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IDENTIFICATION AND PROTECTION OF SPECIAL AREAS AND PARTICULARLY SENSITIVE SEA AREAS

Designation of the Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area

Submitted by the United States

SUMMARY

Executive summary:	This document sets forth a proposal to designate the Papahānaumokuākea Marine National Monument (North-western Hawaiian Islands or NWHI) as a Particularly Sensitive Sea Area. Three associated protective measures have been identified as necessary to prevent damage to the recognized attributes of this fragile and integrated coral reef ecosystem by international shipping activities: (1) inclusion of the six existing IMO-adopted Areas To Be Avoided (ATBAs), (2) amendment and expansion of these ATBAs, and (3) establishment of a ship reporting system. The Committee is asked to approve the designation of this PSSA proposal "in principle" at this session, inform the Sub-Committee on Safety of Navigation (NAV) of its assessment, and, after consideration and approval of the associated protective measures by NAV, approve final PSSA designation.
Action to be taken:	Paragraph 7
Related documents:	Resolutions A.982(24), A.885(21) and A.720(17); MEPC 56/INF.2; MSC XLIII/16/1; NAV 53/3/4 (ATBA document); NAV 53/3/5 (ship reporting system proposal); NAV 38/3/2; NAV XXIII/13; and NAV XXI/4/6

1 Summary of Proposal

1.1 The United States proposes the designation of the Papahānaumokuākea Marine National Monument, the area of the North-western Hawaiian Islands (NWHI), as a Particularly Sensitive Sea Area (PSSA) to protect the recognized attributes of this fragile and integrated coral reef ecosystem from damage by international shipping activities. The burden on international shipping by the proposed PSSA and its associated protective measures is minimal while the objectives for establishing it – increased maritime safety, protection of the fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitation of the ability to respond to developing maritime emergencies – are significantly furthered. The co-ordinates of the proposed PSSA are set forth in annex 1 and a

chartlet of the area is in annex 2. This proposal is consistent with the Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Assembly resolution A.982(24)).

1.2 This vibrant and integrated coral reef ecosystem is inherently vulnerable to damage by international shipping activities, and ships in transit through the NWHI are one of the most persistent and significant anthropogenic threats to its pristine character. The very features that give rise to this dynamic ecosystem – the small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features – pose a significant challenge to safe and environmentally sound navigation. As evidenced from a number of shipwrecks in the NWHI, this area is vulnerable to physical damage from ship groundings and damage from pollution. Therefore, the objectives of PSSA designation are to increase maritime safety and minimize risk where navigation is hazardous, protect the fragile environment, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. Three associated protective measures within the competence of IMO have been chosen because they are the best tools for providing protection to the proposed PSSA and for increasing maritime safety, while taking into account the impact on navigation: (1) the six existing, IMO-adopted Areas To Be Avoided (ATBAs), (2) the amendment and expansion of these ATBAs, and (3) the establishment of a ship reporting system.

1.3 The ATBAs are a critical associated protective measure because they serve to keep ships away from the navigation hazards, allow any spilled cargo an opportunity to disperse before reaching the shore, protect sensitive ecological resources, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and provide time to mount a response to a developing maritime emergency. In recognition of the hazards to safe navigation in this area and the benefits provided by ATBAs, six ATBAs were adopted by IMO in 1981 to protect eight of the NWHI, refer annex 3. While these ATBAs have been effective in the areas where they apply and with regard to the ships subject to them, it is necessary to amend them in three ways. First, it is necessary to include a broader class of vessels, as evidenced by the groundings and spills from vessels that fall outside the scope of the current ATBAs. Second, the adoption of additional ATBAs around Kure Atoll and Midway Atoll and three areas between islands is necessary to protect these vulnerable areas. These areas contain significant hazards to navigation and are home to some of the most vulnerable and endangered resources in the island chain. The need to establish these ATBAs is underscored by the shipwrecks that have occurred in many of these areas. Third, the name and description of the area needs to be updated to recognize its designation in 2006 as the Papahānaumokuākea Marine National Monument, and the format of the geographical positions upon which the existing ATBAs are based also needs to be updated and other technical corrections made to these positions.

1.4 The proposed ship reporting system is tailored to meet the objectives of PSSA designation. It will provide critical alerts and other information to assist mariners in navigating safely in this area. It will also provide information on vessel traffic in transit through the proposed PSSA which will facilitate the ability to respond to developing maritime emergencies. The achievement of both of these objectives will further result in protection of the fragile environment and preservation of cultural resources and areas of cultural importance significant to Native Hawaiians.

1.5 Given its remoteness, no other IMO Member State has a common interest in this area and thus no consultations with a view to developing a coordinated proposal were necessary. Consultations were held, however, with representatives from the shipping industry, master mariners, environmental interests, Native Hawaiians, and representatives from United States federal, state, and local governments. These stakeholders' concerns were carefully considered

and taken into account in the development of this PSSA proposal. The resulting proposal specifically takes into account the burden on, and practical navigation aspects for, international shipping, with a view to minimizing those impacts while meeting the need for additional protection for the NWHI.

2 Description of the Area

2.1 The proposed area for designation as a PSSA consists of an approximately 1,200 mile stretch of small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features located northwest of the main Hawaiian Islands.[1] The islands, atolls, and other features are remnants of volcanic islands, which have eroded and subsided beneath the surface of the ocean. There are ten main islands and atolls in the NWHI. The two southernmost (Nihoa and Necker) are rocky islands. Four of the five middle landmasses are open atolls (French Frigate Shoals and Maro Reef) and sandy islands (Laysan and Lisianski). Gardner Pinnacles is a small rocky outcrop, a remnant of an island similar to Nihoa and Necker. The three northernmost landmasses are classic atolls (Pearl and Hermes, Midway, and Kure). Most of this emergent land is inhospitable to human settlement. Some islands are only rocky outcrops with no safe landing spot. Others are ever-shifting sand spits that can become washed over during heavy storms. Fresh water is virtually absent. Nevertheless, while land areas are limited, the NWHI is vital habitat to approximately 14 million seabirds and are the only home for four endangered land birds. It is also a primary nesting site for the threatened green sea turtle and the principal haul-out, pupping, and weaning habitat for the critically endangered Hawaiian monk seal.

2.2 The ocean area of the proposed PSSA includes several thousand square miles of coral reefs that are among the most undisturbed and extensive in the world. It is also one of the last – if not *the* last – large-scale, apex predator-dominated coral reef ecosystems on the planet. Coral growth on the submerged slopes of the volcanic islands has kept up with the rate of subsidence of the islands and the reef is home to over 7,000 marine species, approximately one-quarter of which are unique to the Hawaiian Island chain and a number of which are at risk. "Seen from space, the area's shallow waters appear as a string of turquoise jewels in an empty and dark blue vastness" (Citizen's Guide 2006).

