

NORTHWESTERN HAWAIIAN ISLANDS

MARINE NATIONAL

MONUMENT

A Citizen's Guide



INTRODUCTION

Aloha,

On behalf of the National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service and the State of Hawai‘i – co-trustee management agencies of the newly established Northwestern Hawaiian Islands Marine National Monument (monument) – mahalo for taking the time to read our “citizen’s guide” to the Northwestern Hawaiian Islands Marine National Monument. As co-trustees, we take seriously our responsibility to safeguard the natural and cultural heritage of the Northwestern Hawaiian Islands.

On June 15, 2006, President Bush signed a proclamation establishing the Northwestern Hawaiian Islands Marine National Monument. His signature marks the beginning of a mammoth undertaking to strengthen existing conservation and implement new lasting protections to ensure that this remote wilderness continues to thrive for generations to come.

We hope this guide provides you with a glimpse of the incredible natural and cultural history of the region and an understanding of the newly established monument. The guide will take you on a brief but informative virtual tour of this vast area and introduce you to the amazing plants and animals that call these islands and reefs their home. We also hope you will become inspired to learn more about the Northwestern Hawaiian Islands and join with us as active caretakers of Hawai‘i’s oceans.

The islands, atolls, reefs, shoals, and wildlife of this incredible area offer Hawai‘i, the United States, and the world with a natural and cultural treasure unlike any other on Earth.

Mahalo for your support,

‘Aulani Wilhelm
William Robinson
National Oceanic and Atmospheric Administration

Barry Stieglitz
U.S. Fish and Wildlife Service

Peter Young
State of Hawai‘i, Department of Land and Natural Resources

A GLOBAL TREASURE

Beyond the main eight populated islands of Hawai‘i lie a string of tiny islands, atolls, shoals, and banks spanning 1,200 miles of the Pacific Ocean, the world’s largest body of water. Hundreds of miles northwest of Kaua‘i, places like Nihoa, Laysan, Pearl and Hermes, and Kure comprise the little known, rarely visited Northwestern Hawaiian Islands (NWHI). Seen from space, the area’s shallow waters appear as a string of turquoise jewels in an empty and dark blue vastness.

Thanks to their isolation, these 4,500 square miles of wild coral reefs are among the healthiest and most extensive in the world. This marine wilderness is home to the highly endangered Hawaiian monk seal, the world’s second most endangered seal, and uninhabited sandy islets provide the nesting grounds for 90 percent of Hawai‘i’s threatened green sea turtles. Though land areas are limited, over 14 million seabirds nest here and this is the only home for four endangered land birds.

The marine habitats of the NWHI contain features not found in the main Hawaiian Islands, such as coral atolls, and nurture thriving populations of many species once abundant in the main Hawaiian Islands, but rarely found today. Large predatory fish such as jacks, Hawaiian grouper, and sharks are nearly fifteen times as numerous in the shallow waters of NWHI compared to the heavily fished main Hawaiian Islands. Many sought after aquarium species, now rare in the main Hawaiian Islands, are much more common on these reefs as well.

Globally the NWHI are a natural and cultural treasure of outstanding scientific, conservation and aesthetic value. The steps we take in preserving these last undisturbed environments are gifts we give to our children’s children, and help in sustaining the ocean’s bounty that supports us today.

“These ancient volcanic remnants with their fringes of truly wild coral reefs remind us of our past—when coral reefs and sea life across the planet thrived—a time before humans became top predator in the ocean food chain.”



Leopard blenny, pō'o kauila, *Exallias brevis*, Kure Atoll. Photo: David Liittschwager and Susan Middleton, © 2005.

Cover Photo: Pale anemone crab, unauna, *Dardanus deformis*. Photographed aboard NOAA ship *Hi'ialakai* at Kure Atoll, © 2005, David Liittschwager and Susan Middleton.

Partnership Agencies



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THE NORTHWESTERN HAWAIIAN ISLANDS



A HISTORIC MOMENT: Establishing a Marine National Monument

On June 15, 2006, President George W. Bush made conservation history when he signed Presidential Proclamation 8031 creating the largest fully protected marine conservation area on the planet in the Northwestern Hawaiian Islands. By applying the authority of the Antiquities Act, which gives the President discretion to declare objects or places of scientific or historic interest a national monument, he created the Northwestern Hawaiian Islands Marine National Monument.



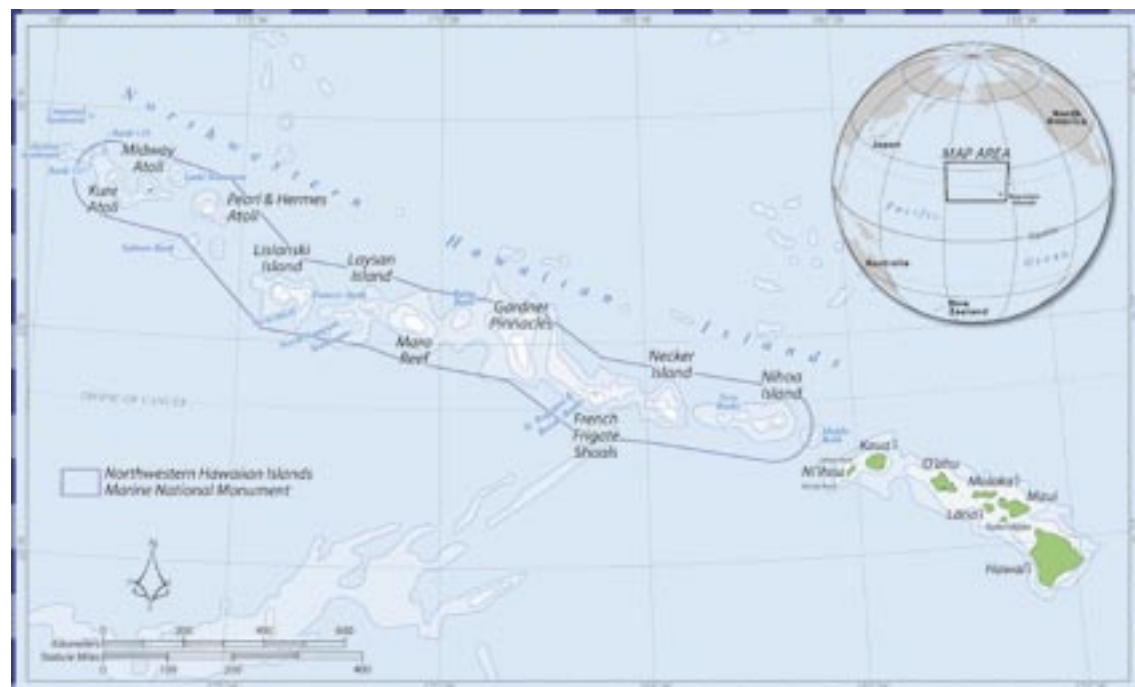
President George W. Bush signs Proclamation 8031 at the White House, joined by Mrs. Laura Bush and (left to right) Hawai'i congressional delegates U.S. Rep. Neil Abercrombie, U.S. Rep. Ed Case, U.S. Sen. Daniel Akaka; U.S. Commerce Secretary Carlos Gutierrez; Hawai'i Gov. Linda Lingle; filmmaker Jean-Michel Cousteau; oceanographer Dr. Sylvia Earle and U.S. Interior Secretary Dirk Kempthorne. White House photo by Eric Draper.

A Historic Moment

“Our duty is to use the land and seas wisely, or sometimes not use them at all. Good stewardship of the environment is not just a personal responsibility, it is a public value,” said the President in his proclamation speech explaining why it was necessary to close off such a large area for the sake of conservation.



The region is so vast that if laid atop the continental United States it would cover the approximate distance from Las Vegas, NV to Dallas, TX.



“To put this area in context, this national monument is more than 100 times larger than Yosemite National Park, larger than 46 of our 50 states, and more than seven times larger than all our national marine sanctuaries combined. This is a big deal.”

~ President George W. Bush

Support for the protection and preservation of the Northwestern Hawaiian Islands was overwhelming, with more than 52,000 public comments submitted during the 5 years of the proposed national marine sanctuary designation process, the majority in favor of strong protection. This public sentiment was part of what inspired the President to issue the Proclamation.

By creating a marine national monument President Bush immediately granted the waters of the Northwestern Hawaiian Islands our nation’s highest form of marine environmental protection. “The Northwestern Hawaiian Islands are a beautiful place,” he said, “and with the designation of the Northwestern Hawaiian Islands Marine National Monument, we are making a choice that will leave a precious legacy.”



A Hawaiian monk seal, 'Iliholoikauaua, *Monachus schauinslandi* sleeps the day away at Pearl and Hermes Atoll. Photo: James Watt.

Overview of the Proclamation

The President’s proclamation creating the Northwestern Hawaiian Islands Marine National Monument has given nearly 140,000 square miles of land and ocean our nation’s highest form of marine environmental protection. It honors our commitment to be good stewards of America’s natural resources, shows what cooperative conservation can accomplish, and creates a new opportunity for ocean education and research for decades to come. The national monument will:

- Prohibit unauthorized access to the monument;
- Provide for carefully regulated educational and scientific activities;
- Preserve access for Native Hawaiian cultural activities;
- Enhance visitation in a special area around Midway Atoll;
- Phase out commercial fishing over a 5 year period; and
- Ban other types of resource extraction and dumping of waste.

Protection was effective immediately and includes requiring permits for access into the monument. Permits may be issued for activities related to research, education, conservation and management, Native Hawaiian practices, non-extractive special ocean uses, and recreation. Protections also include the prohibition of commercial and recreational harvest of precious coral, crustaceans and coral reef species in monument waters; the prohibition of oil, gas and mineral exploration and extraction anywhere in the monument; the prohibition of waste dumping; and the phase out of commercial fishing in monument waters over a 5-year period.

