

World Heritage Sites

Protected Areas and World Heritage



PAPAHĀNAUMOKUĀKEA UNITED STATES OF AMERICA

Papahānaumokuākea is the name given to a vast and isolated linear cluster of small, low lying islands and atolls, with their surrounding ocean, extending some 1,931 km to the north west of the main Hawaiian Archipelago, located in the north-central Pacific Ocean. The property comprises the Papahānaumokuākea Marine National Monument (PMNM), which extends almost 2,000 km from southeast to northwest in the Northwestern Hawaiian Islands (NWHI).

COUNTRY

United States of America

NAME

Papahānaumokuākea

MIXED WORLD HERITAGE SITE

2010: Inscribed on the World Heritage List under cultural criteria (iii) and (vi) and natural criteria (viii), (ix) and (x).

STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The UNESCO World Heritage Committee issued the following Statement of Outstanding Universal Value at the time of inscription:

Brief Synthesis

The property includes a significant portion of the Hawai'i-Emperor hotspot trail, constituting an outstanding example of island hotspot progression. Much of the property is made up of pelagic and deepwater habitats, with notable features such as seamounts and submerged banks, extensive coral reefs, lagoons and 14 km² emergent lands distributed between a number of eroded high islands, pinnacles, atoll islands and cays. With a total area of around 362,075 km² it is one of the largest marine protected areas in the world. The geomorphological history and isolation of the archipelago have led to the development of an extraordinary range of habitats and features, including an extremely high degree of endemism. Largely as a result of its isolation, marine ecosystems and ecological processes are virtually intact, leading to exceptional biomass accumulated in large apex predators. Island environments have, however, been altered through human use, and although some change is irreversible there are also examples of successful restoration. The area is host to numerous endangered or threatened species, both terrestrial and marine, some of which depend solely on Papahānaumokuākea for their survival.

The pristine natural heritage of the area has deep cosmological and traditional significance for living Native Hawaiian culture, as an ancestral environment, as an embodiment of the Hawaiian concept of kinship between people and the natural world, and as the place where it is believed that life originates and where the spirits return to after death. On two of the islands, Nihoa and Makumanamana, there are archaeological remains relating to pre-European settlement and use, including a large ensemble of shrines, heiau, of a type specific to Papahānaumokuākea, but which resemble those of inland Tahiti. These, together with the sites of stone figures that show a strong relationship to similar carvings in the Marquesas, can be said to contribute to an understanding of Hawaiians strong cultural affiliation with Tahiti and the Marquesas.

Criterion (iii): The well preserved heiau shrines on Nihoa and Mokumanamana, and their associated still living traditions are both distinctive to Hawai'i but, positioned within a wider 3,000 year old Pacific/Polynesian marae-ahu cultural continuum, they can be seen as an exceptional testimony to the strong cultural affiliation between Hawai'i, Tahiti and the Marquesas, resulting from long periods of migration.

Criterion (vi): The vibrant and persistent beliefs associated with Papahānaumokuākea are of outstanding significance as a key element in Pacific socio-cultural evolutionary patterns of beliefs and provide a profound understanding of the key roles that ancient marae-ahu, such as those found in Raiatea, the 'centre' of Polynesia,

once fulfilled. These living traditions of the Hawaiians that celebrate the natural abundance of Papahānaumokuākea and its association with sacred realms of life and death, are directly and tangibly associated with the heiau shrines of Nihoa and Mokumanamana and the pristine islands beyond to the north-west.

Criterion (viii): The property provides an illustrating example of island hotspot progression, formed as a result of a relatively stationary hotspot and stable tectonic plate movement. Comprising a major portion of the world's longest and oldest volcanic chain, the scale, distinctness and linearity of the manifestation of these geological processes in Papahānaumokuākea are unrivalled and have shaped our understanding of plate tectonics and hotspots. The geological values of the property are directly connected to the values in Hawai'i Volcanoes National Park and World Heritage property and jointly present a very significant testimony of hotspot volcanism.