2.3 The uniqueness, significance, and diversity of this area, which is described in more detail below, has been recognized through a series of protected area designations under United States domestic law. In 1909, the President designated the emergent lands, islets, and reefs from Nihoa to Kure Atoll as the Hawaiian Island Bird Reservation. This area was re-designated in 1940 as the Hawaiian Islands National Wildlife Refuge. In 1996, Midway Atoll was designated by the President as Midway National Wildlife Refuge. Today, many parts of the terrestrial area and some sea areas are managed and administered by the United States Fish and Wildlife Service as part of those two National Wildlife Refuges and the Battle of Midway National Memorial. In 2000, the vast majority of the area was designated by the President as the North-western Hawaiian Islands Coral Reef Ecosystem Reserve. Kure Atoll is managed by the State of Hawaii Department of Land and Natural Resources as a State Seabird Sanctuary, and, in 2005, the Governor of the State of Hawaii declared all state waters of the NWHI as a state marine refuge where extractive uses, including commercial and recreational fishing, are prohibited and a permit is required for entry for all other activities. In this state marine refuge, traditional Native Hawaiian activities are allowed in order to perpetuate this important culture. On June 15, 2006,

[1] The term, "main Hawaiian Islands", is used throughout this proposal to refer to the islands of Hawaii, Maui, Oahu, Molokai, Nihau, Kauai, Lanai, and Kahoolawe. These islands are the main populated islands of the Hawaiian Islands chain, with the exception of Kahoolawe, which is an uninhabited nature reserve. None of the main Hawaiian Islands are part of the Northwestern Hawaiian Islands.

an area which encompasses all of the above areas was designated by Presidential Proclamation as the North-western Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) wherein most domestic uses and activities are prohibited or strictly regulated. The Papahānaumokuākea Marine National Monument is the area being proposed for designation as a PSSA.

2.4 The proposed PSSA includes the territorial sea and approximately one-fifth of the exclusive economic zone surrounding the islands. In most areas, the PSSA extends no further than 50 nautical miles from the shoreline of the islands, with a few areas of greater distance from land in order to recognize the integrated nature of the ecosystem as a contiguous whole. All actions that are being, and have been, taken to protect this area are in accordance with customary international law as reflected in the United Nations Convention on the Law of the Sea.

3 Significance of the Area: Ecological, Socio-economic, and Scientific Attributes

3.1 In accordance with the Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Revised PSSA Guidelines or Guidelines), in order to be identified as a PSSA, an area should meet at least one of the ecological, socio-economic, or scientific criteria listed in the Guidelines, and supporting documentation should be provided to establish that at least one of the criteria exists throughout the entire proposed area, though the same criterion need not be present throughout the entire area (Revised PSSA Guidelines, paragraph 4.4).

Ecological Criteria

3.2 Uniqueness or rarity

3.2.1 The area proposed for PSSA designation supports a unique, dynamic coral reef ecosystem, which, thanks to its relative isolation, is among the healthiest in the world (Citizen's Guide 2006). It is one of the last remaining large-scale wilderness coral reef ecosystems on the planet and the largest coral reef ecosystem in the marginal tropical seas (Cousteau 2003). Approximately one-quarter of the species found in the NWHI are endemic to the Hawaiian Island chain, which is one of the highest rates of marine endemism in the world (Friedlander et al. 2005; Citizen's Guide 2006). The proportion of scientifically non-described coral reef species (e.g., sponges, corals, algae, and other invertebrates) in this area is one of the highest in the world (Cousteau 2003). The NWHI also contain important breeding and nesting grounds for a number of species, many of which are at risk, including the critically endangered Hawaiian monk seal, the threatened green sea turtle, and 19 species of seabirds (Henderson 2001; NOAA 2004b; Citizen's Guide 2006).

3.2.2 The uniqueness of this area was expressed in 2003 by ocean explorer Jean-Michel Cousteau in his *Voyage to Kure* expedition log: "These islands are a celebration of the uniqueness brought on by isolation. Along this ribbon of life, we found teeming populations of spinner dolphins and large apex predators such as reef sharks, jacks, and groupers. We encountered many of the Hawaiian endemic species of reef fish, including the rare masked angelfish and Hawaiian grouper; all perfect reminders of an intact coral reef ecosystem" (Cousteau 2003).

3.3 Critical Habitat

3.3.1 Parts of the proposed area provide critical habitat for a variety of endangered or threatened species that are protected under various United States domestic laws. These species include the critically endangered Hawaiian monk seal; the endangered sperm whale; the endangered hawksbill, leatherback, and green sea turtles; the endangered short-tailed albatross; six endangered plant species; and four endangered land birds: the Nihoa finch, Nihoa millerbird, Laysan finch, and Laysan Duck, the world's rarest duck. Of these species, seven are listed in Appendix I of the Convention on Trade in Endangered Species of Wild Flora and Fauna (CITES) and nine are listed on the World Conservation Union (IUCN) Red List of Threatened Species (including three with "critically endangered" status).

3.4 Dependency

3.4.1 The ecological processes of the NWHI ecosystem are dependent on the health of its vast, diverse coral reef tracts. Often called the "rainforests" of the sea, coral reefs are vital to maintaining the biological diversity of the oceans (Citizen's Guide 2006). The pristine coral reefs of the NWHI are the foundation of a symbiotic community composed of countless millions of plants and animals dependent upon one another for survival (Citizen's Guide 2006). These reefs perform important ecosystem services including filtering water, protecting islands from sediment deposition and storms, and providing nourishment for marine organisms.

3.4.2 Thousands of species depend on the coral reefs of the NWHI. Hawaiian monk seals, a majority of which make their home in the NWHI, are the only surviving marine mammal that is dependent on coral reef ecosystems (Citizen's Guide 2006; Cousteau 2003). The high incidence of apex predators such as sharks, jacks, and groupers also depends on the high productivity of this ecosystem. In turn, the prevalence of apex predators has a significant effect on the structuring of the fish assemblage of the area, impacting the diversity and relative abundance of species lower on the food chain. Thus, adverse impacts on these apex predators could cause populations of smaller fish to quickly become unbalanced, changing the trophic structure and order of dominance within the ecosystem (Maragos and Gulko 2002; Friedlander and DeMartini 2002; Suthers 2004).

3.4.3 Approximately 14 million seabirds, with 5.5 million nesting annually in the NWHI, rely on the coral reef ecosystem for food and other habitat needs (Naughton and Flint 2004). In turn, the ecosystem is dependent on these birds' role in the high relative productivity and diversity of the NWHI. Nutrient-rich defecation (guano) deposited by the birds on the islands and nearshore waters – which subsequently is dissolved and provides significant levels of nitrogen to the ecosystem – is thought to stimulate the prolific growths of algae found around the islands. When high levels of algal growth are combined with significant wave action, such as at La Perouse Pinnacle at French Frigate Shoals, this creates favourable conditions for the growth of other species (Maragos and Gulko 2002).