RAINFORESTS OF THE SEA: THE IMPORTANCE OF CORAL REEFS

Often called the “rainforests” of the sea, coral reefs are vital to maintaining the biological diversity of our oceans. They are highly complex and productive ecosystems composed of countless millions of plants and animals dependent upon one another to survive. Building layer upon layer, coral reefs form an intricate living tapestry with more species per unit area than any other marine environment. Though coral reefs compose only about 0.2 percent of the ocean’s floor, scientists have estimated that they shelter and support nearly one million species of fish, invertebrates, and algae; many yet to be discovered.

In addition to biological value, coral reefs provide resources and services worth billions of dollars to economies worldwide. In many coastal communities adjacent to coral reefs, people rely on the reef’s bounty for the majority of their food. Around the main Hawaiian Islands, coral reefs protect our shores from storms, and they shape our famous waves that

inspired the sport of surfing, now exported worldwide. A 2002 study evaluated the value of coral reefs to Hawaii’s economy at \$364 million each year, and some of Hawaii’s most famous ocean residents, the monk seal and green sea turtle, depend on coral reefs for their survival.

For all their biological richness and economic value, coral reefs are fragile environments that remain healthy only within a narrow window of ocean and climatic conditions. Seawater a few degrees hotter or colder than what corals are accustomed to can impact their survival, and they need clean, clear water in order to get the sunlight they need to produce food. Corals are also sensitive to physical disturbance, since only the thin outer layer of the coral structure is living tissue.

Within coral reefs, plants and animals compete for limited space and food, and a delicate balance has developed over time among species. This fragile balance can be easily

disturbed if one or more species are removed or depleted, allowing another species to grow unchecked. In some cases, such as when algae eaters like manini, kumu, cowries, or sea urchins are removed, the algae, or limu, can grow so rapidly that it overgrows and smothers the corals. These “lawnmowers of the reef” help keep reefs in balance, and are but one thread in an intricate web of life.

Given the balancing act that coral reefs must maintain, and their fragile structure, they are very susceptible to disturbances such as overfishing, shoreline development, storms, and pollution. Coral reefs around the world are in serious decline and many are heavily compromised. This fact alone makes protection of the vast and healthy coral reefs of the Northwestern Hawaiian Islands (NWHI) all the more important.

Far Beneath the Waves

The pitch-black abyss of the deep ocean harbors a strange world where deep-sea corals, odd invertebrates and bottom fish such as onaga and opakapaka thrive. Hawaiian monk seals descend into the dark twilight, more than a thousand feet beneath the surface, to forage among huge branching formations of gold and bamboo precious corals. This new frontier, largely unexplored by deep diving submersibles, is only now revealing to science its rich and diverse wonders.



From top: *Grammatonotus macrophthalmu*, an odd and iridescent deep-sea fish. Photo: Hawai’i Undersea Research Laboratory (HURL).

A colony of healthy gold corals, *Gerardia* sp. Photo: Amy Baco-Taylor.

A diverse group of octocorals and zoanthids. Photo: Amy Baco-Taylor.

Hawaiian green sea turtle, honu, *Chelonia mydas*, at French Frigate Shoals. Photo: James Watt.

Only In Hawai’i: Endemic Species

The remote location of the NWHI, thousands of miles from any continent, ensures that naturally occurring arrival of new species is rare. The Hawai’i State Department of Land and Natural Resources estimates that before the arrival of humans, new species became established in Hawai’i once every 70,000 years. Those species that have made their way to Hawai’i and survived have become unique species over time as they adapted to their new environment. Approximately 25 percent of all marine species in the NWHI are unique to the Hawaiian Archipelago, one of the highest rates of marine endemism in the world. In addition, at Pearl and Hermes, Midway and Kure atolls over half of the fish populations are composed of these unique species. This high percentage of unique species means that the NWHI is truly a one of a kind natural wonder.



Titan scorpionfish, nohu, *Scorpaenopsis cacopsis* (endemic) at Midway Atoll. Photo: James Watt.



Most reef systems around the world have seen a dramatic reduction of large predatory fish, and this is disturbing, since healthy populations of predator species are a good indicator of an ecosystem’s overall health. When predator populations are greatly reduced by fishing and other human activities, the normal structure of the reef community is disrupted.

More than half the weight (biomass) of all fish on NWHI coral reefs consists of large top-level predators like sharks and jacks. In contrast, only 3 percent of the fish biomass on main Hawaiian Islands reefs is composed of these predatory fish, several of which are highly prized food and game fishes. It is likely that this difference results from human impacts such as fishing and habitat loss from shoreline development. These activities, largely absent in the NWHI, make it one of the last places on Earth where scientists can study the ecology of a coral reef ecosystem without large-scale human disturbance. Such studies provide new insights into how Hawaiian coral reef ecosystems function, and the impacts of removing large predators.



Galapagos sharks, *Carcharhinus galapagenesis* (top), and a large tiger shark, *Galeocerdo cuvier* (bottom) are a few of the abundant top level predators in NWHI waters. Photo: James Watt.

The Last Best Place: Terrestrial Environments

Although some of the Northwestern Hawaiian Islands (NWHI) were decimated by introduced mammals (rabbits, in the case of Laysan), other islets and atolls have been relatively untouched by humans. As a result, robust seabird populations and healthy insect and plant communities can still be found, and in places that were heavily impacted, seabird and plant populations are now on the mend. Nihoa Island is one of the most biologically pristine islands in the Pacific, and probably most closely represents the original island appearance and native species found before humans arrived in the Hawaiian Islands.



Laysan duck, *Anas laysanensis*, on Laysan Island. Photo: James Watt.

These islands provide breeding sites for all but three of Hawaii's 22 species of seabirds such as the grey-backed tern, short-tailed albatross, and the red-tailed tropicbird. Millions of central Pacific seabirds congregate on these islands to breed. They nest in burrows and cliffs, on the ground, and in trees and shrubs. For some species, these tiny specks of land provide their only breeding site.

More than 99 percent of the world's Laysan albatrosses and 98 percent of the world's black-footed albatrosses return to the NWHI each year to reproduce. For species such as Bonin petrels and Tristram's storm-petrels, these predator-free islands provide the last safe nesting places since islands in other parts of the Pacific are becoming infested with rats. For land birds, the islands have provided less secure habitat, but four of the seven original species still remain. Three endangered passerines (the Nihoa finch, Nihoa millerbird, and Laysan finch) and the world's rarest duck – the Laysan duck – are found on these islands.

The plants of the NWHI are primarily coastal strand species of the Pacific that can tolerate high salt levels, periodic



Wedge-tailed shearwater, 'ua'u kani, *Puffinus pacificus chlororhynchus*, Midway Atoll. Photo: © 2005, David Litfschwager and Susan Middleton.

drought, and intense sun. Most have seeds capable of dispersing in seawater. Some plants evolved into new species, and six endemic plants are listed under the Endangered Species Act, including the endangered fan palm *Pritchardia remota* found only on Nihoa. A similar palm went extinct during the rabbit plague on Laysan Island, and in recent years an alien grasshopper has attacked Nihoa's palms.

The first entomologists (insect scientists) visited Laysan Island in 1893, and upon numerous subsequent visits, identified at least 75 native species, including 15 found only on Laysan. The arthropods and land snails are the least understood components of the terrestrial ecosystems, but studies continue to improve our knowledge. At least 35 species of endemic insects and spiders, and six species of endemic land snails have been identified at Nihoa Island. Unfortunately, positive discoveries are at times offset by negative ones – as many as 125 species of alien insects and spiders have also been found, and some of these, particularly ants, are extremely destructive. Considered “ecosystem busters,” introduced ants have the ability to displace native species, and even affect the survival of ground nesting seabirds.



Nihoa palm, loulou, *Pritchardia remota* on Nihoa. Photo: Bonnie Kahape'a.

MARITIME HERITAGE

FATHOMING OUR PAST



Diver examining the scattered wreck site of the iron-hulled sailing ship *Dunnottar Castle*, lost at Kure Atoll in 1886. Photo: NOAA NMSP.

The Northwestern Hawaiian Islands (NWHI) not only possess incredible natural resources worthy of our best efforts at conservation, but these distant atolls are also the locations of historic shipwreck sites, heritage resources which capture our seafaring past in graphic detail. Since systematic survey began in 2002, our understanding of these sites continues to increase. Each wreck site is like a time capsule, allowing us to glimpse a part of seafaring history.

The wrecks of American and British whaling ships lost during the early decades of the 19th century depict the many hazards associated with seafaring. The debris trail of the American whaler *Parker*, lost in 1842 during a violent storm, depicts a ship washed entirely into the lagoon at Kure Atoll, equipment being swept off the decks as the vessel passed the reef crest. The wreck of the British whaler *Pearl*, lost at Pearl and Hermes Atoll in 1822, tells a different story. There, the ship fell apart where she grounded, the crew having wrecked in calmer conditions on the uncharted atoll. Salvage was possible, and soon a schooner named *Deliverance* was constructed on the beach.

The steam machinery and armament of the *USS Saginaw*, lost in 1870, represents a slice of Civil War history in the Pacific. The remains of the side wheel navy steamer are scattered



on top and underneath the reef crest. Heavier objects, such as the cannon, steam engines, and paddlewheel shafts, are solidly embedded in the coralline substrate.

The capstans, anchors, masts, and rigging of the *Dunnottar Castle*, a 258-foot iron hulled sailing ship lost in 1886, portray the days of the great sailing ships like the *Falls of Clyde* (now part of the Hawai'i Maritime Center), the *Balcalutha*, and the *Star of India*, a time when our maritime commerce was driven by steel masts and canvas and human hands. The wreck site is an inventory of our industrial wind-driven commerce long before our dependence on fossil fuels.

These and many other heritage sites in the NWHI are rare and protected resources which bear human testimony to unique Pacific seafaring experiences. More than 100 vessels and aircraft are known to have been lost in the NWHI. They are unique parts of an untouched museum of our maritime past, set amidst the beauty of the Northwestern Hawaiian Island's natural environment.

