

components of history, traditional knowledge, and leadership are interconnected. The history component focuses on inspiring and understanding through mo'olelo—oral stories, protocol, and orientation. The traditional knowledge component delves into conservation, habitat restoration, and food production by teaching about healthy watersheds and traditional Hawaiian aquaculture. The alaka'i (leadership) component brings safety, administration, and kuleana — responsibility to place with field training to monitor water quality data and examining data for trends and contamination points. Propagation of native plants and activities support the restoration and management of a healthy ecosystem at Loko Ea.



Volunteers help with invasive grass removal from 400-year-old fishpond banks. Photo: Malama Loko Ea Foundation

Pacific Islands Region Marine Turtle Program

The Pacific Islands Region Marine Turtle Program supports specific programmatic activities for the conservation, protection, and management of listed sea turtle species in the PIR. These species may occur within the PIR or have documented linkages to the PIR, such as turtles that originate from areas outside of U.S. jurisdiction but migrate through or forage within the PIR, or interact with PIR fisheries managed by NOAA Fisheries. In 2019, PIRO issued nine federal assistance awards totaling \$527,270.

The Honu Project — Strengthening Monitoring Efforts for Hawksbill Sea Turtles on Hawai'i Island with the Hawai'i Island Hawksbill Turtle Recovery Project (\$90,434)

Hawksbill turtles (*Eretmochelys imbricata*) that reside in the Hawaiian archipelago are potentially the rarest population of sea turtles in the world. To protect and monitor hawksbill turtles, the Hawai'i Island Hawksbill Turtle Recovery Project was created in 1989 and has continued with these efforts since. The project aims to monitor beaches for hawksbill nesting activity, protect nests, and ensure hatchlings safely reach the ocean. The Honu Project collects data on the Hawai'i nesting hawksbill population to control non-native species on nesting beaches. The project promotes public stewardship of coastal and marine ecosystems through educational outreach. It also implements relevant and innovate management techniques to assist in the recovery of hawksbills as identified in the 2018 *Action Plan for Research and Management of Hawksbill Sea Turtles in Hawai'i*.

The Nature Conservancy (TNC) — Conserving Leatherback Turtle Nesting Beaches in Solomon Islands (\$84,546)

Under this project, TNC supports Solomon Islands communities in their efforts to protect and monitor two leatherback turtle nesting beaches during the 2019 and 2020 peak nesting seasons. TNC also brings together multiple stakeholders to develop and endorse a management plan for one of the largest leatherback nesting beaches in Solomon Islands. TNC is compiling



Hawai'i Island Hawksbill Turtle program staff relocate endangered hawksbill turtle nests to protect them from high surf, beach erosion, and predation from feral cats, rats and mongoose. Photo: Honu Project

an electronic database on all available leatherback turtle nesting data that has been collected in Isabel Province from 2007–2019 and will make this database publicly available. These efforts help conserve the critically endangered West Pacific leatherback turtle subpopulation and provide valuable insights into its population trends.



University of the South Pacific researcher measures, tags and obtains genetic samples of a green turtle as part of a study to increase our understanding of endangered Central South Pacific green turtles. Photo: University of the South Pacific

The University of the South Pacific — A Multi-Disciplinary Approach to Monitor Green Turtles from the Central South Pacific Distinct Population Segment (DPS) Aggregating at Three Foraging Grounds in Fiji, Central South Pacific (\$81,913)

This project brings an improved understanding of habitat use and impact of cyclones and El Niño Southern Oscillation on green turtles from Central South Pacific DPS aggregating at the three foraging grounds in Fiji. The project intends to monitor the

turtles in the main study area for a total of 7 years (the IUCN recommends 10 years to assess a population or DPS Red List status). Results will provide an increased sharing of information on foraging ecology and habitat use of green turtles from the Central South Pacific DPS.

Office of the Governor, Commonwealth of the Northern Mariana Islands — Stewardship of Northern Mariana Islands Sea Turtles Through Research, Monitoring, and Conservation (\$70,000)

Considering the threat of climate change and extreme poaching pressure in CNMI, there is concern about extirpation of CNMI nesting sea turtles. This project will help protect, recover, and promote valuable sea turtle resources of CNMI through science-based conservation and management strategies and maintain a valuable dataset that enables detection of populations and successful practices. Climate change and poaching, combined with increased recreational use of beaches, increased fishing pressures on coral reef and seagrass habitats, human population growth, coastal development, and lack of conservation education and public awareness, continue to threaten green and hawksbill sea turtle populations on Saipan. Continued research, monitoring, and education efforts are required to combat these issues.

