

## National Wildlife Refuges of Papahānaumokuākea Marine National Monument



Midway Atoll NWR lagoon Robert Shallenberger

Papahānaumokuākea Marine National Monument, one of the largest fully protected marine managed areas in the world, was established on June 15, 2006. Recognized for its inherent cultural and natural significance the Monument was inscribed as a UNESCO World Heritage Site in 2010. Dedicated to the conservation of the Northwestern Hawaiian Islands, the Monument encompasses an area northwest of the main Hawaiian Islands from Nihoa to Kure Atoll. All but one of those islands lies within Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial and Hawaiian Islands National Wildlife Refuge.

Distinct geology, biology, and cultural history make the Northwestern Hawaiian Islands one of the world's greatest treasures. These remote environments offer a rare glimpse of what a thriving, intact, ecosystem looks like. The archipelago is home to more than 7,000 marine species, a quarter of which are found nowhere else on Earth, and is the primary habitat for endangered Hawaiian monk seals, seabirds, and several Hawaiian endemic land bird and plant species.

To meet the challenge of managing this vast, remote, and largely uninhabited area, the Monument is cooperatively managed by the State of Hawai'i through its Department of Land and Natural

Resources and Office of Hawaiian Affairs, the U.S. Department of Commerce through the National Oceanic and Atmospheric Administration, and U.S. Department of the Interior through the Fish and Wildlife Service.

### Hawaiian Islands National Wildlife Refuge

One hundred years ago President Teddy Roosevelt set aside the reefs and islets of the Northwestern Hawaiian chain (except Midway Atoll) as the Hawaiian Islands Reservation. Later renamed the Hawaiian Islands National Wildlife Refuge, the site was established to provide legal protection for the millions of seabirds inhabiting the Northwestern Hawaiian Islands at a time during our past when seabirds were being slaughtered by the thousands for their plumage and eggs.

About 1,766 acres of emergent land surrounded by 252,652 acres of coral reefs are included in the Hawaiian Islands National Wildlife Refuge: Nihoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, and Pearl and Hermes Atoll.

*Culture and Recent History* The cultural and historic significance of most of the Northwestern Hawaiian Islands stems from the discovery of individual island groups and the subsequent commercial and military uses of these areas.

Genealogy chants tell us voyaging Polynesians probably visited all of the islands, physical evidence of prehistoric inhabitation remains on Nihoa and Mokumanamana. For many Native Hawaiians the area is a sacred region where all life originates. Together, Nihoa and Mokumanamana possess some of the densest concentrations of pre-historical structures in Hawai'i and are both on the National Registry of Historic Places.

Development of land-based commercial facilities was greatest on Laysan Island, where guano and feather harvesting operations continued legally until the establishment of the Refuge in 1909, and illegally for a few years beyond that. The release of rabbits on Laysan and Lisianski during this period denuded the islands of vegetation and radically altered their ecology.

*Marine* Due to the geographical isolation of the Hawaiian archipelago and prevailing ocean currents, coral reef ecosystem species diversity is relatively low throughout the islands, but endemism is relatively high. Approximately 27 percent of the corals, 25 percent of the reef fish, and 30 percent of the invertebrates in the Hawaiian Islands are found nowhere else in the world. About 240 fish species were recorded in the Northwestern Hawaiian Islands during a comprehensive fish survey conducted by the State of Hawai'i in 1984. In recent surveys, reef fish populations were found to be healthy and the fish biomass more than 260 percent higher than in the main Hawaiian Islands. More than 90 percent of the Hawaiian population of threatened green turtles nests at French Frigate Shoals. The majority of the population of endangered Hawaiian monk seals breeds and feeds within the Hawaiian Islands National Wildlife Refuge, and some 20 species of cetaceans are found in these waters.

*Terrestrial* The Hawaiian Islands National Wildlife Refuge provides breeding sites for all but three of Hawai'i's 22 species of seabirds. Millions of central Pacific seabirds congregate on these islands to breed; for

some species, it is their only breeding site.

Although a few of the islands (notably Laysan Island) were decimated by introduced mammals, many of the islets and atolls have been relatively untouched by humans. As a result, this group of islands has a mostly intact seabird population and healthy insect and plant communities. Like the coral reefs, the islets are home to many plant and animal species found nowhere else in the world, including four land birds and 12 plants.

