stipulated by the Endangered Species Act, Marine Mammal Protection Act, and other laws. Enforcement entails OLE officials, such as federal special agents and uniformed officers, responding to alleged violations, gathering evidence, and conducting investigations. Enforcement also entails efforts undertaken by GC staff and attorneys and federal judicial officials to successfully prosecute those found in violation of the law. Enforcement personnel also often support other recovery efforts, such as outreach and education.

Appendix B

DLNR – Department of Land and Natural Resources, State of Hawaii
DOD – U.S. Department of Defense
EIS – Environmental Impact Statement
ESA – Endangered Species Act
FFS – French Frigate Shoals
FY – Fiscal Year
GC – NOAA General Counsel
HDP – Health and Disease Program
HIHWNMS – Hawaiian Islands Humpback Whale National Marine Sanctuary
HMSRTO – Hawaiian Monk Seal Response Team Oahu
KMSWP – Kauai Monk Seal Watch Program
LML – Long Marine Laboratory
MHI – Main Hawaiian Islands
MMPA – Marine Mammal Protection Act
MMRN – Marine Mammal Response Network
NELHA – Natural Energy Laboratory of Hawaii Authority
NEPA – National Environmental Policy Act
NGO – Non-Governmental Organization
NPS – National Park Service
NOAA – National Oceanic and Atmospheric Administration
NOS – National Ocean Service
NWHI – Northwestern Hawaiian Islands
OLE – NOAA Office of Law Enforcement
OPR – Office of Protected Resources
PEIS – Programmatic Environmental Impact Statement
PIFSC – Pacific Islands Fisheries Science Center
PIRO – Pacific Islands Regional Office
PMNM – Papahānaumokuākea Marine National Monument
PRD – PIRO Protected Resources Division
PSD – PIFSC Protected Species Division
TMMC – The Marine Mammal Center
USCG – U.S. Coast Guard
USFWS – U.S. Fish and Wildlife Service

Photos in this report were taken under NOAA NMFS permits 10137 and 932-1905.

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