Maritime archaeologists on the site of the British whaler *Pearl*, lost in 1822 at Pearl and Hermes Atoll. Photo: NOAA NMSP.

Diver measuring rigging pieces from the wreck site of the New Bedford whaler *Parker*, lost at Kure Atoll 1842. Photo: NOAA NMSP.

Large paddle wheel shaft from the wreck of the *USS Saginaw* lost at Kure Atoll in 1870. Photo: NOAA NMSP.

Ka huaka'i a Pele

Migration of Pele

In Hawaiian mo'olelo (stories, historical narratives, mythologies) there are many of versions of the epic of Pele and Hi'iaka. In one account by N. B. Emerson, Pele migrated from Kuaihelani to Hawai'i to escape conflict between her and her sister Nāmakaokaha'i, a deity of the sea. Their journey led them through the Northwestern Hawaiian Islands. In the Emerson version, Pele first stopped at the island of Nihoa and decided to leave Kāneapua, her younger brother, behind. Pele's journey continued down the island chain from spot to spot, until she found comfort in the pit of Halema'uma'u crater on the island of Hawai'i. These travels of Pele and her family are recognized as the migration of gods to Hawai'i and each version of the mo'olelo gives us important information about the cultural significance of these islands in the northwest.

... 'O Nihoa ka 'āina a mākou i pae mua aku ai
 Lele a'e nei mākou, kau i uka o Nihoa
 'O ka hana nō a ko'u pōki'i, a Kāneapua,
 'O ka ho'oili i ka ihu o ka wa'a a nou i ke kai
 Waiho anei 'o Kamohoali'i iā Kāneapua i uka o Nihoa.
 No'iau ka hoe a Kamohoali'i
 A pae i ka 'āina i kapa 'ia 'o Lehua...

Translation:

...Nihoa is the island on which we first landed
 We climbed upwards until the top of Nihoa
 The fault of my younger brother, Kāneapua,
 Weighing the prow of the canoe until it beat into the waves
 Kamohoali'i left Kāneapua on land at Nihoa
 Skillful was the steering of Kamohoali'i
 Until we landed on the island named Lehua

Ke ala nui polohiwa a Kāne

The black shining road of Kāne

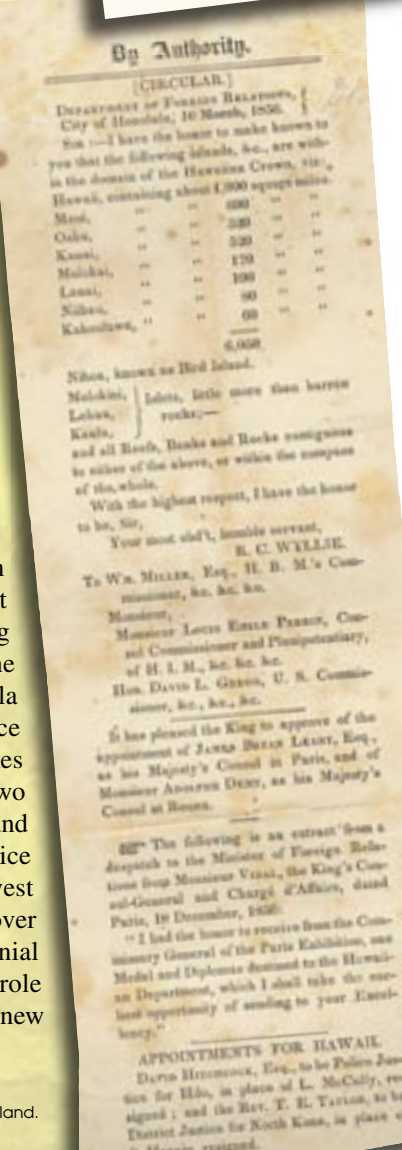
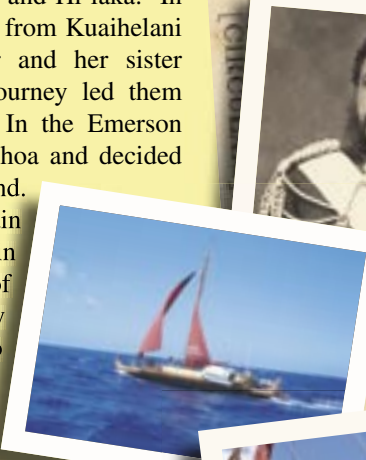
Mokumanamana played a central role in Hawaiian ceremonial rites and practices a thousand years ago as it was directly in line (23° 34.5' N) with the rising and setting of the equinoctial sun (23° 34.1' N) on the path called the Tropic of Cancer. In Hawaiian, this path is called "ke ala polohiwa a Kāne," or "the black shining road of Kāne." Since the island sits on the northern limit of the path the sun makes throughout the year, it sits centrally on an axis between two spatial and cultural dimensions – pō (darkness, creation, and afterlife) and ao (light, existence). On the summer solstice (the longest day of the year) the sun will travel its slowest across the sky on this northern passage going directly over Mokumanamana. The strategic concentration of ceremonial sites on this island is a reminder of the important spiritual role it plays in Hawaiian culture in channeling the creation of new life and facilitating the return to source after death.

Background: Polynesian double hull voyaging canoe Hōkūle'a in front of Nihoa Island. Photo: Na'alehu Anthony.

From Top: King David Kalākaua.

Voyaging canoe Hōkūle'a. Photo: Kekuewa Kikiloi.

Modern day Hawaiian voyagers Keoni Kuoha and Kamana'opono Crabbe aboard Hōkūle'a. Photo: Kekuewa Kikiloi.



1856 Circular affirming that Nihoa is part of the existing territory of the Kingdom.

Ku'i 'ia ka lei moku a Kanaloa

The seas of Kanaloa string the lei of islands together

He mo'olelo kahiko mai ka pō mai An ancient tradition tied to creation

Native Hawaiians, the first inhabitants of the Hawaiian Archipelago, have lived here for over a thousand years. Over time, they developed complex resource management systems and specialized skill sets to survive on these remote islands with limited resources. Native Hawaiians continue to maintain their strong cultural ties to the land and sea, understanding the importance of managing the islands and waters as inextricably connected to one another. In particular, the ocean, poetically referred to as ke kai pōpolohua mea a Kāne (the deep dark ocean of Kāne, the Hawaiian god of life and creation), played an integral role in Native Hawaiian culture as a wellspring of physical and spiritual sustenance in everyday life.

In Hawaiian traditions, the Northwestern Hawaiian Islands (NWHI) are considered a sacred place, a region of Kanaloa from which life springs and to which spirits return after death. Much of the information about the NWHI has been passed down in oral and written histories, genealogies, songs, dances, and archaeological resources. These sources enable Native Hawaiians to recount the travels of sea-faring ancestors between the NWHI and the main Hawaiian Islands.

Nā wahi kūpuna ma nā moku pūni 'o Nihoa a 'o Mokumanamana Cultural sites on Nihoa and Mokumanamana (Necker)

Nihoa and Mokumanamana (Necker) Islands are listed on both the National and State Register of Historic Places

for their cultural and historical significance. Archaeological surveys conducted on the two islands have documented numerous archaeological sites and a range of cultural artifacts have been collected. Nihoa has 88 cultural sites, including ceremonial, residential and agricultural features. On Mokumanamana, there are 52 recorded cultural sites, including



Cultural sites at Mokumanamana and Nihoa indicate use of the islands by Native Hawaiians. Photo: (left) Kekuewa Kikiloi, (Right) David Boynton.

ceremonial and temporary habitation features. Recent ethnological studies highlight the continuity of Native Hawaiian traditional practices in the NWHI. Only a fraction of these have been recorded; many more exist in the memories and life histories of kūpuna (knowledgeable elders). The Northwestern Hawaiian Islands Marine National Monument's (monument) Native Hawaiian cultural program will be initiating research projects to collect information from both historical and living resources in order to inform management decisions and enhance cultural access to the region.

Nā huaka'i i ka wā o ke aupuni Hawai'i Historical expeditions during the Kingdom period

Prior to the 1800s, the general population of Native Hawaiians knew little about the Northwestern Hawaiian Islands as few traveled there. Throughout the 1800s, however, Hawaiian ali'i (royalty) initiated a number of expeditions to the NWHI. Accounts of these historical expeditions were published in great detail in the newspapers from 1857 through 1895. Title to the islands and waters of the NWHI was vested in the Kingdom of Hawai'i throughout the 1800s, although title to Midway was unclear, and disputed until 1898.

Ka ho'omau 'ana i ka hana o ka po'e kahiko The continuation of Hawaiian cultural practices

In recent years, different groups of Native Hawaiian cultural practitioners have voyaged to the NWHI to honor their ancestors and perpetuate traditional practices. In 1997, Hui Mālama i Nā Kūpuna o Hawai'i Nei, a group



dedicated to the repatriation of ancestral remains, returned sets of iwi (bones) to Nihoa and Mokumanamana. In 2003, the voyaging canoe Hōkūle'a traveled to the NWHI so that a cultural protocol group could conduct ceremonies on Nihoa. In 2004, Hōkūle'a sailed to Kure Atoll. In 2005, Hōkūle'a returned with Hōkūalaka'i to take the cultural protocol group to Mokumanamana for ceremonies on the summer solstice.

The monument allows for the continuation of Native Hawaiian practices. The definition of Native Hawaiian practices, along with criteria developed to evaluate permit applications, was created with substantial input from the Native Hawaiian community, including recognized cultural experts and knowledgeable kūpuna.

Ship Wai'ale'ale that visited Kure Atoll (Ocean Island) in 1886 when it was annexed by the Kingdom of Hawai'i. Photo: Hawai'i State Archives.



Timeline of Events

1822

Queen Ka'ahumanu travels to Nihoa Island and claims it under the Kamehameha Monarchy.

1856

Nihoa is reaffirmed as part of the existing territory of Hawai'i by authority of Alexander Liholiho, Kamehameha IV.