World Wildlife Fund, Inc. — Banda Sea Leatherback Sea Turtle Nesting Dynamics (\$60,000)

The IUCN and NOAA have identified the Pacific leatherback sea turtle (*Dermochelys coriacea*) as a species most at-risk for extinction in 2013 and 2016, respectively. The Indonesian archipelago provides critical habitat for the surviving population, but their numbers have dramatically declined. They are threatened by the direct harvest of eggs, the direct take of juveniles and adults (on foraging grounds and nesting beaches), and fisheries interactions (from bycatch), as well as by coastal development, pollution, and climate change. This project will monitor newly identified nesting beaches on Buru Island to gain a greater understanding of the habitats' importance in the survival of this leatherback population. The project will also use satellite tagging to identify potential new nesting beaches throughout the Maluku region. Additionally, genetic sampling and satellite tagging will help examine the connectivity of this population and its potential links to populations found in U.S. waters.

Large Marine Vertebrates Research Institute Philippines, Inc. (LAMAVE) — Assessing the Status and Ecology of Endangered Marine Turtles in the Philippines and its Role in PIR Turtle Conservation (\$49,420)

This project develops a centralized database with historical and present data about marine turtle presence and distribution in the Philippines by identifying threats to the species. Conservation priority areas highlight understanding and connectivity of Philippines turtles with the U.S. PIR and other neighboring countries. Data collection and scalability of the population monitoring system initiates efforts to collect genetic samples to understand connectivity to other populations. Both photo-ID and paired laser photogrammetry assist in understanding growth rates, residency times, individual movement, history parameters, and health conditions. A satellite telemetry, time-depth recorder tagging, and flipper tagging enable track movement, connectivity, and habitat use while monitoring nesting and fishery interactions.

Hawai'i Marine Mammal Alliance dba Hawai'i Marine Animal Response — Marine Turtle Management and Outreach (\$48,280)

Hawai'i Marine Mammal Alliance dba Hawai'i Marine Animal Response (HMAR) provides a volunteer-based stranding response program on the Island of O'ahu for dead, injured, or otherwise compromised sea turtles. A comprehensive volunteer network maintains and implements improved turtle and human interactions through educational outreach. HMAR receives, processes, and manages reports from the public and others concerning sea turtle strandings, provides fully-trained and vetted volunteers to respond to these strandings, and conducts these activities in close collaboration with the NOAA PIFSC Marine Turtle Biology and Assessment Program and the NOAA PIRO Marine Turtle Management and Conservation Program.

The Ocean Foundation — Consolidating Vital Hawksbill Turtle Monitoring at Halawa, Moloka'i; One of the Most Important Hawksbill Nesting Sites in Hawai'i (\$24,677)

Hawksbill turtles inhabiting the Hawaiian Islands constitute one of the most endangered sea turtle populations on the planet, with an average of only 14 nesting females and 45 nests documented. In 2018, volunteers began monitoring sea turtle activity at



LAMAVE researcher uses non-invasive (non-capture) techniques to measure turtles and obtain growth rates of green turtles at Apo Island, Philippines as part of a study to increase our understanding of endangered Central West Pacific green turtles. Photo: LAMAVE

Halawa Beach Park on eastern Moloka'i, leading to the documentation of 42 confirmed hawksbill nests. The recently formed Halawa Hawksbill Monitoring Program is conducting research activities during the 2019 nesting season by improving conservation and monitoring efforts, while also initiating new, high-priority research activities. Activities generate demographic information on this data-deficient population and help conservation managers understand the relative importance of this newly discovered nesting beach.

Mālama Na Honu — Mālama Na Honu Educational Outreach and Volunteer Support (\$18,000)

By the late 1970s, the honu (Hawaiian green sea turtle) population was almost decimated, but their numbers have increased significantly since State and Federal protections were enacted in the 1970s. The result is that many more honu are now coming ashore to bask in the main Hawaiian Islands, increasing interactions between honu and people. These interactions, in turn, have caused some inadvertent harassment of the honu. Mālama Na Honu volunteers provide sea turtle education for visitors to the famous Laniākea Beach on O'ahu's north shore and monitor and record daily sea turtle behaviors for the NOAA Fisheries Marine Turtle Research Program. Mālama Na Honu volunteers share public education that reduces sea turtle-human interactions and promotes respectful wildlife viewing.

Hawaiian Monk Seal Recovery and Marine Mammal Response Program

The Hawaiian Monk Seal Recovery and Marine Mammal Response Program supports specific programmatic activities related to promoting the recovery of endangered Hawaiian monk seals and supporting responses to marine mammal strandings in the main Hawaiian Islands and U.S. Territories. This program supports community-based and community-integrated projects with an educational component designed to elevate public awareness and build capacity from the community for Hawaiian monk seal recovery and marine mammal response. In 2019, PIRO issued six federal assistance awards in the amount of \$267,686.