Criterion (ix): The large area of the property encompasses a multitude of habitats, ranging from 4,600 m below sea level to 275 m above sea level, including abyssal areas, seamounts and submerged banks, coral reefs, shallow lagoons, littoral shores, dunes, dry grasslands and shrublands and a hypersaline lake. The size of the archipelago, its biogeographic isolation as well as the distance between islands and atolls has led to distinct and varied habitat types and species assemblages. Papahānaumokuākea constitutes a remarkable example of ongoing evolutionary and bio-geographical processes, as illustrated by its exceptional ecosystems, speciation from single ancestral species, species assemblages and very high degree of marine and terrestrial endemism. For example, a quarter of the nearly 7,000 presently known marine species in the area are endemic. Over a fifth of the fish species are unique to the archipelago while coral species endemism is over 40%. As many species and habitats remain to be studied in detail these numbers are likely to rise. Because of its isolation, scale and high degree of protection the property provides an unrivalled example of reef ecosystems which are still dominated by top predators such as sharks, a feature lost from most other island environments due to human activity.

Criterion (x): The terrestrial and marine habitats of Papahānaumokuākea are crucial for the survival of many endangered or vulnerable species the distributions of which are highly or entirely restricted to the area. This includes the critically endangered Hawaiian Monk Seal, four endemic bird species (Laysan Duck, Laysan Finch, Nihoa Finch and Nihoa Millerbird, and six species of endangered plants such as the Fan Palm. Papahānaumokuākea is a vital feeding, nesting, and nursery habitat for many other species, including seabirds, sea turtles and cetaceans. With 5.5 million sea birds nesting in the monument every year and 14 million residing in it seasonally it is collectively the largest tropical seabird rookery in the world, and includes 99% of the world's Laysan Albatross (vulnerable) and 98% of the world's Black-footed Albatross (endangered). Despite relatively low species diversity compared to many other coral reef environments, the property is thus of very high in situ biodiversity conservation value.

Integrity

The boundaries of the property are all located in the ocean, but nevertheless have been clearly defined, demarcated on navigational charts and communicated widely. The large size of the property ensures inclusion of a wide variety of habitat types, including a highly significant area of marginal reef environment as well as submerged banks and deepwater habitat. It also ensures a high degree of replication of habitat type. Although past use has altered some terrestrial environments the property is still predominantly in a natural state: its nature conservation status is exceptional. This is largely due to its isolation as well as a combination of management and protection efforts, some dating back more than 100 years, including national natural resource protection legislation as well as internationally adopted restrictions. The integrity of the property and its ecological processes are in excess of most other island archipelagos and most other tropical marine environments in the world.

All the cultural attributes that reflect Outstanding Universal Value are within the boundaries of the property. The archaeological sites remain relatively undisturbed by cultural factors. Although none of the attributes are under severe threat, some of the archaeological sites need further conservation and protection against damage from plants and wildlife.

Authenticity

The unique arrangement of the collections of shrines of Mokumanamana and Nihoa islands need to be read in detail for their sacred and religious associations, linked to other similar sites across the Pacific. The strong spiritual religious associations of Mokumanamana island are living and relevant. Damage due to natural processes of decay, and disturbance by wildlife could also disturb their layout and ability to display clearly their meaning.

Protection and Management Requirements

Papahānaumokuākea is a highly protected area established through Presidential Proclamation in 2009, which adds to pre-existing state, federal and international legal mandates. The multiple layers of Federal and State legislation and regulation protect Papahānaumokuākea's natural heritage and also its cultural heritage: both monuments and landscape. The property was declared a Marine National Monument under the national Antiquities Act, and is further protected by other national legislation including as the National Historic Protection Act, Historic Sites Act, and the Archaeological Resources Protection Act. There are also traditional Native Hawaiian protocols protecting the property's physical and intangible cultural heritage.