1857

King Kamehameha IV voyages to Nihoa. He instructs Captain Paty on the *Manuokawai* to verify the existence of other lands in the northwest. Paty travels to Nihoa, Necker, Gardner, Laysan, Lisianski, and Pearl and Hermes.

1857

The islands of Laysan and Lisianski are declared as new territory under the domain of the Kingdom.

1885

Princess Lydia Lili'uokalani and a scientific expedition visits Nihoa on the ship *Iwalani*.

1886

King David Kalākaua, through Special Commissioner Colonel James Harbottle-Boyd, claims possession of Kure Atoll (Ocean Island).

1893

The Hawaiian government is overthrown by the Provisional government, with the assistance of Minister John L. Stevens and the U. S. military.

1898

The archipelago, inclusive of the Northwestern Hawaiian Islands, are collectively ceded to the United States through a domestic resolution, called the "New Lands Resolution."

History of Protection

The NWHI Marine National Monument is but the most recent step taken in a century-long history of federal and state protections extended to preserve the NWHI's ecological richness.

1903 – President Theodore Roosevelt places control of Midway Atoll under the Navy, and sent Marines to stop the slaughter of seabirds.

1909 – President Roosevelt establishes the Hawaiian Islands Reservation.

1940 – President Franklin D. Roosevelt changes the name of the Reservation to the Hawaiian Islands National Wildlife Refuge and increases protections for wildlife.

1967 – President Lyndon B. Johnson designates the land areas in the HINWR, and surrounding submerged lands as Research Natural Areas.

1983 – President Ronald Reagan creates the Exclusive Economic Zone, giving the U.S. jurisdiction over the living and non-living resources from 3 to 200 nautical miles from all U.S. shorelines.

1988 – U.S. Fish and Wildlife Service and the U.S. Navy create an overlay National Wildlife Refuge at Midway Atoll.

1996 – President William J. Clinton transfers full jurisdiction of Midway from the Navy to the U.S. Fish and Wildlife Service.

2000 – President Clinton signs the Executive Orders creating the NWHI Coral Reef Ecosystem Reserve.

2004 – President George W. Bush identifies the NWHI as a national ocean policy priority in the U.S. Ocean Action Plan.

2005 – State of Hawai'i Governor Linda Lingle signs rules creating the NWHI Marine Refuge.

2006 – President George W. Bush issues Presidential Proclamation 8031 creating the NWHI Marine National Monument.

Galapagos sharks, *manō*, *Carcharhinus galapagensis* at Maro Reef. Photo: James Watt.

LOOKING BACK A HISTORY OF THE REGION

Annexation Party on Mokumanamana, 27 May, 1894.
Photo: Bishop Museum.

For millions of years the Northwestern Hawaiian Islands (NWHI) remained in a pristine natural state, drifting northwestward atop the Pacific Plate at about 3.2 inches per year, and slowly eroding back into the sea. Over time, new species arrived, mostly from the south; some adapted to the new surroundings while others went extinct. Early Polynesian voyagers, in their epic trans-Pacific voyages aboard large double-hulled sailing canoes, were the first humans to arrive in these Northwestern islands as early as 1000 A.D. Evidence of permanent living sites exists only for Nihoa, with temporary settlement and cultural sites found on Mokumanamana. Early Hawaiians lived on Nihoa for an estimated 700 years, but this occupation mysteriously ceased before Captain Cook's first landing in Hawai'i in 1778.

The 18th and 19th centuries brought increased international trade and commerce within Hawaiian waters, which in turn increased the exploitation of both the animal species and the terrestrial environments of the NWHI. Seabirds were harvested for their feathers by the hundreds of thousands. Albatross eggs were also collected, and the sand and coral rubble islands were mined for guano, which was processed into fertilizer. Entire island ecosystems were completely destroyed by over harvesting and the introduction of new species, such as rabbits to Laysan Island.

President Theodore Roosevelt created the Hawaiian Islands Reservation in 1909 through Executive Order 1019, as a response to the over harvesting of seabirds, and in recognition of the islands' importance as seabird nesting grounds. Subsequently, the reservation became the Hawaiian Islands National Wildlife Refuge. President Roosevelt's action was the first in a series of incremental protections for the NWHI, and adjacent marine habitats, leading up to the establishment of Midway Atoll National Wildlife Refuge in 1988, Kure Atoll State Wildlife Sanctuary in 1993 and the NWHI Coral Reef Ecosystem Reserve (reserve) in 2000.

The Executive Orders that created the reserve in 2000 also initiated a process to designate the waters of the NWHI as a federal national marine sanctuary. Scoping meetings for the proposed sanctuary were held in 2002. In 2005 Governor Linda Lingle signed regulations establishing a state marine refuge in the near-shore waters of the NWHI (out to three miles, except Midway Atoll) that excluded all extractive uses of the region, except those permitted for research or other purposes that benefited management. In 2006, after substantial public comment in support of strong protections for the area, President George W. Bush issued Presidential Proclamation 8031, creating the Northwestern Hawaiian Islands Marine National Monument. The President's actions followed Governor Lingle's lead and immediately afforded the NWHI our nation's highest form of marine environmental protection.

Partnering to Protect: The Co-Trustees

Federal and state agencies have worked for many years to conserve and manage the natural and cultural resources of the Northwestern Hawaiian Islands (NWHI). Recent legislative actions to provide enhanced protections to the NWHI have helped to define and strengthen these working relationships. In May 2006, a historic interagency agreement was formalized between NWHI co-trustees – NOAA's National Ocean Service and National Marine Fisheries Service, U.S. Fish and Wildlife Service and the Hawai'i State Department of Land and Natural Resources. These agencies are also named in the proclamation that created the monument as being jointly responsible for its co-management. The proclamation directs NOAA to use its expertise to oversee the marine waters, and the Fish and Wildlife Service to apply their skills and experience to the wildlife refuge areas. The proclamation does not diminish or enlarge the jurisdiction of the State of Hawai'i. Through coordination of effort, the co-trustees, working together with interagency partners, Office of Hawaiian Affairs, U.S. Coast Guard, Department of Defense, and Environmental Protection Agency, seek to provide comprehensive protection that is as seamless and interconnected as the ecosystem itself.



NOAA – National
Oceanic and
Atmospheric
Administration

The National Oceanic and Atmospheric Administration (NOAA) under the U.S. Department of Commerce, has primary management responsibilities for the marine areas of the Northwestern Hawaiian Islands Marine National Monument (monument) in consultation with the Fish and Wildlife Service. Since the area's designation in 2000 as the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, NOAA's role in the management of this protected marine area greatly increased. Both the reserve and monument have been funded by, and been part of, NOAA's Coral Reef Conservation Program, and NOAA's National Marine Sanctuary Program (NMSP), and have been administered through the NMSP.

The NMSP serves as the trustee for a system of 14 marine protected areas. The primary purpose of the NMSP is the protection of the living and non-living resources of these nationally significant areas. The NMSP works to enhance public awareness of our marine resources and marine heritage through scientific research, monitoring, exploration, education programs, and outreach. The program is dedicated to fulfill a mission to protect and preserve America's ocean and Great Lakes treasures for this and future generations.

NOAA's National Marine Fisheries Service (NMFS) has managed fisheries, and conducted protected species, fisheries and ecosystem research in the NWHI since the 1970s. NMFS plays a key role in the monument, including

the permitting and close monitoring of continued commercial fishing activities in the monument. NMFS conducts a range of activities to protect and recover endangered and threatened sea turtles, Hawaiian monk seals and other marine mammals, and protecting the habitats of concern for fishery resources and threatened/endangered species. Habitats of concern include coral reefs, seagrass beds, and benthic algae beds. NMFS also leads a major partnership of government agencies, businesses, and other interested parties to address the threat, accumulation, and clean up of marine debris in the NWHI. Through this effort more than 560 tons of debris has been removed over the past ten years.



U.S. Fish and Wildlife
Service

The U.S. Fish and Wildlife Service (FWS) manages two National Wildlife Refuges (NWR) within the Northwestern Hawaiian Islands Marine National Monument –Hawaiian Islands NWR, and Midway Atoll NWR. In recognition of its significant role in World War II, Midway Atoll NWR also is designated as the Battle of Midway National Memorial. The FWS has sole responsibility for the management of the areas of the monument that overlay these two National Wildlife Refuges and National Memorial in consultation with NOAA. The refuges are part of the National Wildlife Refuge System, a 95-million acre system of lands and waters where wildlife comes first.

The FWS is the principal federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and plants and their habitats for the continuing benefit of the

A Hawaiian monk seal, *ʻIiholohoukūa, Monachus schauinslandi*, © 2005, David Litschewager and Susan Middleton.



American people. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts.



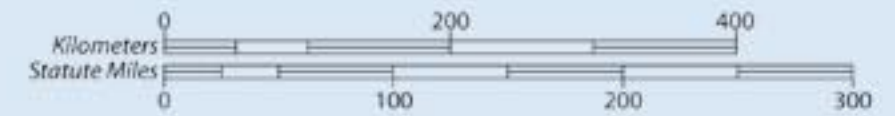
State of Hawai'i —
Department of Land
and Natural Resources

In September 2005, Governor Linda Lingle signed Hawai'i Administrative Rules establishing a marine refuge in State waters surrounding the Northwestern Hawaiian Islands. The marine refuge prohibits any extractive uses, including commercial or recreational fishing. These are the most restrictive regulations that the State could impose on the area, and in doing so the State took a significant step in the process to fully preserve and protect the waters of the NWHI. "These rules set in motion the most significant marine conservation initiative in the history of Hawai'i by creating the state's largest marine refuge," said Governor Lingle.