3.4.4 The ecological processes of the NWHI depend on more than just its coral reefs. Beyond the banks and steep slopes, between 1,640 and 14,000 feet, the ocean floor levels out at sea bottom which contains distinct, rich habitat (Press and Siever 1986; Benoit-Bird et al. 2001). This habitat is linked to the coral reef ecosystem by a dense assemblage of small fish, shrimp, and squid that migrate from the ocean depths to near the surface in regular patterns and serve as an important food resource for many animals, including spinner dolphins, bottom fish, tunas, and billfish (Benoit-Bird et al. 2001). The importance of offshore and deepwater habitat is also evidenced by the movements and diets of Hawaiian monk seals. Although part of the seals' diet comes from shallow-water coral reef fish, the seals are known to travel over one hundred miles

between islands and dive to depths of greater than 900 feet when foraging for deepwater prey, mainly bottom fish, which make up the primary part of their diet (Henderson 2001; TenBruggencate 2006). Each of these habitats is essential to the other, and the loss of one affects the operation of all the others throughout the system. Accordingly, an impact on one part of the system can threaten the entire ecosystem as well as the diversity of species that depend on the area.

3.5 Diversity

3.5.1 The NWHI supports more than 7,000 species of fishes, mammals, plants, coral, and other invertebrates (Bush 2006). Discoveries of species in the NWHI are continuing to be made, as demonstrated by a 2006 research expedition in French Frigate Shoals which yielded over 100 species not previously known to exist in the area and many of which may be previously unknown to science (Associated Press 2006). The rich diversity of the NWHI is in part due to the relative isolation of the area and minimal impact from humans, which is underscored by the starkly contrasting lower levels of diversity found in the marine areas of the main Hawaiian Islands (DeMartini and Friedlander 2004; Friedlander et al. 2005a; NOAA 2004g). Coral reefs are among the most highly diverse of all ecosystems on the planet; the coral reef ecosystem of the NWHI exemplifies this point.

3.5.2 Further contributing to diversity, the ecosystem of the NWHI contains a wide variety of habitats, extending from the shoreline to depths of approximately 14,000 feet. For example, within the pristine coral reefs of the NWHI, the percentage of coral cover varies widely, creating a series of interconnected but distinct types of coral reef habitats, or zones (e.g., shelf, fore reef, reef crest, back reef, and lagoon). Wave exposure is the primary factor causing zonation in the NWHI, but gradients in sediment, salinity, and temperature are also important (Friedlander et al. 2005a). As a result of this zonation, the coral reefs of the NWHI contain a variety of environmental niches and resources that support a diverse array of species.

3.6 Productivity

3.6.1 Coral reef ecosystems have the highest gross primary productivity of all ocean areas, and the proposed area contains several thousand square miles of coral reefs, indicating a highly productive ecosystem. Also indicative of the area's productivity is the high incidence of apex predators such as sharks, jacks, and groupers, which make up more than half of the total fish biomass in the NWHI. A very high replacement rate of small and mid-size fish is necessary to support an apex predator-dominated ecosystem.

3.6.2 The productivity of the proposed area can readily be seen by comparing it to the productivity in the main Hawaiian Islands. A comparison of both biomass and trophic structure between reef fish communities in the NWHI and the main Hawaiian Islands showed that across similar habitats, biomass was 260 per cent higher in the NWHI (Friedlander and DeMartini 2002). Productivity is especially high in the area's inshore waters, shallow lagoons, and coral reefs. For example, the lagoon in French Frigate Shoals produces nearly ten times the amount of phytoplankton as produced in the same volume of water in the open seas. The area also has extensive submerged banks, which have high levels of primary productivity due to the existence of expansive algal meadows. Furthermore, while apex predators represent only three percent of the fish biomass in the main Hawaiian Islands, they make up 54 per cent of the biomass in the NWHI (Suthers 2004).

3.7 Spawning or Breeding Grounds

3.7.1 The NWHI provide critical breeding and nesting grounds for a wide variety of species. The area contains the breeding grounds for almost the entire remaining population of the Hawaiian monk seal, and serves as the seals' primary haul-out, pupping, and weaning habitat. The area also provides the breeding grounds and primary nesting sites for approximately 90 percent of the threatened Hawaiian Islands green sea turtle population. Millions of Central Pacific seabirds also congregate on these islands to breed, including all but three of Hawaii's 22 species of seabirds, such as the grey-backed tern, short-tailed albatross, and the red-tailed tropicbird. More than 99 per cent 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 some bird species, the NWHI provide their only breeding site.

3.8 Naturalness

3.8.1 Because of their geographical isolation and long history of protection, the reefs of the NWHI are among the healthiest and most undisturbed coral reefs on the planet. Their naturalness is perhaps best evidenced by the relatively high diversity and productivity in the NWHI as compared with the reefs of the main Hawaiian Islands, which have experienced much greater impacts from humans, and by the fact that the NWHI is one of the worlds last remaining large-scale apex predator-dominated reef ecosystems.

3.9 Integrity

3.9.1 The area of the NWHI is a prime example of a self-sustaining ecological entity. The volcanic islands, coral atolls, shallow reefs, banks, slopes, shoals, seamounts, deep reefs, and open water form the basis for this interlocking and complex ecosystem. Its integrated nature is evidenced by the vast number of interdependent processes that connect the varied NWHI habitats, as discussed in particular in section 3.4 (Dependency) of this proposal**.** Examples of this include: (1) the critical link between the shallow coral reef and the deep ocean floor habitats manifested by species that migrate regularly from great depths and are consumed by many shallower water animals; (2) the foraging, feeding, breeding, and pupping areas of the Hawaiian monk seal range from the offshore, deepwater habitats to the land areas; and (3) the deposits of bird guano stimulate algal growth which, when combined with wave action, contributes to the growth of other species and the high productivity of the ecosystem.

3.9.2 While the NWHI are a part of the greater chain of Hawaiian Islands, there is clear evidence that the NWHI function as a distinct, biological unit. The NWHI ecosystem is highly productive, diverse, and apex predator-dominated while the ecosystem around the main Hawaiian Islands has substantially lower productivity, less species diversity, and is not apex predator-dominated. These differences demonstrate that the NWHI function as an integral unit.

3.10 Fragility

3.10.1 The area contains several thousand square miles of coral reefs made up of at least 57 species of hard coral and 12 species of soft coral. Coral communities are fragile ecosystems. They require a delicate balance across a range of environmental conditions in order to be healthy and grow. The health of a coral ecosystem may be threatened by changes to even one of those environmental conditions. Corals derive a substantial portion of their nutrition from symbiotic algae (called zooxanthellae) within their tissues. Because algae require light for photosynthesis, clear and clean water conditions are necessary for growth and well-being. The introduction of pollutants can be toxic to the coral.

3.10.2 The physical structure of the reef is provided by calcium carbonate, which forms the rock framework or reef "skeleton". This calcium carbonate is deposited at a rate of about one-centimetre per year by the living coral animal (polyp). These polyps exist in a thin layer at the surface of the reef rock. The coral reef system of the NWHI has taken thousands of years to build and, if damaged, regeneration of the reef may never occur. If optimal conditions for regeneration exist, it would still take hundreds, and perhaps thousands of years, for a damaged area of the reef to return to its previous condition.