The multiple jurisdictions have created a complex institutional environment for management of the property, but management planning and intervention practices are appropriate. The three management Agencies for the property are the US Fish and Wildlife Service, National Oceanic and Atmospheric Administration and the State of Hawaii Department of Land and Natural Resources. There is a need to establish and maintain effective natural, archaeological and cultural heritage skills in managing the property. An archaeologist/cultural heritage specialist is required for the property, to complement the management of its natural values. The multiple jurisdictions have created a complex institutional environment for management of the property, but management planning and intervention practices are well conceived. In view of the threats facing the property, well-governed multi-agency involvement and participation is a strength, provided the complexity does not compromise operational capacities and the ability to quickly respond to challenges. It is a particular strength in relation to addressing the threats to the property that originate beyond its boundaries.

A Monument Protection Plan has been drawn up by key stakeholders, which will act as the guiding document for the property over the next 15 years. This includes strategic objectives and detailed thematic action plans that address priority needs. It is important that these efforts are sustained with the aim to increase streamlining, including to achieve more effective mechanisms for stakeholder participation and outreach. There is a need to ensure that the management system achieves effective, equitable and integrated management that protects and conserves both the cultural attributes and natural features of the property that are the basis for its Outstanding Universal Value. Threats to the natural values of the property emanating outside its boundaries include marine litter, hazardous cargo, future exploration and mining, military operations, Illegal, Unregulated and Unreported (IUU) fishing, commercial fishing, anchor damage, vessel strikes and Invasive Alien Species. A key issue in relation to threats to cultural attributes is the need to ensure archaeological sites are not disturbed by burrowing animals or plants, and that monitoring indicators address the impact of natural processes on the archaeological resources. There is also a need for management to be underpinned by clear documentation of the physical cultural resource, based on the outcomes of the current archaeological investigations.

IUCN MANAGEMENT CATEGORY

Category III Natural Monument

BIOGEOGRAPHICAL PROVINCE

Hawaiian (5.3.13)

GEOGRAPHICAL LOCATION

This linear site stretches almost 2000 km to the northwest of the Hawaiian Islands. The centre point for the geographic coordinates is: N 25°20'56.652" W 170°8'44.952". The outer boundaries include: N 22°53'35.016" W 161°2'9.456" and N 28°37'41.196" W 179°14'43.764".

DATES AND HISTORY OF ESTABLISHMENT

- 1909: Islets and reefs of the Northwestern Hawaiian Islands placed within the Hawaiian Islands Reservation;
- 1940: The Reservation became the Hawaiian Islands Wildlife Refuge through Presidential Proclamation 2416;
- 2000-2001: Establishment and designation of the area first as the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve under Presidential Executive Orders 13178 (in 2000) and 13196 (in 2001);
- 2005: Full protection of all State of Hawai'i waters in the Northwestern Hawaiian Islands upon creation of the Northwestern Hawaiian Islands Marine Refuge;
- 2006/2009: Creation of the Marine National Monument under Presidential Proclamation 8031.

AREA

The property comprises 36,207,499 hectares. Buffer zones have not been identified as the boundaries of the monument are not directly impacted by activities for which buffer zones would provide effective protection.

LAND TENURE

All of the area of the Papahānaumokuākea Marine National Monument is owned and controlled by the Governments of the United States and the State of Hawaii. There is no private ownership of the property.

ALTITUDE

From 4,600 m below sea level to 275 m above sea level.

PHYSICAL FEATURES

The ten islands and atolls of this Pacific chain extend for almost 2,000 km. None of the included islands is more than five square kilometres in size, and all but four have an average mean height less than ten meters above sea level. As a group, these islands represent a classic geomorphological sequence, consisting of highly eroded high islands, near-atolls with volcanic pinnacles jutting from surrounding lagoons, true ring-shaped atolls with roughly circular rims and central lagoons, and secondarily raised atolls, one of which has an interior hypersaline lake. In addition, more than 30 submerged ancillary banks and seamounts have been discovered around these islands.