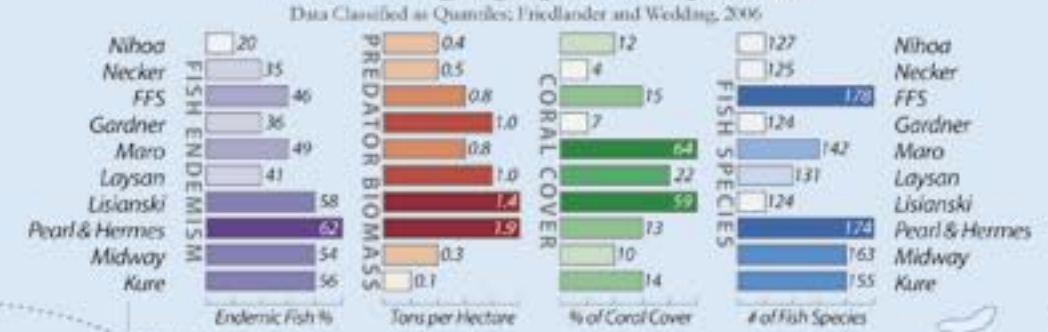
In the NWHI the State of Hawai'i Department of Land and Natural Resources (DLNR) manages the NWHI Marine Refuge, and the Kure Atoll State Wildlife Sanctuary. Kure Atoll's land areas are the only ones in the NWHI that are not within National Wildlife Refuges. All lands and submerged features in the NWHI, with the exception of Midway Atoll, are part of the State of Hawai'i.

The State is also in the process of nominating the NWHI as a United Nations Educational, Scientific, and Cultural Organization cultural and natural World Heritage Site.

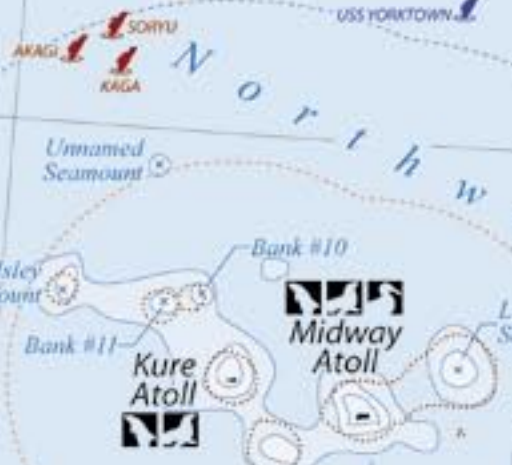
Natural Resources of the NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT



Relative Biogeographic Comparison



United States and Japanese ships sunk during the Battle of Midway, June 4-7, 1942.



Between 1996 and 2005, 294 metric tons of marine debris was removed from Pearl and Hermes Atoll, more than half of all nets and other large debris removed from NWHI reefs.



Over 14 million seabirds nest in the NWHI and many forage in the waters surrounding the breeding colonies. Laysan Island has the greatest diversity of bird species in the NWHI.



During World War II, Midway served as an important naval air station and submarine refit base. The atoll was attacked twice, first on December 7th 1941, and again during the pivotal Battle of Midway, June 4th-6th 1942. This Corsair is one of the remnants of military presence during WWII.



Pearl and Hermes Atoll has the highest percentage of endemic fish species of any area in the Hawaiian Archipelago, over half of all fish recorded here are only found in Hawaii. The masked angelfish, *Genicanthus personatus* is one of these endemic species.



With approximately 290 individuals French Frigate Shoals has the largest monk seal colony in the NWHI.



Over 90% of all green sea turtles in the Hawaiian Archipelago nest at French Frigate Shoals.



A large number of archaeological features on the islands of Nihoa and Necker attest to early Native Hawaiian presence in the region. Both islands are on the National Register of Historic Places.



Legend

Protected Species	Bathymetry	Bottomfish Harvest (1996-2002)	Foraging Ranges
Dolphin Resting Area	0 to 100 Fathoms	0 to 30,000 lbs.	Hawaiian Monk Seal
Largest Nesting Sites for Seabirds of Highest Concern	100 to 1,000 Fathoms	30,000 lbs. to 60,000 lbs.	Masked Booby
Hawaiian Monk Seal Colony	1,000 to 2,000 Fathoms	60,000 lbs. to 90,000 lbs.	Red Footed Booby
Green Sea Turtle Nesting Site	2,000+ Fathoms	90,000 lbs. to 120,000 lbs.	

Threats

ENVIRONMENTAL IMPACTS



Most of the threats to the ecosystems of the Northwestern Hawaiian Islands (NWHI) are posed by human activities. In the past, a number of scientific, military, and commercial activities have threatened the NWHI. Current uses are limited primarily to management activities by jurisdictional agencies, research, education, Native Hawaiian practices, a small scale commercial bottomfishing and pelagic trolling operation, as well as a small number of recreational trips and visits to historical sites at Midway Atoll. The threats associated with these activities originate both inside and outside the monument, making them more difficult to address. The monument is working to reduce threats through an ecosystem-based approach to management. This includes the development of an effective regulatory framework, education and outreach, preventative measures to minimize risk, and response and restoration to damaged or degraded natural resources.

VESSEL HAZARDS

Ships allow human access and make activities possible in the vast and remote NWHI. Vessels, however, can introduce specific hazards to the marine environment via physical impacts caused by groundings and fuel, chemical and oil spills. Biological impacts, including introduction of alien species through hull fouling or ballast water discharge, and interactions with protected marine species, are also a concern. The monument addresses threats from vessels of all types through prohibitions and permit conditions.



Laysan albatross, *moli*, *Phoebastria immutabilis*, necropsy, Kure Atoll. The stomach of this albatross chick was perforated and impacted with 12.2 oz. of plastic and other indigestible material that may have led to its early death. The actual stomach contents can be seen below. Adult albatross collect floating plastics while foraging for one of their favorite foods – flying fish eggs. The eggs are attached to floating materials, which today are commonly plastics – lighters, toothbrushes, bottle caps – instead of wood or pumice. The adult albatross feed the digested eggs and squid, along with the plastics, to their waiting chicks. Photo (above and below) © 2005, David Liittschwager and Susan Middleton.

MARINE DEBRIS

Marine debris is a severe and chronic threat to NWHI wildlife and marine habitats. Ocean currents carry a wide array of marine debris, including derelict fishing nets and other gear, household plastics, hazardous materials, and shore-based debris. Currents concentrate the materials and deposit them on the reefs and beaches of the island chain. The debris hinders the recovery of the critically endangered Hawaiian monk seal and threatens sea turtles and other marine life through entanglement, drowning and suffocation hazards. Between 1982 and 2003 there were 238 documented monk seal entanglements in marine debris in the NWHI, though many more likely occurred. In addition, debris frequently entangles and kills corals, leads to the death of seabirds through entanglement in nets and accidental consumption of floating plastics, and poses a navigation hazard. A successful multi-agency effort has removed more than 560 tons of debris from NWHI reefs in the past 10 years. You can do your part by properly disposing of your trash and fishing gear, purchasing products with minimal packaging and recycling everything you can.



An estimated 40-80 tons of marine debris and derelict fishing gear are deposited in the NWHI each year by ocean currents. A multi-agency cleanup has removed more than 560 tons of this debris over the last 10 years. Nets and other large debris entangle wildlife and bulldoze coral reefs. Photo: (Left) Amy Hall/NOAA, (Above) Jacob Asher/NOAA.

ALIEN AND INVASIVE SPECIES

Invasive species are causing significant ecological and economic impacts worldwide. An invasive species is defined as a non-native (or alien) species whose introduction causes or is likely to cause economic or environmental harm or harm to human health. It is nearly impossible to determine which alien species will become invasive and have harmful impacts on an ecosystem. Therefore, a precautionary approach treats all alien species as potentially invasive.

While few alien species are now established in the waters of the NWHI, global trends suggest that that the threat is high. Once established, invasive species can be extremely costly to control and would likely be impossible to eradicate from reefs. On land, several invasive species have already dramatically damaged ecosystems. Requirements to wear new, previously frozen clothes when visiting sensitive land areas, and treating diving equipment in a dilute bleach solution help to prevent new introductions.

SEA TEMPERATURE CHANGE



Abnormally high seawater temperatures, or other stressors, can cause coral to eject the algae living in their tissues. These algae are what gives the coral tissues their color, and when ejected the corals become white, or bleached. Without the algae, and the food they produce, the coral's health and very survival is at stake. Photo: James Watt.

Temperature anomalies present another significant threat to the marine and terrestrial components of the monument. Elevated sea surface temperatures may be linked to coral bleaching events reported in the NWHI in recent years. These bleaching events place stress on corals, making them more susceptible to disease. Additionally, recent concerns have been raised regarding

potential sea level changes in the NWHI and the resulting impacts on monk seal and sea turtle haul-out sites, as well as ground nesting sites of shorebirds. Further study will be required to determine the extent of such threats and the need for mitigation actions.

ILLEGAL ACTIVITIES

While the remote location of the NWHI has helped to protect them, it also provides a potential source of cover for those interested in exploiting the area illegally. Illegal access to the monument, discharge, dumping, and poaching are particular causes of concern. While the establishment of the monument provides an additional layer of protection to the area, enforcement remains challenging on a practical level due to the region's size and remoteness. Historically, enforcement has relied on reports passed along by fishermen, researchers and agency personnel working in the area, as well as routine fly-overs and vessel patrols by the U.S. Coast Guard. In addition to the existing channels of information, the monument plans to use remote surveillance (satellites, radar, vessel monitoring systems) to directly inform on-the-water law enforcement officers of potential violations.

Diesel fuel and other oil products are extremely toxic to coral reef life. With tens of thousands of gallons per vessel, the damage that can be caused by vessels that run aground and break apart before fuel and oils are removed can be immense. Photo: (right) DLNR, (below) James Watt.



CUMULATIVE IMPACTS

One of the most significant threats to the NWHI is the potential for overuse. The cumulative impact of permitted activities could lead to habitat damage, wildlife habituation and other negative impacts. The monument co-trustees are developing a single integrated permitting process to allow tracking, monitoring and planning for all permitted activities within the monument. The goal is to evaluate the individual and cumulative impacts of all permitted activities, particularly the collection of organisms, and where possible reduce these impacts. Technologies such as spatial databases and mapping systems will be used to aid in this purpose.