3.10.3 In the NWHI, transiting ships are a primary anthropogenic threat to this fragile ecosystem because of ship groundings and pollution from operational and accidental discharges. Secondary and cumulative damage may occur when dislocated coral fragments caused by groundings are tossed against healthy coral by wave action, currents, and storms.

3.10.4 The isolation of the NWHI affords both protection from and vulnerability to invasive species, which can be transferred by ships. The islands' ecosystems have evolved without the influence of outside forces, demonstrated by the high level of native and endemic species. To date, 11 non-native species have been identified in the waters of the NWHI. Non-native species can displace native species and seriously disrupt and imbalance the natural ecosystem.

3.11 Bio-geographic importance

3.11.1 The NWHI represent one of the last remaining examples of an intact apex predator-dominated coral reef ecosystem with large top predator fish such as sharks in abundance. Because it is isolated, many aspects of the area represent what a completely pristine and undisturbed bio-geographic system would look like at this latitude if one still existed.

3.11.2 The area is geologically unique. The islands were created from a single plume of magma rising from a hot spot in the earth's mantle. Built up over millions of years of eruption, high volcanic islands were formed, then carried north-westerly by the movement of the Pacific Plate beneath. Twenty-eight million years ago the last emergent feature of the chain, Kure, was located where the present Big Island of Hawaii is now located.

Social, cultural and economic criteria

3.12 Human Dependency

3.12.1 The NWHI are of particular importance because of their significance in Native Hawaiian history and culture. The NWHI have long been considered a sacred place in Native Hawaiian traditions, and two of the islands in particular contain important archaeological sites (Kikiloi 2006). Early Polynesian voyagers, in their trans-Pacific voyages aboard large double-hulled sailing canoes, were the first humans to arrive in the NWHI, as early as 1000 A.D. Early Hawaiians lived on Nihoa for an estimated 700 years, but this occupation mysteriously ceased before Captain Cook's first landing in Hawaii in 1778 (Citizen's Guide 2006). Their early presence is evidenced by numerous sites on Nihoa and Mokumanamana (Necker), which are listed on both United States and State of Hawaii Registers of Historic Places for their cultural and historical significance. Together, the two islands have 140 recorded cultural sites, including ceremonial, residential, and agricultural sites, some which resemble historically important Polynesian sites in Tahiti and the Marqueses (Emory 1928; Cleghorn 1988; Liller 2000; Kawaharada 2001; Kikiloi 2006). These sites are being studied to increase the understanding of the connection between Native Hawaiian culture and the early Polynesians.

3.12.2 Oral traditions also confirm the relationship of the islands to ancestral Native Hawaiians, and recent ethnological studies have highlighted the continuity of traditional practices in the NWHI. Native Hawaiian cultural practitioners continue to voyage to the NWHI to honour their ancestors and perpetuate these practices. In 1997, Hui Mälama i Nä Küpuna o Hawaii's Nei, a group dedicated to the repatriation of ancestral remains, returned sets of iwi (bones) to Nihoa and Mokumanamana (Necker). In 2003, the voyaging canoe *Hōkūle`a* traveled to Nihoa so that a group could conduct traditional ceremonies. In 2004, the *Hōkūle`a* sailed to Kure Atoll, and in 2005 it took a group to Mokumanamana (Necker) for ceremonies on the summer solstice (Citizen's Guide 2006). Finally, underscoring the importance of the NWHI marine ecosystem in Native Hawaiian culture, oral traditions identify the coral polyp as the first living creature to emerge on Earth and the foundation and the building block of all other life in the sea (Friedlander et al. 2005b). It follows that ensuring a healthy, intact ecosystem in the NWHI plays an important role in perpetuating Native Hawaiian cultural traditions.

3.13 Cultural heritage

3.13.1 The NWHI are rich in underwater cultural heritage. The numerous wrecks found in the area are time capsules which capture specific elements of our seagoing past. Documents indicate that over 120 vessels and aircraft have been lost in the waters of the proposed area. These remains are representative of distinct phases of Pacific history and include Japanese junks, Hawaiian sampans, 19th century whalers, United States Navy side wheel steamers, French sailing ships, and fighter aircraft lost during the World War II Battle of Midway. Only a handful of these sites have been located and assessed so far, but these surveys reveal resources unique to the North-western Hawaiian Islands. The wrecks of the whaling ships *Pearl* and *Hermes*, both of which ran aground in 1822, are the only archaeological remains of the South Seas whaling industry, and the oldest shipwrecks found thus far in Hawaii. The scattered remains of the *USS Saginaw*, lost in 1870, capture the United States Civil War-era technology of the "old steam navy." The wreck site of the *Dunnottar Castle*, an iron hulled sailing ship lost in 1886, offers a rare glimpse of the days of the Tall Ships. These and many other sites are rare, representative of broad themes of maritime history, and a testimony to the uniqueness of Pacific seafaring history. Unwarranted damage or removal of submerged archaeological sites is prohibited by state and federal preservation laws, and United States Monument management agencies seek to protect these heritage resources as windows into the past.

Scientific and educational criteria

3.14 Research

3.14.1 This area is of high scientific interest and offers unparalleled opportunity for research. Given the fact that the NWHI are remote and rich with marine and terrestrial life, they provide one of the few areas in the world where researchers can conduct large-scale comparisons between human-impacted marine ecosystems and un-impacted marine ecosystems (Citizen's Guide; Friedlander and DeMartini 2002). Such comparisons may serve as a living model to guide restoration efforts elsewhere.

3.14.2 As further evidence of the importance of this area for research, in October 2006 an international team of biologists made discoveries in French Frigate Shoals of several new species of coral, sea stars, snails, and clams. The researchers also discovered over one hundred species never before seen in French Frigate Shoals and many of which may have been previously unknown to science (Associated Press 2006). These scientific discoveries suggest that much research remains to be done to fully understand and appreciate this complex ecosystem.

3.14.3 Research and monitoring conducted by United States federal and state agencies, academic institutions, and other organizations over the last 30 years have contributed substantially to the understanding of natural and anthropogenic factors influencing the NWHI and the interconnectedness of the physical and biological processes along the entire Hawaiian Island chain. Ongoing research and monitoring of the marine ecosystems in the NWHI will continue to provide significant insights that will benefit management not only for the NWHI but in the entire Hawaiian Island chain and marine ecosystems around the world.

3.15 Baseline for monitoring studies

3.15.1 The NWHI are one of the few marine regions on earth where monitoring and research activities can be conducted in the virtual absence of local human habitation and activities. It thus provides ideal baseline conditions with regard to biota and environmental characteristics because it has not had substantial perturbations and is thus in a natural or near-natural condition. Remote, uninhabited, and relatively pristine in comparison to the main Hawaiian Islands and other marine ecosystems around the world, the NWHI serve as one of the few modern sentinels for monitoring and deciphering short-term and long-term responses to local, regional, and global environmental and anthropogenic stressors.