CLIMATE

Among the dominant natural controls over the ecosystems of the Marine National Monument are climatic and oceanographic forces. The area lies at the northern edge of the oligotrophic tropical Pacific, near the 18°C sea surface isotherm, a major ecological transition zone in the northern Pacific. This boundary, also known as the "Transition Zone Chlorophyll Front," varies in position both seasonally and annually, and periodically moves across the property boundary surrounding the northern atolls of Kure and Midway. This in turn, influences overall ocean productivity, and the resultant recruitment success of many species such as Hawaiian Monk Seals and ocean-feeding seabirds (Polovina, *et al.*, 2008; Baker, Polovina and Howell, 2007). The northernmost atolls are also in a position where they are occasionally affected by an episodic eastward extension of the Western Pacific warm pool, which can lead to higher summer ocean temperatures at Kure than are found in the more "tropical" waters of the main Hawaiian Islands further to the south. This can cause greater temperature fluxes that can in turn influence the home ranges and diversity of many species.

This interplay of oceanography and climate is not fully understood, but is a useful natural laboratory for understanding phenomena such as periodic coral bleaching and the effects of the Pacific Decadal Oscillation, El Niño and La Niña ocean circulation patterns. Ocean currents, waves, temperature, nutrients, and other oceanographic parameters and conditions influence ecosystem composition, structure, and function on both temporal and spatial scales. The distribution of corals and other shallow-water organisms is also influenced by exposure to ocean waves. The size and strength of ocean wave events have annual, interannual, and decadal time scales. Annual extratropical storms (storms that originate outside of tropical latitudes) create high waves during the winter, greatly affecting marine and terrestrial areas, as the elevation of a large portion of terrestrial habitat is less than the height of some of the waves that pass through.

VEGETATION

To begin with marine flora, there are 353 species of macroalgae and two seagrass species known in Papahānaumokuākea. Large numbers of Indo-Pacific algal species have been documented here that are not present in the main Hawaiian Islands, such as the green calcareous alga (*Halimeda velasquezii*). The species composition of the macroalgae community is relatively similar throughout Papahānaumokuākea, with representatives of the Chlorophyta, Rhodophyta, Phaeophyta, branched coralline, crustose coralline, Cyanophyta, and turf algae occurring in varying combinations, with green algae having the largest biomass and area coverage (Vroom and Page 2006). Green algae in the genus *Halimeda*, which contributes greatly to sand formation, was found in more than 70% of all quadrates during area-wide surveys in 2004. The reefs of Papahānaumokuākea are largely free of alien algae, and high natural herbivory results in natural algal assemblages.

In contrast to the marine systems of Papahānaumokuākea, the terrestrial area of the property is comparatively small, but supports significant endemic biodiversity. At least six species of terrestrial plants found only in the region are listed under the U.S. Endangered Species Act. IUCN lists *Cenchrus agrimonioides* var. *laysanensis* from Laysan as extinct, though biologists hold hope that it may still exist. *Amaranthus brownii*, endemic to Nihoa, is deemed Critically Endangered, while *Pritchardia remota* is considered Endangered. The land plants of Papahānaumokuākea are typically salt-tolerant and drought resistant species of the beach strand and coastal scrub. At least three species of Papahānaumokuākea endemic plants (*Achyranthes atollensis*, *Phyllostegia variabilis*, and *Pritchardia remota* species, all of Laysan Island) are believed to have gone extinct since European contact. Other native species and genera have found refuge in areas of Papahānaumokuākea where rats were never introduced, and now occur at much greater densities than they do in the main Hawaiian Islands (e.g., *Pritchardia remota* and *Sesbania tomentosa*, commonly known as 'ōhai).