MANAGING HUMAN ACTIVITIES

PERMITS AND ACCESS

MANAGING HUMAN ACTIVITIES: Permits and Access

Any and all human presence and activities could potentially cause unintended harm to the fragile ecosystems of the Northwestern Hawaiian Islands (NWHI), even when undertaken with care. The primary goals behind regulating access to the area are to: preserve the fragile marine and terrestrial habitats in their natural state, protect the unique historical and cultural resources of the region, limit any degradation of resources, and make it easier to distinguish legitimate activities from illegitimate, or illegal ones. While some activities are prohibited within the monument under any circumstances (see box text on following page), a variety of others may be allowed with an approved permit. Permits allow management agencies to regulate activities and to track where, when and how they are conducted so that cumulative impacts over time can be evaluated, and minimized.

Entering the monument is prohibited, unless the access and related activities are specifically allowed by permit, with certain exemptions including: uninterrupted passage, law enforcement activities, activities conducted by the armed forces including the U.S. Coast Guard, or activities necessary to respond to emergencies.

Vessels may pass through the monument without interruption provided that they notify the monument prior to entering and after leaving the monument. Phone numbers and an email address are provided for this purpose. **To notify the monument of passage call: toll-free in the U.S.: (866)478-NWHI (6944), or outside the U.S., via**

satellite phone, or on O'ahu: (808)395-NWHI (6944), or send an email to nwhi.notifications@noaa.gov. Please provide your position, vessel identification, contact information of owner and operator, USCG documentation, state license or registration number, home port, intended and actual route through the monument, categories of hazardous cargo, length of vessel, and propulsion type.

Prohibitions do not repeal (or “white out”) any State of Hawai'i or Fish and Wildlife Service regulations. Additional restrictions apply to National Wildlife Refuges, the State NWHI Marine Refuge and Kure Atoll State Wildlife Sanctuary.

CO-TRUSTEE COORDINATION:

Authority over activities in the NWHI is shared by co-trustee agencies: NOAA's National Marine Sanctuary Program (NMSP) and National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS) and the State of Hawai'i (State) – each agency having distinct yet often overlapping management responsibilities.

Jurisdictional Authorities

The area subject to this coordinated management comprises NWHI lands (all islands, atolls, reefs, shoals, banks, and seamounts from 50 miles east of Nihoa Island in the southeast to beyond Kure Atoll in the northwest) and waters 50 miles on either side of a line drawn through those lands. The marine waters and submerged lands of the NWHI encompass an area extending approximately 1,200 miles long and include



the marine waters designated as the monument, State of Hawai'i waters and submerged lands, Kure Atoll State Wildlife Sanctuary, Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and the Battle of Midway National Memorial.

Permits issued by the monument incorporate specific conditions on locations, terms of conduct, reporting, and use of best management practices to minimize threats to the ecosystem. Permitting and enforcement are becoming increasingly integrated and coordinated among jurisdictional agencies, allowing for greater capacity, effectiveness and efficiency over time. Development of a fully integrated permit and tracking system, permit reporting criteria, understanding patterns of use, and interagency enforcement efforts are a few of the many integral aspects of the coordinated permitting process.

BIOLOGICAL PROTOCOLS

Endemic (found nowhere else) plant and animal species are especially vulnerable to the introduction of competing or consuming species, thus biological protocols have been established to minimize the risk of spreading invasive species (a few of these protocols are highlighted on the next page).

CULTURAL PROTOCOLS

The NWHI are culturally significant to Native Hawaiians. The State of Hawaii's Native Hawaiian Advisory Group, consisting of cultural practitioners and other members of the Native Hawaiian community is currently working with monument staff to develop cultural protocols which will be implemented as part of the pre-access training given to all permittees entering the monument.

TYPES OF MONUMENT PERMITS

Permitting Procedures and Criteria

The co-trustees may issue a permit if they find that the activity falls into to one of the six categories listed in the paragraphs below. In addition to these activities, the proclamation allows that a limited amount of commercial

bottomfishing and associated pelagic trolling may continue for 5 years. This activity will continue to be regulated by NMFS through commercial bottomfishing permits. Proclamation 8031 provides more detail on these criteria, or "findings," that guide the evaluation of permit applications, as well as commercial fishing restrictions. The full text of the proclamation can be found at: www.hawaiireef.noaa.gov/management/

PERMIT TYPES

Research

Permits will be considered for research projects designed to enhance understanding of the monument or improve resource management decision-making. Priority will be given to research proposals that help meet the management needs of the monument and its co-trustee agencies. Some of the types of activities that will be conducted under a research permit include but are not limited to monitoring, mapping, habitat characterization, and submerged archaeological research.

Education

Education permits will be considered for activities that further the educational value of the monument, enhance the understanding of the NWHI ecosystems, improve resource management decision making, promote Native Hawaiian knowledge and values, and aid in enforcement and compliance efforts. These permits will be considered for activities that have clear educational or public outreach benefits, and that promote, "bringing the place to the people rather than the people to the place." Some examples of potentially eligible projects are educator at sea programs on NOAA ships, video and photograph documentation, as well as distance learning projects.

Conservation and Management

Management permits will be considered for activities required for the general management of monument resources or users. This may include activities associated with resource management, such as marine debris removal. Management permits will also be issued to the appropriate entities for response, restoration and long-term monitoring activities. Management permits provide a mechanism to respond to non-emergency events in the monument that may not have been anticipated, such as coral bleaching episodes and invasive species surveys.

Native Hawaiian Practices

Proclamation 8031 defines a Native Hawaiian Practice as, "Cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of monument resources for direct personal consumption while in the monument."

Permits will be considered for Native Hawaiian cultural practices. Kūpuna (knowledgeable elders) and other cultural practitioners and experts may be consulted on applications. Permit conditions and protocols will continue to be developed through consultation with the Native Hawaiian community.

Special Ocean Use

Proclamation 8031 defines Special Ocean Use as, "An activity or use of the monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, and does not destroy, cause the loss of, or injure monument resources. This includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue, but does not include commercial fishing for bottomfish or pelagic species conducted pursuant to a valid permit issued by NOAA."

Additionally, permits issued for activities under the Special Ocean Use category must directly benefit the conservation and management of the monument. Special Ocean Use activities being permitted for the first time will be restricted in duration and permitted as a special ocean use pilot project. Special Ocean Use permits must not involve the use of a commercial passenger vessel.

Recreation

Permits will be considered for recreational activities that do not involve fee-for-service transactions (noncommercial) and occur only within the Midway Atoll Special Management area. Proclamation 8031 defines Recreational Activity as, "An activity conducted for personal enjoyment that does not result in the extraction of monument resources and that does not involve a fee-for-service transaction. This includes, but is not limited to, wildlife viewing, SCUBA diving, snorkeling, and boating."

Frozen Clothes

The tiny land areas of the NWHI have been isolated from each other for millions of years, and they have developed unique plant and animal communities. Although the main Hawaiian Islands have been overrun by non-natives, islands such as Nihoa preserve the last remaining examples of intact Hawaiian coastal plant communities. For this very reason it is necessary for visitors to wear new clothes that have been previously frozen for 48 hours, stored in sealed bags and worn only just prior to landing. The freezing kills insect hitchhikers, and may sterilize plant seeds. Such precautionary measures help to maintain these fragile habitats, and prevent introduction of new species by human transport. Visitors to sensitive land areas in the NWHI must plan accordingly to have separate sets of frozen gear for each area they visit.

Bleaching Scuba Gear

When diving or snorkeling, we can unknowingly pick up pieces of algae and other living matter on our gear. Some species of algae can stay alive for days, or even weeks out of the water unless thoroughly dried, and can be transported from one area to another. Certain species that grow quickly can be aggressive invaders, and can displace native algae. In the main Hawaiian Islands some coral reefs have been smothered by invasive algae, and species that grow so fast they become very difficult to remove. Soaking dive gear in a dilute bleach solution (about 1/8 cup bleach/gallon water) between dive locations can help prevent transporting invasive algae, coral disease pathogens and other critters to areas where they are not currently found. In the NWHI divers must soak their dive gear for 24 hours in fresh water prior to entering the NWHI and treat their dive equipment between dive locations with the bleach solution. Visual inspections of gear for algal fragments are also required.

Clean Your Hull of Hitchhikers

Most mariners know that if you leave your boat in the water for a while algae, barnacles and other invertebrates will eventually start growing on it. When boating around home this is not an issue, except to slow your boat down, but when traveling to new areas, especially sensitive areas like the NWHI, this can be a real problem. Your boat may be transporting hitchhikers that detach or fall off in the new area and start reproducing, possibly displacing native species. Hull inspection and cleaning before entering sensitive or new areas helps to prevent unknowingly spreading plants or animals to areas where they may cause harm. Permitted vessels must inspect their hulls and clean them, if necessary, prior to entering the monument.



A rapid ecological assessment team at Gardner Pinnacles. Photo James Watt.



PROHIBITED ACTIVITIES

- Exploring for, developing, or producing oil, gas, or minerals within the monument;
- Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a monument resource;
- Introducing or otherwise releasing an introduced species from within or into the monument;
- Anchoring on or having a vessel anchored on any living coral with an anchor, anchor chain, or anchor rope.

Diver holding a Triton's Trumpet, pū 'ōlō, *Charonia tritonis*. This marine snail is one of the few predators of the coral eating crown-of-thorns sea star. Photo James Watt.

PLANNING FOR THE FUTURE

Management Plan Overview

“To manage the monument, the Secretary of Commerce, in consultation with the Secretary of the Interior and the State of Hawai‘i, shall modify, as appropriate, the plan developed by NOAA’s National Marine Sanctuary Program through the public sanctuary designation process, and will provide for public review of that plan.”