3.16 Education

3.16.1 The NWHI provide a model and rare benchmark of a healthy, intact integrated ecosystem preserved in its natural or near-natural state that may inspire Hawaiian residents as well as others to take part in ocean restoration efforts in their communities. This guiding premise led to "Navigating Change", a multi-year, interagency project which focuses on raising awareness and motivating people to change their attitudes and behaviours to better care for Hawaii's land and ocean resources. A five-part video and educational curriculum featuring the traditional Polynesian voyaging canoe *Hōkūle`a* during its 2004 expedition to the NWHI was completed in partnership with several agencies and organizations. Teacher workshops on the "Navigating Change" program have been held since 2003 across Hawaii and an outreach co-ordinator leads an associated curriculum in schools state-wide. As people learn more about the NWHI, many will want to go there and experience it. Therefore, the educational message that is being sent to preserve the fragile balance of the NWHI is that people must admire it from afar. Educational activities, therefore, will focus on bringing the place to the people, not the people to the place.

Conclusion

3.17 The recognized attributes of the area fulfil many of the ecological, socio-economic, and scientific criteria throughout the entire proposed PSSA. For example, diversity is evident from the approximately 7,000 marine species found in the NWHI. These species inhabit a wide variety of habitats that extend from the shoreline to depths of 14,000 feet. The dependency attribute is also clearly manifest throughout the proposed PSSA. The coral reefs form the foundation of a vibrant ecosystem that culminates at its apex in wide-ranging, top predators such as sharks, jacks, and groupers, as well as the Hawaiian monk seal, whose breeding grounds stretch from Nihoa to Kure. As evidenced by the United States' establishment of a Protected Species Zone for the Hawaiian monk seal**,** sea turtles, and seabirds, which have boundaries largely coterminous with those of the proposed PSSA, recognized attributes extend throughout the area. Research is being conducted throughout the newly-designated Papahānaumokuākea Marine National Monument, and the area provides ideal baseline conditions for monitoring with regard to biota and environmental characteristics because it is in a natural or near-natural condition. Finally, it is clear that the area of the proposed PSSA contains critical attributes important to the Native Hawaiian history and culture as well as numerous invaluable historic shipwrecks.

3.18 A select bibliography of the studies and other documents supporting these and the other recognized attributes of the NWHI is found in annex 2, Part A of MEPC 56/INF.2.

4 Vulnerability to Impacts from International Shipping Activities

4.1 In addition to meeting at least one of the ecological, socio-economic, and scientific criteria addressed in section 3 above, the Revised PSSA Guidelines state that the recognized attributes of the area should be at risk from international shipping activities. (Revised PSSA Guidelines, paragraph 5.1) A proposal for PSSA designation should provide an explanation of the nature and extent of the risks that international shipping activities pose to the environment of the proposed area, noting the factors set forth below in paragraphs 4.2 through 4.9 (Revised PSSA Guidelines, paragraph 7.5.1.3).

Vessel Traffic Characteristics

4.2 Operational factors

4.2.1 There are limited maritime activities conducted in the waters of the NWHI, undoubtedly due to the islands' remote location and harsh environmental conditions for human activities. Pursuant to the Presidential Proclamation of June 15, 2006, most domestic activities within NWHI waters are prohibited or strictly regulated. Public access to the land portions of the NWHI has for many years been allowed by permit only, except for Midway Atoll, and permits are issued only for research and Native Hawaiian cultural activities. The maritime activities in this area are primarily research and management, fishing, cultural practices, and recreation. Research activities include assessment, long-term monitoring of resources, impacts and threats from human activities, and protection and conservation of NWHI resources. An estimated four million dollars are spent annually on research and management of the area. There are eight remaining commercial fishing permits in the NWHI, although the Presidential Proclamation and codifying regulations require closure of the fishery five years from the date of the Proclamation. Native Hawaiian cultural practitioners voyage to the NWHI to honour their ancestors and perpetuate traditional practices. Current tourism and recreational activities are limited to Midway Atoll and, under the Proclamation, a permit is now required. The extent to which ocean tourism and recreation occurs in the NWHI is unknown, but it appears to be extremely low. These activities may include wildlife watching, diving and snorkelling, charter fishing, and tour boats. Additionally, a management plan for tourism to the historic World War II location and military heritage sites on Midway Atoll is currently being developed and up to three cruise ships may visit the island each year.

4.3 Vessel Types

4.3.1 Container ships, bulk carriers, tankers, freighters, and fishing vessels regularly transit the waters surrounding the NWHI. With the exception of a few small boats at Midway Atoll and Tern Island (French Frigate Shoals), no vessels home port in the NWHI. Research and management vessels, eight fishing vessels, vessels used by Native Hawaiians, some recreational vessels, and a few cruise ships, conduct strictly regulated activities in NWHI waters (Franklin 2006; Mohri 2006).

4.4 Traffic Characteristics

4.4.1 Although due to its remoteness, the exact route of vessels through this area is unknown, it appears that most traffic passes to the north of the island chain, following the great circle routes to and from ports on the west coast of North America and East Asia. Other trans-Pacific ships travelling from ports in Hawaii transit at least 100 miles south of the NWHI. Occasionally, vessels transiting from the south pass within the boundaries of the proposed PSSA (Franklin 2006; Tosatto 2005; Horizon Lines 2006; Devany 2006).

4.4.2 A preliminary analysis of vessel traffic patterns within the NWHI was conducted based on data collected by the World Meteorological Organization's Voluntary Observing Ships scheme. This scheme collects geo-referenced data from select non-research vessels that make frequent and regular crossings of all major ocean basins. While the scheme does not capture the total traffic in the area, during a 21-month study period in 2004 and 2005, approximately 132 vessels reported from within the area of the proposed PSSA: 104 of these vessels were freighters, 8 were tankers, 4 were research vessels, 2 were passenger vessels, 2 were vessels used for educational purposes, 1 was a recreational vessel, 1 was a towing vessel with a 666 foot vessel in tow, and 10 were unidentified vessels. The 132 vessels were flagged in 23 different countries (Franklin 2006).

4.5 Substances Carried

4.5.1 While precise data is not available for the types of harmful substances carried on board the vessels that transit the waters of the NWHI, it is possible to identify examples of such substances from incidents that have occurred in the area. Three vessels, the *Paradise Queen II* (1998), the *Swordman I* (2000), and the *Casitas* (2005), all grounded in the NWHI and had significant quantities of bunker fuel or were carrying other types of fuel onboard (Cascadia Times 2006; Shallenberger 2004). These substances are harmful to the marine ecosystem and to the terrestrial environment when washed ashore. In another incident, a container of the pesticide, carbofuran, washed ashore at Laysan Island (Friedlander et al. 2005).

4.5.2 Three other ship accidents occurred involving cargoes that may not be classified as "hazardous substances," but that would be harmful if released into this area of the sea. The first incident involved the *Anangel Liberty* in 1980 where 2,200 tons of kaolin clay was dumped overboard to lighten the ship enough to pull it off one of the reefs on French Frigate Shoals. Fortunately, the currents on that day carried most of the clay out to sea rather than onto the reef. Had it not, the clay could have smothered coral thus adversely affecting the ecosystem. The other two incidents involved the grounding on Laysan of fishing vessels that had evidence of rats on board. Again, fortunately, the rats did not take up residence on the nearby island; however, if they had, it would have been extremely harmful to the ecology of the area because such introduced species can become "ecosystem busters" and cripple the ecosystem within that area (Shallenberger 2004).