## Midway Atoll National Wildlife Refuge

Midway Atoll is located almost at the northwestern end of the Hawaiian Archipelago, approximately 1,260 nautical miles from Honolulu. The atoll is roughly 5 miles in diameter and contains two main islands, Sand and Eastern, and a smaller islet, Spit Island. In addition to its National Wildlife Refuge status, as of 2000 the Refuge is designated as the Battle of Midway National Memorial.

Midway is an unincorporated U.S. territory and the only island in the



Hawaiian Archipelago that is not part of the State of Hawai‘i. The refuge was established in 1988 when the U.S. Navy invited the Fish and Wildlife Service to manage the atoll’s extensive wildlife resources. In 1996, the atoll was transferred to the Service through an Executive Order.

Today, Midway Atoll serves as the hub of operations for Papahānaumokuākea activities in the northwestern end of the Monument, however due to a budget shortfall resulting in 50% staff reduction in October of 2012 the “window to the Monument,” is now closed to visitors and volunteers. Strategies are being investigated that could give the public an opportunity to once again experience the world’s unique natural and historic wonders.

**20th Century** In 1903, President Theodore Roosevelt placed the Midway Islands and environs under the jurisdiction and control of the Navy Department to stop the “wanton destruction of birds that breed on Midway.” Midway’s role as an important communications link was established in that same year when the Commercial Pacific Cable Company chose Sand Island for one of its relay stations.

In 1935, Pan American World Airways established a seaplane base in the harbor and a small (but relatively luxurious) hotel on Sand Island. The short-lived era of the “flying clipper” seaplanes ended with the onset of World War II in the Pacific. Midway is perhaps best known for its role in the Battle of Midway. Early on June 4, 1942, Japanese carriers launched three waves of planes to destroy the air base at Midway and clear the way for occupation, causing extensive physical damage and casualties on Sand and Eastern islands. From June 4-6, the majority of the battle was fought over the ocean northwest of Midway. The battle is known as the turning point of the World War II in the Pacific.

Midway continued to be a strategic location for the military during the Korean conflict, the Cold War, and Vietnam War. In 1992, the Department of Defense announced plans to close Midway Naval Air Facility. After an extensive cleanup, the Navy turned over Midway to the Fish and Wildlife Service in 1996.

**Marine** Midway Atoll is the northernmost coral atoll in the National Wildlife Refuge System, presenting a unique opportunity to study the effect of colder waters on the growth, development, and ecology of coral reefs. The atoll drops off steeply outside the barrier reefs, making it possible to observe in a relatively small area the different organisms and communities associated with pelagic, reef crest, ocean reef slope, deep reef, and lagoon habitats.

A total of 29 species of coral have been recorded at Midway, along with more than 100 species of algae, including a seaweed species new to science,

*Dudresnaya babbittiana*. A total of 266 species of fish, including 7 pelagic species, have been recorded at Midway, including some species either not found or very rare in the main Hawaiian Islands. Despite its low species diversity, Midway’s reef fish biomass is higher than in the main Hawaiian Islands, largely due to lower fishing pressures. Threatened green turtles are frequently seen inside the lagoon and basking on beaches, and recently began nesting on the atoll. About 65 endangered Hawaiian monk seals are usually present at Midway at any one time, and pupping levels have increased significantly since 1996.

**Terrestrial** Despite significant human alteration of Midway Atoll, it is still a wildlife habitat of worldwide importance.



White tern (*Gygis alba*)



Laysan albatross (*Phoebastria immutabilis*)



Black-footed albatross (*Phoebastria nigripes*)

Almost three million breeding seabirds of 19 species make Midway one of the most important breeding areas of seabird conservation in the Pacific. Midway hosts the world’s largest populations of both Laysan albatross (479,426 nesting pairs in 2012) and black-footed albatross (27,498 pairs).

Midway’s breeding populations of white terns, black noddies, and red-tailed tropicbirds constitute the largest colonies in the Hawaiian archipelago. After eradication of rats in the mid-1990s, the Bonin petrel colony at Midway has rebounded to more than 900,000 individuals. Endangered short-tailed albatrosses generally visit Midway each year. Two formed a pair in 2010 resulting in the first recorded short-tailed albatross chick to be reared on Midway.

Midway Atoll NWR in 2010. USFWS/Pete Leary