FAUNA

57 species of stony corals are known in the shallow subtropical waters (depths of less than 33 m) of Papahānaumokuākea, with an additional 28 species that are currently either undetermined or undescribed. Despite Papahānaumokuākea's high latitudes, similar numbers of species of coral have been reported for the NWHI as the main Hawaiian Islands, with 59 recorded species. Live coral is highest in the middle chain while stony corals are less abundant and diverse at the northern end of the archipelago (Kure, Midway, and Pearl and Hermes), and off the exposed basalt islands to the southeast (Nihoa, Mokumanamana, La Pérouse, and Gardner). At these sites, soft corals such as *Sinularia* and *Palythoa* are more abundant. Table coral in the genus *Acropora* is not found anywhere in the main Hawaiian Islands, but seven species are recorded for Mokumanamana, Gardner, Pearl and Hermes, Neva, French Frigate Shoals, Maro, and Laysan, with the highest number of species and colonies at French Frigate Shoals. 40% of the site's species are endemic. With the exception of coral and lobster species, the marine invertebrates of Papahānaumokuākea are very poorly known. The NWHI Reef Assessment and Monitoring Program has identified a number of new species, some of which may turn out to be endemic to Papahānaumokuākea.

Surveys using deep-diving submersibles have established the presence of deepwater precious coral beds at depths of 365–406 m; these include ancient gold corals whose growth rate is now estimated to be only a few centimetres every hundred years, and whose ages may exceed 2,500 years. At depths below 500 m, a diverse community of octocorals and sponges flourishes. Overall, the fauna of Papahānaumokuākea's waters below standard SCUBA diving depths remains minimally surveyed and documented. The estimated millions of seabirds breeding in Papahānaumokuākea depend on this pelagic habitat. They are primarily pelagic feeders that obtain the fish and squid they consume by associating with schools of large open-water predatory fish such as tuna and billfish. These fish – yellowfin tuna *Thunnus albacares*, skipjack tuna *Katsuwonus pelamis*, mahimahi *Coryphaena hippurus*, wahoo *Acanthocybium solandri*, rainbow runner *Elagatis bipinnulatus*, broadbilled swordfish *Xiphias gladius*, and blue marlin *Makaira indica* – are apex predators of a food web existing primarily in the epipelagic zone and found within the waters of Papahānaumokuākea. Over a fifth of the fish species are unique to the archipelago.

The marine and littoral ecosystems of the property are designated critical habitat for the Hawaiian monk seal *Monachus schauinslandi* (CR), the world's second most endangered pinniped. Only 1,200–1,400 individuals exist, and models predict that the population will fall below 1,000 individuals within the next five years. The islands and atolls are also crucial breeding, nesting, and basking habitat for the Hawaiian population of green turtles. The five species of sea turtles that occur in the NWHI are the loggerhead *Caretta caretta*, (EN) green *Chelonia mydas* (EN), olive ridley *Lepidochelys olivacea* (VU), leatherback *Dermochelys coriacea* (CR), and hawksbill *Eretmochelys imbricata* (CR)

More than 14 million seabirds rely on the tiny islets in the chain, 5.5 million of which nest annually. This includes 99% of the world's Laysan albatrosses *Phoebastria immutabilis* (NA), 98% of the world's black-footed albatrosses *Phoebastria nigripes* (EN), and important populations of the short-tailed albatross *Phoebastria albatrus* (VU). At the regional scale (Pacific Islands), six species were included in these highest-concern categories: Laysan, black-footed, and short-tailed albatrosses; Christmas Island shearwater *Puffinus nativitatis* Tristram's storm-petrel *Oceanodroma tristrami* and blue-gray noddy *Procelsterna cerulea*. Forty-seven species of shorebirds have been recorded; most of these are classified as infrequent visitors or transients, but Papahānaumokuākea does support regionally significant populations of four migrants: Pacific golden plovers (*Pluvialis fulva*), bristle-thighed curlews *Numenius tahitiensis* (VU) wandering tattlers *Tringa incana*, and ruddy turnstones *Arenaria interpres*. Within the terrestrial biota four species of endemic birds have been identified, including remarkably isolated species such as the Nihoa finch *Telespiza ultima* (CR), Nihoa millerbird *Acrocephalus familiaris* (CR), Laysan finch *Telespiza cantans* (VU), and Laysan duck *Anas laysanensis* (CR), one of the world's rarest ducks.