Natural Factors

4.6 Hydrographical

4.6.1 The hydrography of the NWHI underscores the need for mariners to navigate with extreme caution. The chain of small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features are remnants of volcanic islands which are eroding and subsiding beneath the ocean surface. While only the peaks of the original islands remain above the water's surface, coral growth on submerged slopes has matched the rate of subsidence (Evans et al. 2004). Due to these features, navigation in this area is dangerous and must be done with extreme caution. Water depths in this area range from the water's surface to slightly submerged banks, reefs, and other emergent features to the ocean floor at more than 14,000 feet.

4.6.2 The area of the proposed PSSA is currently covered by mostly small scale charts, with the most recent surveys taking place since 2000 near known islands, reefs and atolls. Although modern hydrographic surveys by the University of Hawaii and satellite imagery of the area have allowed NOAA's Office of Coast Survey to correct the position of several of these features, many of the submerged banks and isolated features have yet to be updated or discovered.

4.6.3 In 2003, a mapping expedition was undertaken by NOAA and the University of Hawaii Undersea Research Laboratory. The primary objective of this project was to provide for more complete and accurate charts and survey data to support the management of the NWHI Coral Reef Ecosystem Reserve and protection of its resources. This expedition included hydrographic experts to ensure that appropriate International Hydrographic Organization quality standards were met. The hydrographic data will be applied to all affected charts by the end of 2007. Notwithstanding, large areas of the NWHI remain to be surveyed and nautical charts updated.

4.7 Meteorological

4.7.1 The northeast trade winds prevail throughout the year, but westerly blows can be expected during the winter. The average velocity of the winds is 12 knots, with monthly averages of 16 knots in December and 9.5 knots in August. Gales have been experienced in July and September. Occasional heavy showers of short duration also occur, cutting visibility to about 2 miles (Coast Pilot 7, 38th ed., 2006).

4.7.2 Tropical storms and hurricanes are a potential, but infrequent, threat to the shallow coral reef community structure of the NWHI. They can generate extreme wave energy events that can damage the coral and are the primary natural force in altering and shaping coral reef community structures (Dollar 1982; Dollar and Grigg 2004). Since 1979, two hurricanes (category 2) have passed near the NWHI. The most recent significant tropical storm was Hurricane Nele which passed near Gardner Pinnacles in 1985 (Friedlander et al. 2005).

4.7.3 Pacific Decadal Oscillation (PDO) events and the El Nino/La Nina phenomenon (ENSO) are two other meteorological factors that occur in the area of the NWHI. PDO events have been described as long-lived El Nino-like patterns of Pacific climate variability. They appear to persist for 20 to 30 years, compared to the 6 to 18 months for an El Nino event. The effects of the PDO are strongest in the North Pacific, while secondary signatures exist in the tropics. PDO sea level pressure anomalies vary with low pressures over the North Pacific and high pressure over the subtropical Pacific. These pressure patterns cause enhanced counter-clockwise wind stress over the North Pacific. With regard to the ENSO, while scientists do not fully understand how one is triggered, the initial detection occurs by a rise in atmospheric pressure in the western Pacific and a drop in pressure in the eastern Pacific (Garrison 1999). This causes trade winds to shift direction, which subsequently causes warm water in the western Pacific to flow across the Pacific basin. This mass of warm water has a number of effects on climate and ocean conditions. For example, it can cause trade wind speeds to drop, which can cause an increase in sea surface temperature (Hoeke et al. 2004). Light winds are likely the cause of recent coral bleaching in the NWHI. Increased water temperatures stress the coral, which causes it to expel the symbiotic zooxanthellae. If water temperature does not decrease and zooxanthellae do not return to the coral tissue, the coral will die.

4.8 Oceanographic

4.8.1 The NWHI are influenced by a wide range of oceanographic conditions that vary on spatial and temporal scales. Ocean currents, waves, temperatures, nutrients, and other oceanographic parameters and conditions influence ecosystem composition, structure, and function in the NWHI. Ocean currents play an important role in the dispersal and recruitment of marine life in the NWHI. Surface currents are highly variable in both speed and direction (Firing et al. 2004), with long-term average surface flow from east to west in response to the prevailing northeast trade wind conditions. The highly variable nature of the surface currents is due in large part to eddies created by local island effects on large-scale circulation. Marine debris accumulation in shallow water areas of the NWHI also is influenced by large and small-scale ocean circulation patterns. These eddies might also result in pollution from vessels accumulating in the coral thus damaging resources.

4.8.2 Ocean waves also play an important role in the NWHI. The distribution of corals and other shallow water organisms is influenced by the exposure to waves. The size and strength of ocean wave events have annual, inter-annual, and decadal time scales. Annual extra-tropical storms (storms that originate outside the tropical latitudes) create high energy large wave events from five to over ten meters which approach largely from the northwest during the winter. During this time, the average wave power increases substantially and extreme wave events of over ten meters pound the shallow water coral communities, thus posing a hazard to the coral reef communities and to navigation. Decadal variability in wave power is possibly related to PDO events (Manutau et al. 1997). The number of extreme wave events has been recorded during the periods from 1985 to 1989 and from 1998 to 2002, and anomalously low numbers of extreme wave events occurred during the early 1980s and during the period from 1990 to 1996 (Friedlander et al. 2005).

4.9 Other helpful information

4.9.1 There is substantial evidence that international shipping activities are causing or may cause damage to the recognized attributes of the proposed PSSA. The hazards to navigation in the NWHI are demonstrated by the large number of shipwrecks throughout the NWHI chain. Over 60 shipwrecks have occurred in the area and some of these wrecks serve as the origin of a number of the islands' names.[2] While some of these wrecks are truly historic and therefore serve as time capsules of seafaring history, there have been a number of significant maritime casualties in more recent years. In 1998, the 80-foot *Paradise Queen II* ran aground on Kure Atoll. It spilled approximately 4,000 gallons of diesel fuel and other petroleum hydrocarbons. The remaining 7,000 gallons on board the vessel were recovered during salvage operations. The 85-foot *Swordman I* ran aground on Pearl and Hermes Atoll in 2000. It was carrying over 10,000 gallons of diesel fuel and hydraulic oil and approximately $1.5 million was spent for response and removal of the vessel. In 2005, the 145-foot *Casitas* also ran aground on Pearl and Hermes Atoll, carrying over 33,000 gallons of diesel fuel on board. The vast majority of diesel fuel was salvaged and the vessel was removed from the Atoll and scuttled in an estimated $5 million clean up and removal operation (Cascadia Times 2006; Shallenberger 2004; Biennial Coastal Zone Conference 2003).