Hawai'i Marine Mammal Alliance dba Hawai'i Marine Animal Response — Hawaiian Monk Seal Conservation & Recovery - Priority 1 – O'ahu (\$113,722)

NOAA and HMAR have a common goal — the preservation, recovery, and stewardship of the Hawaiian monk seal. HMAR has developed significant capacity, infrastructure, and experience in three key areas: outreach and education; dispatch and reporting; and field response, escalations, and interventions. HMAR uses these capabilities to perform activities, measured using Key Operational Indicators, that have a direct and positive impact on Hawaiian monk seal preservation and recovery. Thousands of times each year, the outreach, education, hotline, dispatch, field response, escalation, and intervention support activities have positively impacted monk seal health, management, recovery, and public support. HMAR works with NOAA and Hawai'i DLNR.

The Marine Mammal Center (TMMC) — Monk Seal Response and Community Engagement (\$69,126)

This grant supports TMMC's hospital facility, Ke Kai Ola, in Kona on Hawai'i Island for Hawaiian monk seal recovery through a science-based rehabilitation program and well-managed response network with coordinated community partnerships. The project conducts community outreach and monitoring efforts to inspire visitors and residents to protect and monitor this species. The center strengthens and standardizes a volunteer team with specialized response-dispatch

training. This training also helps expand data collection that helps TMMC identify shifts in monk seal behavior. TMMC staff provide key partners' staff and volunteers with training and materials for haul-out events. The center places an increased focus on areas with low levels of engagement and sightings, updating signage to encourage sighting reports and appropriate behavior around monk seals.



*Hawaiian monk seal mom and pup resting in a tide pool.
Photo: HMAR*

Did You Know?

Reporting seal sightings not only helps NOAA Fisheries biologists and managers respond to sick or injured Hawaiian monk seals, but also provides valuable information about population trends, seal survival, habitat use, and reproduction. NOAA's Marine Mammal and Sea Turtle Hotline (888-256-9840) receives thousands of sightings calls every year — about 9,000 in 2018! Sighting calls are often fielded by volunteers at organizations like Hawai'i Marine Animal Response, who collect information from callers and dispatch volunteers to provide outreach to beachgoers about Hawaiian monk seal ecology and conservation. These calls are therefore not just an important contribution to data sets that help us better understand seal ecology and population status, but are also an important avenue for engaging the public and working toward recovery of this endangered species.

Hawai'i Marine Mammal Alliance dba Hawai'i Marine Animal Response — Hawaiian Monk Seal Conservation & Recovery - Priority 1 – Moloka'i (\$46,545)

A key Hawaiian monk seal species recovery challenge in the main Hawaiian Islands is fatal human-caused trauma. In recent years, Moloka'i has unfortunately maintained a high ratio of human-caused seal deaths to the island's small human population. This project adds staff from the Moloka'i community and increases activity and support for monk seal stewardship as one part of broader community-based sustainable coastal ecosystem management practices that benefit the residents of Moloka'i while also honoring their cultural identity and traditions. HMAR works cooperatively with Hawai'i DLNR, The Marine Mammal Center, and other partners to achieve the goals of the Hawaiian Monk Seal Recovery Plan (2007) and the Main Hawaiian Islands Monk Seal Management Plan (2015).

Mālama Pūpūkea-Waimea — Monk Seal Outreach and Education at Pūpūkea Marine Life Conservation District (MLCD), O'ahu (\$13,873)

Each year, over one million people visit the monk seals in their critical habitat, the Pūpūkea MLCD. Mālama Pūpūkea-Waimea conducts activities at this habitat and areas nearby to increase effective outreach and education in support of the Main Hawaiian Islands Monk Seal Management Plan. Some of these activities are: Ka Papa Kai, a “seaside class” for elementary

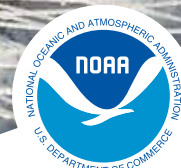
school students; Pono Fishing, a program that teaches sustainable traditional Hawaiian fishing practices to middle- and high-school youth; Makai Watch, training and deployment of volunteers in activities that benefit monk seals; regular outreach to inform residents and visitors alike about monk seal conservation; and maintenance of native plants at the Pūpūkea MLCD to reduce erosion and negative impacts on monk seal habitat.

Dana Jones dba Hawaiian Monk Seal Preservation 'Ohana (HMSPO) — Hawaiian Monk Seal Recovery through Education and Preservation (REAP) (\$13,420)

HMSPO expands the current programs that support the goals, objectives, and activities that address management strategies outlined in the Main Hawaiian Islands Monk Seal Management Plan for the Island of O'ahu. Through education and outreach, community engagement, and capacity building, HMSPO's REAP project activities support health, partnership, community engagement, and education strategies to: upgrade and expand in-classroom education programs, increase volunteer workforce, expand outreach to communities and at pupping events, develop partnerships for conservation, educate through sharing, and integrate historical and cultural awareness.



Volunteers engage tourists and local residents about conservation efforts of the Hawaiian monk seal. Photo: HMAR



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