– President George W. Bush

MANAGING A GLOBAL TREASURE

How do you effectively manage an area as vast and remote as the Northwestern Hawaiian Islands (NWHI), while integrating numerous other planning documents required under federal and state laws that have been or are being developed for the area? This enormous challenge was contemplated by NOAA, Fish and Wildlife Service (FWS), the State of Hawai‘i (State), the NWHI Coral Reef Ecosystem Reserve Advisory Council, and many others in designing a plan to protect the living, cultural and historical resources of the region as a public trust.



Hawaiian green sea turtles basking in the sun at French Frigate Shoals. Photo: Randy Kosaki/NOAA.

The public played a vital role in shaping the management plan for a proposed national marine sanctuary in the NWHI, through an extensive public process that formally began with public scoping meetings in 2002. Through this process, key resource management issues were identified and a vision, mission, management principles, goals and objectives were developed. These steps

provided the basis for comprehensive management planning for the monument and were developed further through public involvement in more than 100 meetings and working group sessions, including 22 formal public hearings in Hawai‘i and Washington DC. The vast majority of more than 52,000 public comments submitted during the sanctuary designation process called for strong, lasting protection for the region.

With so much invested in development of the draft management plan for the proposed NWHI national marine sanctuary, and with many issues addressed within it being very similar to those facing the monument, the Proclamation states that this will be the basis for a monument management plan. Specifically, it states that to manage the monument, NOAA, in consultation with FWS and the State, “...shall modify, as appropriate, the plan developed by NOAA’s National Marine Sanctuary

Program through the public sanctuary designation process, and will provide for public review of that plan.” The draft plan represents cutting-edge thinking in management of marine areas. It addresses a wide range of issues, from marine pollution to human uses and protected species, and provides a comparative baseline for future actions. The draft plan also describes an ecosystem-based approach to management, one that emphasizes interconnectivity and protection of ecosystem structure, function, and key processes, and seeks to minimize harm from human activities.

Key elements of the ecosystem based management framework for the monument include: (1) statutory authority of the Antiquities Act and other authorities; (2) a statement of overall management principles and direction; (3) mechanisms to promote and enhance collaboration with agency partners and other stakeholders; (4) regulations and zoning; (5) action plans with strategies designed to address management needs; (6) integration of ecosystem science and traditional knowledge; and (7) an adaptive management process. Together these elements provide a comprehensive approach to management uniquely tailored to the needs of NWHI ecosystems.

Action plans to address priority management needs are the heart of the management plan. There are 5 priority management needs and over 20 action plans designed to 1) understand and interpret the monument, 2) reduce threats to the ecosystem, 3) manage human activities, 4) coordinate conservation and management activities, and 5) achieve effective operations. The action plans describe the specific activities the management agencies will undertake to achieve the goals and objectives, as well as the desired outcomes of each action plan. The Evaluation Action Plan is devoted exclusively to performance evaluation and describes a process that will help managers determine if management actions are achieving the desired outcomes, addressing priority management needs, and meeting

goals and objectives. The outcomes of evaluation processes can then be used to improve process, programs and accountability, prioritize activities, and inform constituents.



Hawaiian green sea turtle hatchlings seeing light for the first time at Tern Island in French Frigate Shoals. Photo: Suzanne Canja/NOAA.

WHAT’S HAPPENING NOW

In order to implement the key provisions of the proclamation, and to protect the ecosystem immediately, the monument initiated a “rolling implementation” strategy for the management plan, moving forward a number of activities from the draft action plans, subject to available resources. Implementation of key activities will occur simultaneously with action plan revisions, adapting to the expanded and collaborative management structure of the monument.

Examples of action plan strategies and activities that can be immediately implemented to reduce threats to the ecosystem include:

- Implementing a vessel notification and vessel monitoring systems
- Developing a unified permitting program
- Coordinating a multi-agency enforcement team
- Conducting conservation, Native Hawaiian and maritime heritage research
- Continuing vessel hull inspection and cleaning
- Assessing vessel threats
- Developing and implementing a 5 year marine debris removal/prevention plan

In order to provide a comprehensive planning document for the monument, the action plans must be revised to reflect the statutory status of the monument, the inclusion of all agency jurisdictions and terrestrial issues. Agencies, experts and stakeholder input will be solicited through focused meetings to prepare the changes. The revised management plan for the monument will then be made available for public review. A final complete plan will be issued thereafter.

Hawaiian green sea turtle hatchling, honu, *Chelonia mydas*, Tern Island, French Frigate Shoals. More than 90% of all green sea turtles in Hawai‘i nest on the tiny islets of French Frigate Shoals. © 2005, David Liltschwager and Susan Middleton.

Research THEN

What is out there and how can we use it?

An endless ocean, the vast Pacific, and the islands sprinkled across its surface were seen as a resource ripe for extraction in the 19th and 20th centuries. Seabird eggs, feathers, and guano, monk seals, sea turtles and pearl oysters were all harvested from the Northwestern Hawaiian Islands (NWHI). Most commercial enterprises quickly showed diminishing returns from the bountiful yet fragile islands, but research efforts into the 1980's continued to focus on how the area's resources could be exploited to meet human needs.

Early Scientific Exploration in the NWHI

1902 marked the first Western scientific expedition to the NWHI. The U.S. Fish Commission steamer *Albatross* visited what they referred to as the "Leeward Islands," including "Bird Island" (Nihoa), Laysan, and Midway. The first photographs of the flightless Laysan rail (now extinct) were taken on this expedition, and new species of deep-water fishes were collected. In 1923 the research vessel *Tanager* carried the scientists

to the western edge of the NWHI. Archaeologists and biologists conducted numerous kinds of surveys and documented archaeological sites. Scientists also collected film footage. While on Laysan, the scientists witnessed the extinction of the Laysan apapane when the three remaining birds died during a storm. This may be the only time scientists have actually observed the extinction of an animal in the wild. At Nihoa and Necker Island, the researchers found artifacts and extensive ruins, some of which are unlike any known from the main Hawaiian Islands.

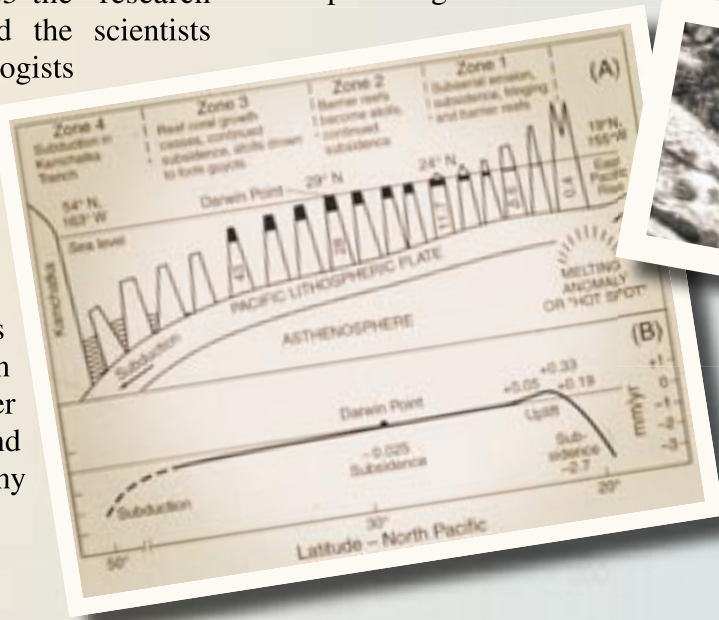
Pacific Ocean Biological Survey Program

From 1963 through 1969, a cadre of biologists from the Smithsonian Institute made ten trips to French Frigate Shoals to gather data on plants and animals. The Pacific Ocean Biological Survey Program (POBSP) collected a vast amount of data from a little known region. The main goals of the Pacific-wide program were to learn what plants and animals occurred on the islands, the seasonal variations in their numbers and reproductive activities and the distribution and population of the pelagic birds of that area. During that time, over 4 million square miles of the central Pacific Ocean were surveyed. Never before had such a vast area been surveyed over such an extended period of time. Today, the observations collected in the 1960s help wildlife managers appreciate the importance of long-term monitoring in island ecosystems.

The Tripartite Studies

The National Marine Fisheries Service, Fish and Wildlife Service and Hawai'i Department of Land and Natural Resources signed the Tripartite Cooperative Agreement in 1978. This provided an unprecedented collaborative research opportunity to document relationships between species and assess how commercial fishing and other activities might affect the region's ecosystems. From 1976 to 1981, the agencies, along with the University of Hawai'i Sea Grant Program, surveyed the islands, banks, reefs, shelves, and seamounts of the NWHI and amassed data on the various marine and land inhabitants.

Much of the research conducted in the 1970s and 80s was resource assessment with an eye towards consumption. A major goal was to identify resources of economic importance. Regardless, the Tripartite studies laid the groundwork for management plans covering a variety of resources ranging from fisheries stocks to endangered and protected wildlife species. Over 100 research projects were conducted under the Tripartite agreement.



Field camp on Nihoa Island. Photo: Fish and Wildlife Service.

The discovery of the Darwin Point, and how it relates to the origin and fate of the Hawaiian Islands, was one of the major discoveries during the Tripartite studies. Compliments of Dr. Richard W. Grigg.

RESEARCH NOW

What is out there and how can we conserve it?

In the late 20th century, research efforts became more focused upon conservation of our natural world. This paradigm shift stemmed from recognition that advances in technology and growing human populations have dramatically increased pressures upon our oceans. Our oceans are still poorly understood compared to terrestrial environments. In this new era of natural resource management, research using advanced technologies will help to increase our understanding of the marine realm. This information will allow management agencies to most effectively protect these habitats, their organisms and the natural processes that connect them.



Researchers insert an acoustic transmitter into a large tiger shark to track its movement. The transmitter data, collected by receiving stations across the Hawaiian Archipelago, will be used by managers to understand the habitat needs of these wide ranging animals. Photo: Robert Schwemmer/NOAA.