4.9.2 The grounding of the *Anangel Liberty* on French Frigate Shoals in 1980 plowed a channel 2-3 meters deep, 100 meters long, and 30 meters wide in the coral reef. Coral communities were damaged within 50 meters on both sides of the channel ploughed by the freighter as a result of cargo (kaolin clay) that was dumped. In 1977, the burning and sinking of the *Hawaiian Patriot* to the south of French Frigate Shoals resulted in more than five million gallons of fuel oil entering the ocean (United States Fish & Wildlife Serv. 2005; United States Coral Reef Task Force 1999). Also in 1977, *Irene's Challenge* spilled approximately 10.4 million gallons of crude oil approximately 50 miles to the north of Lisianski Island. MEPC 56/INF.2, annex 1, provides a table summarizing select incidents that have occurred between 1970 and 2006 (United States Coral Reef Task Force 1999; NOAA 2006).

4.9.3 In addition to the damage that may be caused to the NWHI by spills or releases of ships' cargos or bunker fuel, damage may be caused by the grounding of ships on fragile coral and other sensitive habitats in the area. In the case of a vessel grounding, destruction in the area of contact may be widespread and result in the scouring and destruction of coral by dislodgement and pulverization, as well as the crushing, fracturing, and removal of reef structure. Impacts may

[2] This figure does not include aircraft or vessels that were sunk in the Battle of Midway.

also include the scarring and abrading of nearby resources as wave action, currents, and wind move rubble produced at the initial site of the grounding. Additionally, there may be increased sedimentation with the fracturing and erosion of the reef structure, which can smother coral and other sensitive habitats (Coral Reef Restoration Handbook 2006). Damage may also be caused by subsequent vessel removal efforts which can further crush and bury sensitive resources. A vessel that has grounded and then is abandoned can continue to damage resources as debris becomes dislodged from the vessel and from its movement at the grounding location by wind and wave action.

4.9.4 Fortunately, although damage to coral and other resources has occurred from the ships that have grounded or sunk in the NWHI, recovery and removal efforts as well as favourable weather patterns and the currents occurring at the time of these maritime casualties have so far spared the fragile NWHI ecosystem from being seriously adversely impacted (Shallenberger 2004). Without taking the necessary action to increase maritime safety, protect the fragile marine environment, and facilitate the ability to respond to developing maritime emergences, it is reasonably foreseeable that ships will continue to run aground in the NWHI and cause physical damage to the fragile coral reef ecosystem, as well as pose a threat of severe damage to this pristine area from the release of cargo and bunker fuel. Given the remoteness of the NWHI, the low level of development on the islands, and the minimum amount of domestic maritime activity that takes place within the surrounding waters, vessels that transit the area are one of the most persistent and significant anthropogenic threats to the recognized attributes of the area.

4.9.5 Another element that increases the vulnerability of the NWHI to international shipping activities is that, although the islands span 1,200 miles, most emergency response equipment is stationed in the main Hawaiian Islands, including Kauai**,** which is to the east of the NWHI. Search, rescue, and response operations have been staged from Midway Atoll, which is at the far north-western end of the island chain; however, without assistance from resources based in the main Hawaiian Islands, search, rescue, and response from Midway can generally reach only 10 miles offshore due to the limited equipment located permanently on the island. The sparse land area and fragile environment of the other islands makes it virtually impossible for them to act as staging areas for emergency response efforts. This fact, coupled with the hazardous nature of navigation throughout this area, results in the NWHI being highly vulnerable to damage by international shipping.

4.9.6 Another potential source of damage to this pristine area by international shipping activities is from the introduction of alien species. While only approximately 11 alien species have been detected in the waters of the NWHI, once established these species are extremely difficult—if not impossible—to control and eradicate from the reefs. Therefore, it is critical to keep ships that may be carrying ballast water or species on their hulls from foundering or grounding on the reefs and providing the opportunity for the introduction of alien species (Citizen's Guide 2006).

4.9.7 In addition to the threat posed by transiting ships, another stress to the environment of the NWHI is marine debris, a severe and chronic threat to the area. Ocean currents carry a wide array of marine debris to the NWHI, including derelict fishing nets and other gear, household plastics, hazardous materials, and shore-based debris, and deposit it on the reef and beaches of the island chain. The debris frequently entangles and kills coral and leads to the death of animals such as seabirds and the Hawaiian monk seal through the ingestion of material or entanglement in nets. Derelict fishing gear also poses a navigation hazard because, for example, it can get wrapped around the propeller of a vessel. In the past 10 years, United States agencies have removed over 560 tons of debris from NWHI reefs at a cost of approximately US$13.5 million (Citizen's Guide 2006; Brainard 2006).

4.9.8 The IMO measure of six existing ATBAs is already in effect. While there has been no incident in the areas of the existing ATBAs subsequent to their adoption that involves the vessels to which the ATBAs apply (e.g., vessels of 1,000 gross tons and above), there have been incidents in the NWHI outside of the existing ATBAs and incidents within the ATBAs by vessels to which the ATBAs do not now apply. For instance, the *Paradise Queen II* grounded on Kure Atoll, an area which is not now included within the ATBAs. Within the ATBA surrounding Pearl and Hermes Atoll, the *Swordman I* and *Casitas* ran aground; however, these vessels were smaller than the 1,000 gross ton applicability threshhold of the existing ATBAs.

Conclusion

4.10 The evidence presented shows that there are factors relating to vessel traffic characteristics and natural conditions that result in the recognized attributes of the proposed area being vulnerable to damage from international shipping activities. Ships in transit through the waters of the NWHI are one of the most persistent and significant anthropogenic threats to the recognized attributes of this pristine area. Although the amount of international ship traffic through this area is relatively low compared to other areas of the world, even one major pollution incident could have a devastating effect on this integrated ecosystem and its fundamental character as one of the last apex predator-dominated coral reef ecosystems on the planet.

4.11 The oceanographic conditions also add to the vulnerability of the islands to international shipping activities. Local island effects on large-scale circulation patterns act to concentrate pollution in vulnerable areas. The area's hydrographic features are by far the natural factor that most contributes to the area's vulnerability to damage by international shipping. The very features that give rise to this unique and fragile ecosystem – the small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features – pose significant hazards to navigation.

4.12 Finally, since there is a history of shipwrecks in the area, it is clear that this area is vulnerable to damage by international shipping and that action needs to be taken to reduce the threats that it poses to this fragile and integrated ecosystem.

4.13 A select bibliography of the studies and other documents supporting the information provided in this section can be found in MEPC 56/INF.2, Annex 2(B).

5 Associated Protective Measures Proposed to Protect the Area from the Identified Vulnerability

5.1 The Revised PSSA Guidelines provide that an application for designation of an area as a PSSA should identify the existing and/or proposed associated protective measures and describe how they provide the needed protection from the threats of damage posed by international maritime activities occurring in and around the area. The application should specifically describe how these measures protect the area from the identified vulnerability. If the application identifies a new associated protective measure, then a draft of the proposal for that measure must be appended to the application (Revised PSSA Guidelines, paragraphs 7.5.2.1 and 7.5.2.2). Furthermore, the application should identify the legal basis for each measure (Revised PSSA Guidelines, paragraph 7.5.2.3).