CONSERVATION VALUE

Covering a vast area in one of the world's most isolated archipelagos, Papahānaumokuākea Marine National Monument encompasses a significant expanse of low-lying islands and atolls, predator dominated coral reef ecosystems, and marine and terrestrial flora and fauna that show significant patterns of enhanced speciation with numerous endemic and endangered species. The string of islands in Papahānaumokuākea comprises an important example of later stages of island and atoll evolution. The archipelago has provided some of the most compelling confirmation of current theories of global plate tectonic movements. The coral reef ecosystems of Papahānaumokuākea also

represent one of the world's last apex predator dominated ecosystems, a community structure characteristic of coral reefs prior to significant human exploitation. Papahānaumokuākea is also the largest tropical seabird rookery in the world.

CULTURAL HERITAGE

Papahānaumokuākea is a sacred cultural landscape, a region of deep cosmological and traditional significance to the living Native Hawaiian culture that contains a host of significant archaeological sites. These archaeology and significant ritual sites (heiau) bear exceptional testimony to the shared historical origins of all Polynesian societies, and to the growth and expression of a culture that evolved from the last and most difficult wave of cross-Pacific Polynesian migration. The entire region provides a largely undisturbed ancestral environment, whose preservation both illuminates and embodies the Hawaiian concept of the literal and spiritual kinship of all things in the natural world, including man, and represents the site where life originates and the place where spirits return after death.

LOCAL HUMAN POPULATION

Nihoa Finch In 2008, the estimated population located within the property was of 130 people (permanent and seasonal staff).

VISITORS AND VISITOR FACILITIES

The Monument Management Plan contains a long-term visitor services plan, which allows recreational visitors only on Midway Atoll. Numbers of overnight visitors are limited to no more than 50 at any one time. Visitor programs are closely monitored to ensure they are causing no adverse effects. The property's managers have the ability to wholly control access by visitors through the permitting process. The number of larger day visits of 50-800 people to Midway is limited to no more than three per year, with no more than 400 people ashore at any one time. Because groups are limited to existing roads and trails and are typically divided into smaller groups for walking tours, no negative impacts from these visits have been documented. Visitors remain in areas where albatrosses are already acclimated to human presence, and they are restricted from any area where Hawaiian Monk Seals or Green Turtles may be present.

Visitors are housed in a converted U.S. Navy Bachelor Officers' Quarters: 24 rooms are currently available. A small food and supply store and a separate gift shop are available. Transportation is almost entirely by bicycle or on foot, although a limited number of golf carts are available to visitors. Visitors are offered guided walking tours along existing roadways with interpretive programs at specific historic or wildlife stops. At Midway Atoll, a small visitor centre interprets natural and historic resources, and visitors participate in a mandatory orientation session that furthers their knowledge about Papahānaumokuākea resources and their importance to Native Hawaiian culture. Other visitor facilities include a road/trail system throughout Sand Island, a "trail" along the historic runways of Eastern Island, a theatre, library, gymnasium, bowling alley and small community centre. In the future, a new museum and expanded interpretive programs are planned. Many of the current visitors come to Midway with a guided tour operator, providing additional programs and information for guests.