Movement of Big Predators

Top predators such as sharks, jacks and groupers play an important role in marine ecosystems. By feeding on other organisms, they help to keep the entire ecosystem in balance.

Science-based management and protection requires an understanding of the movement patterns of top predators. Researchers tag sharks and other big fish in order to learn about movement patterns in the Hawaiian Archipelago. These tags can relay information on the shark's position to underwater listening stations or to satellites orbiting hundreds of miles above the Earth.

So far, research has shown that the animals are wide-ranging within the atolls and at least two species move between atolls, crossing the open ocean. One tagged tiger shark traveled from French Frigate Shoals to Kona – 700 miles away. Another traveled from French Frigate Shoals to Midway. Clear patterns of movement have also begun to emerge. Ulua (giant trevally) display regular day/night movements as well as seasonal movement patterns based on the phases of the moon.

Great Frigatebirds

Great frigatebirds, or 'iwa, are emblematic of the splendor and the fragility of the Northwestern Hawaiian Islands. Recent research has uncovered some surprising things about frigatebirds breeding at French Frigate Shoals. Frigatebirds are very long lived, with some individuals at least 44 years

old, and genetic markers suggest that others are even older. Their reproduction is unique, requiring hard work by both parents for an entire year to raise a single offspring to independence. But unlike most seabirds, frigatebirds choose new mates each time they breed. Each winter, thousands of males perform strange courtship displays that highlight their iridescent feathers and the red balloon-like throat pouch, while a much smaller number of females fly in circles around the breeding colony, comparing the attributes of their enthusiastic suitors.



A satellite tag attached to this great frigatebird reports where the bird has traveled, and the wing tag will verify its identity. One tagged frigatebird was tracked as far as the Philippines, more than 4,500 miles away. Photo: Fish and Wildlife Service.

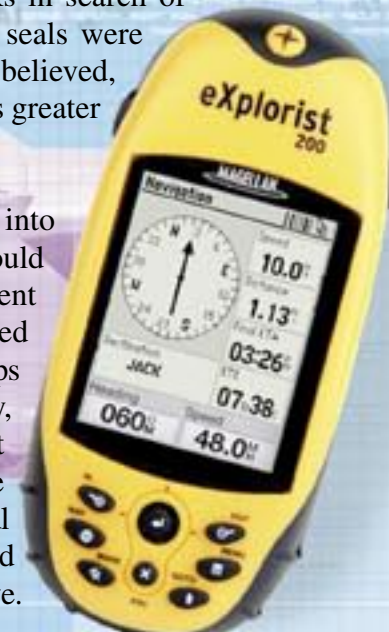
When not at the breeding colony, frigatebirds fly long distances over the ocean. With 6-foot wingspans but a weight of only 3 pounds, they use their glider-like bodies to soar high in thermals. Birds marked with wing tags and satellite transmitters at French Frigate Shoals have been observed at Laysan, Midway, Johnston Atoll, Wake Island, and even the Philippines.

A Seal's-Eye View—Monk Seals and CRITTERCAM

Hawaiian monk seals are on the brink of extinction. Only an estimated 1,300 Hawaiian monk seals survive — most of them making their home in the Northwestern Hawaiian Islands. Researchers hope that by using National Geographic's CRITTERCAM, a video camera glued to the seals' backs, they can find out what is hindering their survival.

As the seals swim around, the cameras allow researchers to see what habitats are used as foraging areas. Some surprising footage showed adult males cruising over sandy or rocky bottoms, flipping over large, flat rocks in search of food. This showed scientists that the seals were not feeding in the atolls as previously believed, but many miles out to sea and at depths greater than 200 feet.

The cameras have also given insight into seal pups' fishing techniques. This could be valuable information, since in recent years many seal pups have starved to death. With only 2 out of 10 pups surviving to their second birthday, juvenile mortality is a significant threat to species survival. Innovative tools, like CRITTERCAM, are essential to collecting the information we need to help these remarkable animals survive.



BRINGING THE PLACE TO THE PEOPLE NAVIGATING CHANGE

“No longer do we seek only the knowledge of how to voyage between islands. We seek lessons to carry home to our children - ways to inspire the present generation to love and preserve our Earth as a sanctuary for those who will inherit it.”

— Nainoa Thompson,
Navigator, Hōkūle‘a



Navigator Nainoa Thompson at Pearl and Hermes Atoll. Photo: NOAA.



Kamehameha School students explore NWHI through interactive exhibits at Mokupāpapa Discovery Center in Hilo. Photos: James Watt.



Mokupāpapa Discovery Center for Hawaii's Remote Coral Reefs, in Hilo, Hawaii. Photo: NOAA.

Painting by Hilo Artist, Layne Luna. This mural covers one large wall at Mokupāpapa Discovery Center for Hawaii's Remote Coral Reefs, in Hilo, Hawaii.

Geologically the oldest in the Hawaiian chain, the Northwestern Hawaiian Islands (NWHI) offer a glimpse back in time to when the lands and waters were healthy and teeming with life. These still-wild ecosystems contain powerful lessons for those of us in the main Hawaiian Islands who are witnessing the decline of our finite island resources. They teach us the importance of caring for the natural world on which our lives and livelihoods depend, and they give us a living model to guide restoration efforts. The Hawaiian Archipelago is one of the few places in the world where large-scale comparisons of impacted and un-impacted reef and island ecosystems of similar species and geography can be made.

The new national monument creates a new opportunity for ocean education and research for decades to come. Successful ocean stewardship depends on informed policy makers and an informed public.

— President George W. Bush

But the remoteness of this vast ocean region presents special challenges as to how these lessons can be shared. With access strictly limited, most people are unable to experience the place directly. Thus, the monument and its partners have created a spectrum of educational and experiential opportunities that indirectly connect people with the NWHI and its biological, historical and cultural wonders – in effect, “bringing the place to the people,” rather than the people to the place.

The monument’s educational initiatives include distance learning, presentations and events promoting ocean conservation, teacher workshops, and the Mokupāpapa Discovery

Center for Hawaii’s Remote Coral Reefs in Hilo. In addition, a few educators each year are able to participate in expeditions to the region and subsequently share their experience with their students and communities. Articles and lesson plans from the past few years can be found at: www.hawaiianatolls.org

In 2001, the NWHI co-trustees, Bishop Museum, the Polynesian Voyaging Society and a host of other community and government agencies joined forces to form the Navigating Change educational partnership. Inspired by the vision of the late Pinky Thompson and his son Nainoa, the partnership built an educational program that extends Hōkūle‘a journeys to the NWHI into schools statewide. These classroom voyages of discovery challenge students to change their values, attitudes and behaviors, and encourage them to get actively involved in community efforts to mālama and restore the marine and terrestrial environments where they live.

The Hawai‘i Maritime Center, next to Aloha Tower, also hosts an interactive Navigating Change exhibit where visitors can role-play being a scientist exploring the NWHI on a research cruise.

To learn more about Navigating Change curriculum or upcoming teacher workshops, visit: www.navigatingchange.org



Polynesian Voyaging Society
Bishop Museum
U.S. Fish and Wildlife Service
National Oceanic and Atmospheric Administration

Hawai‘i State Department of Land and Natural Resources
Hawai‘i State Department of Education
University of Hawai‘i Mānoa
Harold K. L. Castle Foundation

WHAT YOU CAN DO

- Learn more about the NWHI and your oceans, and how to protect them.
- Join our listserve to receive e-updates.
- Arrange a talk in your community.
- Volunteer.
- Attend our public meetings.
- Encourage others to get informed and involved.

GET INVOLVED



Volunteer Laura Thompson counts albatrosses at Midway Atoll. Photo: Fish and Wildlife Service.

Whether you are just now learning about the Northwestern Hawaiian Islands, or have been actively involved with this place for years, we ask for your continued support in caring for this unique and vast ocean region.

The complete revised management plan for the monument will be made available for public review. The management plan is the document that will set the resource management framework for the monument into the future.

The public review period will provide an opportunity to offer your input on how best to conserve and manage the monument for generations to come.

We welcome your mana‘o, your thoughts on how you think the area should be managed, and hope you will take the time to get involved. The important thing to remember is that this is your ocean treasure, and for those who live in Hawai‘i, your back yard.

For more information about the Northwestern Hawaiian Islands Marine National Monument please visit our website at:

<http://hawaiireef.noaa.gov> or contact the monument office at: 808-397-2660.

GET

INVOLVED

Stout moray eel, puhi, *Gymnothorax eurostus*, at Midway Atoll. Photo: © 2005, David Liittschwager and Susan Middleton.

MONUMENT



PHOTOS COURTESY DAVID LUTTSCHWAGER AND SUSAN MIDDLETON

A major part of Hawai'i is now a national monument. Come find out more.

THE NORTHWESTERN HAWAIIAN ISLANDS are 140,000 square miles of ocean wilderness in our own back yard. Safe haven for fish, honu, monk seals, seabirds, corals and limu. With strong ties to Native Hawaiian culture and practices.

In becoming a marine national monument, this special ocean region has been accorded the nation's highest form of marine environmental protection. Come to the public meeting and learn more about it.



Public Information Meetings 6-8 pm

SEPTEMBER

- Sept. 25: Moloka'i - Kulana 'Ōiwi Halau
- Sept. 27: Maui - Maui Arts and Cultural Center
- Sept. 28: Lāna'i - Lāna'i Library

OCTOBER

- Oct. 2: Wai'ānae - Wai'ānae District Park
- Oct. 3: Honolulu - Japanese Cultural Center
- Oct. 4: Kane'ohe - He'eia Kea State Park
- Oct. 5: Kaua'i - Aloha Beach Resort, Kapa'a
- Oct. 10: Kona - King Kamehameha Kona Beach Hotel
- Oct. 11: Hilo - Mokupāpapa: Discovery Center



Northwestern Hawaiian Islands Marine National Monument

www.hawaiireef.noaa.gov