SCIENTIFIC RESEARCH AND FACILITIES

Assessment, monitoring and mapping of the flora and fauna in the Northwestern Hawaiian Islands began nearly a century ago as exploratory research voyages set sail primarily to collect data and specimens for cataloguing purposes. Since then, the property has been object of extensive research. In 2000, the State of Hawai'i, U.S. Fish and Wildlife Service, NOAA and several research institutions launched the NWHI Reef Assessment and Monitoring Program to characterize and monitor coral reefs and establish a baseline for comparison and to facilitate monitoring temporal changes in the ecosystem. In addition to this group, NOAA has also initiated a comprehensive mapping effort using satellite imagery, multi-beam sonar, and other remote sensing techniques to provide detailed characterizations of benthic habitats. The primary focus of research in recent and forthcoming expeditions is of comprehensive data collection, and with the technology now available, new discoveries. To advance scientific understanding of the region, Papahānaumokuākea is working toward synthesis of all the various data and modelling programs to allow an in-depth understanding of the area and the processes on which the health of the region depends.

MANAGEMENT

The U.S. Department of Commerce through the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of the Interior through the U.S. Fish and Wildlife Service (FWS), and the State of Hawai'i are the government entities with legal authority, jurisdiction or control of

Papahānaumokuākea. The representative body that manages, coordinates, plans and monitors activities within the property is known as the Monument Management Board. The functional relationships among the Co-Trustees to coordinate management actions are established and defined by a Memorandum of Agreement that the Co-Trustees executed on December 8, 2006. Policy guidance is provided by a Senior Executive Board, consisting of three senior level designees representing the Co-Trustees. In addition, the seven-member Monument Management Board coordinates management of the property at the field level, and includes designees from NOAA's Office of National Marine Sanctuaries and National Marine Fisheries Service, FWS's National Wildlife Refuge Program and Pacific Islands Fish and Wildlife Office, the State of Hawai'i Department of Land and Natural Resources' (DLNR) Division of Aquatic Resources and Division of Forestry and Wildlife, and the Office of Hawaiian Affairs. Together, the Senior Executive Board and the Monument Management Board represent the combined policy and field-level management authority of the Co-Trustees, acting on behalf of the State of Hawai'i and the United States. The Co-Trustees have developed a joint agency Monument Management Plan to serve as the guiding document for coordinated conservation and management actions over the next 15 years. The Management Plan incorporated many of the plans that had been previously developed to guide current management actions within the NWHI.

Presidential Proclamation 8031, as well as federal regulations promulgated by the U.S. Departments of the Interior and Commerce to implement the provisions of the Proclamation, prohibit entering the property unless permission has been granted by the Co-Trustees via a rigorous permit or notification system to manage activities that may affect Papahānaumokuākea's resources. As under international law, rights of navigation are respected, but regulated. The regulation of access to Papahānaumokuākea by vessels has been reviewed and approved through processes of the International Maritime Organization (IMO). Within the IMO, the Marine Environmental Protection Committee (MEPC) and the Maritime Safety Committee (MSC) have agreed that Papahānaumokuākea Marine National Monument be designated as a Particularly Sensitive Sea Area (PSSA). The property is further protected under several international, federal and state legal measures. Additionally, to Native Hawaiians, natural resources are cultural resources, and they are genealogically linked to those natural resources, including all of the Hawaiian Islands in the archipelago. Thus, the area must be treated with appropriate reverence and honour.

MANAGEMENT CONSTRAINTS

Enforcement of regulations is a challenge due to the isolation and size of the monument. A direct collaboration with the US Coast Guard has been established. The effectiveness of enforcement requires constant monitoring and further development of surveillance technology as well as operational means of intervention in case of breaches. There is room for improvement and consolidation, for example emergency response plans to minimize the impacts of groundings and/or spills were still under development. There is concern that the multiple jurisdictions and the multi-agency management arrangement created around them still seem overly complex; each Co-Trustee still operates institutionally disconnected processes with separate procedures, budgets, staff etc. Although the complex management structure of the monument is a product of the terms of the Executive Order establishing the monument, federal as well as state law, there may be a case for studying options for even more far-reaching integration, e.g. into a single management authority for the monument with unified budgets and co-located staff. The campaigns and educational programs are all well conceived but would benefit from scaling up and further elaboration for the monument to achieve its objective of "bringing the monument to people" rather than vice versa, which is necessitated by the strict limitations on visits to the area. In particular, generating a broader understanding of the permitting and management effectiveness systems and procedures would serve to remove some of the concerns and misconceptions related to these among some stakeholder groups. Threats to the property emanating outside its boundaries include marine litter, hazardous cargo, future exploration and mining, military operations, Illegal, Unregulated and Unreported (IUU) fishing, commercial fishing, anchor damage, vessel strikes and Invasive Alien Species.

COMPARISON WITH SIMILAR SITES

Of the more than 400 atolls and reef islets in the world, only three have been inscribed as World Heritage sites: East Rennell, Aldabra, and Atol da Roca, which are all raised atolls. World Heritage sites that include marine and/or cultural components (New Caledonian Lagoons, Galapagos, Great Barrier Reef, Cocos Island, the Gulf of California, Hawai'i Volcanoes National Park, Tongariro National Park, Tubbataha Reef in the Philippines) have been successfully established by only a few nations in Oceania, and no World Heritage sites currently include coral reef components of the central deep Pacific.

Papahānaumokuākea is home to one of the largest and most important assemblages of tropical seabirds in the world. In total numbers and biodiversity, this is greater than the community of marine birds in the Phoenix Islands Protected Area, Kiribati. In regard to making comparisons of marine biota among various sites in the Indo-Pacific region, reliable data is available primarily for reef fishes, shallow water corals (occurring at depths of less than 30 meters), and marine molluscs. The lower overall richness of Papahānaumokuākea compared to more tropical sites in the Pacific is offset by a very high rate of local endemism. Endemic fishes represent 23% of the number of species but comprise more than 50% of Papahānaumokuākea's population in terms of numerical abundance. As much as 40% of the coral species and 20% of the marine molluscs are endemic to Papahānaumokuākea.

STAFF

The NOAA-ONMS Papahānaumokuākea Superintendent operates out of the central office in Honolulu, with support from 25 additional staff to implement programs in policy, research, permits, education and outreach, and information management. NOAA-ONMS also has 4 full-time staff in the office on the Island of Hawai'i in the main Hawaiian Islands to manage the Mokupāpapa Discovery Center. PIRO staff include a full-time Management Officer and a policy specialist, both based in Honolulu. NOAA-ONMS have 4 full-time contractors dedicated to the development of the centralized Monument Information Management System. The FWS Papahānaumokuākea Superintendent is based in Honolulu, along with a permits manager, logistics coordinator, and administrative staff. Midway Atoll staffing includes a Refuge Manager, Deputy Refuge Manager, wildlife biologists, a visitor services manager, interpretive ranger, law enforcement ranger, and equipment operator. Staffing at French Frigate Shoals consists of a Refuge Manager and Assistant Refuge Manager. The State of Hawai'i staff is mainly located in Honolulu, however, field staff are on site at Kure Atoll each summer for an extended period of time (up to six months).

BUDGET

The primary sources of funding for the property come from the Co-Trustee agencies. NOAA's Office of National Marine Sanctuaries annual operating budget for the Monument is approximately \$7.1 million. FWS has an annual Monument budget of approximately \$6.8 million. While the State of Hawai'i does not have a budget that is solely devoted to the Monument, they allocate nearly \$462,000 of staff and resources annually with in-kind services. Similarly, the NOAA-Fisheries do not have a budget but they contribute a combined funding of \$11 million for programs, annually.

LOCAL ADDRESSES

Monument Management Board, Papahānaumokuākea Marine National Monument, 6600, Kalaniana'ole
Web address: www.papahanaumokuakea.gov

REFERENCES

The principal sources for the above information were the original World Heritage nomination (see the reference list therein for full citations of the references cited above), IUCN's evaluation report and Decision 34 COM 8B.10 of the UNESCO World Heritage Committee.

DATE

November 2011