Existing measure

5.2 In 1980, IMO adopted six Areas To Be Avoided (ATBAs) to protect eight of the islands in the North-western Hawaiian Island chain. Annex 3 contains the information from the Ships' Routeing with regard to these ATBAs. These ATBAs were adopted to prevent physical damage to the islands from ships grounding on navigation hazards and to protect the fragile environment from pollution from spills of cargo and bunker fuel. The ATBAs accomplish this by keeping ships away from the small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features. By forming circles with 50 nautical mile radii around eight of the islands, these six existing ATBAs protect the fragile marine and terrestrial environment from damage because the prevailing weather and currents in the area allow most of the more dangerous volatile material to evaporate or break up and disperse before reaching the highly vulnerable features of the ecosystem. The 50 nautical mile buffer also allows time to launch an emergency response effort to a foundering vessel before it runs aground and damages sensitive resources. Finally, valuable and vulnerable resources such as the critically endangered Hawaiian monk seal are found foraging and swimming 50 nautical miles from, and hundreds of nautical miles between, the islands.

New measure: Amendment and expansion of existing ATBAs

5.3 The United States proposes to amend and expand the existing six ATBAs to increase their applicability to a broader class of vessels, to include as ATBAs other areas in the region where navigation is particularly hazardous, and to update the name and description of the ATBAs as well as to update the format of the geographical positions of the centre points upon which the existing ATBAs are based and to make other technical corrections. This proposal complies with Chapter V, Regulation 10 of the International Convention on the Safety of Life at Sea (SOLAS) and the General Provisions on Ships' Routeing, Part A. A copy of the draft proposal, which has been submitted to the Sub-Committee on Safety of Navigation, is attached at annex 4.

5.4 The United States proposes to apply the existing and proposed new ATBAs to all ships in order to enhance maritime safety, protect the fragile environment of this area, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. It is clear that hazards to navigation exist for all sizes of vessels. This is manifested by the fact that the sizes of vessels that have run aground on the reefs of the NWHI include fishing vessels, research vessels, and commercial ships. Two vessels, the *Swordman I* (2000) and the *Casitas* (2005), ran aground on Pearl and Hermes Atoll, which is now an existing IMO-adopted ATBA; however, these vessels were under the 1,000 gross ton applicability of this ATBA. Fortunately, the response, clean up, and removal of these vessels, which cost US$1.5 million and US$5 million, respectively, helped to avoid major damage to this fragile reef. It is also important to include all ships in the amended ATBAs to avoid unacceptable danger to this fragile environment from spills of bunker fuel, which could have a devastating impact on the natural resources of the NWHI. These concerns are further compounded by the remoteness of the NWHI and the difficulties in conducting search, rescue, and response operations. Finally, ships of all sizes can cause damage to unique, valuable, and sensitive resources of the NWHI.

5.5 The United States also proposes to include other areas in the region as ATBAs:

(a) the areas between Lisianski and Laysan and between Gardner Pinnacles and French Frigate Shoals;

(b) the area contained within a radius of 50 nautical miles centred near Raita Bank which overlaps and expands the existing ATBA around Maro Reef; and

(c) the areas contained within circles with 50 nautical mile radii centred on Kure Atoll and Midway Atoll.

The two areas between existing ATBAs and the area covered by the expansion of the existing ATBA around Maro Reef are proposed for inclusion as ATBAs to increase maritime safety and protect the fragile environment. The areas between Lisianski and Laysan Islands and between Maro Reef and Gardner Pinnacles contain a number of banks, shoals, and emerging and fringing reefs. These areas are thus transited infrequently, undoubtedly due to concerns about maritime safety. Additionally, damage to the environment in these areas is especially unacceptable. For example, the reef system associated with French Frigate Shoals supports the greatest variety of coral species in the NWHI and is a critical area for threatened and endangered species. Raita Bank, which is between Maro Reef and Gardner Pinnacles, is an important habitat for the Hawaiian monk seal. The inclusion of these three areas also would help to facilitate the ability to respond to a developing maritime emergency. Permanent search and rescue facilities are stationed in the main Hawaiian Islands, including Kauai which is to the east of the NWHI. Midway Atoll, in the far north-western part of the island chain, has served to facilitate search, rescue, and response operations by acting as a staging ground. These search and rescue facilities are within easier reach of two of the areas that remain open for transit through the proposed PSSA and which are used by the majority of ships.

5.6 The United States also proposes for inclusion as ATBAs the farthest north-western points in the island chain, Kure Atoll and Midway Atoll. These islands share the characteristics of the other islands which are already protected by the existing ATBAs: navigation can be hazardous in the vicinity of these islands and they are also home to many seabirds, endangered and threatened marine life, and fragile coral reefs. Kure Atoll contains almost 80,000 acres of coral reef habitat and is an important nesting area for seabirds and a pupping and resting area for the Hawaiian monk seal. The dangers to navigation in this area are evident from the number of shipwrecks located on the reef, including the *Paradise Queen II* which ran aground in 1998. Although Midway is perhaps best known for the World War II naval battles that took place in and around the atoll, it too is of critical ecological importance. Nearly two million birds of 19 species nest on Midway, and it is home to the largest Laysan albatross colony in the world. Dolphins, monk seals, green sea turtles, sharks, and more than 250 species of fish are found in the waters around Midway Atoll.

5.7 The name and description of the ATBAs should be modified and updated to reflect the Presidential Proclamation designating this area as the Papahānaumokuākea Marine National Monument and granting it significant new domestic protection. Additionally, the geographic positions upon which the existing ATBAs are based need to be updated to reflect the current IMO format and other technical changes need to be made to them to reflect the change from Old Hawaii datum to World Geodetic System 1984 datum.

5.8 The IMO measures of existing and proposed ATBAs for the NWHI are specifically tailored to address the area's identified vulnerabilities to harm from transiting ships, namely the threat of physical damage from ship groundings and pollution, and to increase maritime safety. The associated protective measure of an Area To Be Avoided addresses these vulnerabilities by keeping ships away from the navigation hazards, allowing any spilled cargo an opportunity to disperse before coming ashore, and providing time to mount a response to a developing maritime emergency. Further, the need to apply the ATBAs to all ships responds directly to the recent history of shipwrecks in the area.

5.9 Finally, the impact on vessel operations has been carefully considered in the development of this proposal. The burden imposed on shipping by the ATBAs is expected to be minimal while there will be significant benefits in the form of improved maritime safety, protection of this fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and the facilitation of better response to developing maritime emergencies. Ship traffic historically has tended to avoid the NWHI because of the significant navigation hazards in the area. Most ships that transit the area skirt the island chain to the north. The proposed amendment would leave untouched three areas for ships to use in transiting the waters that surround the islands. In fact, the majority of ships transiting through the Monument have been observed using one of these areas, the area between Pearl and Hermes Atoll and Lisianski Island, because it allows ships to maintain an east-west heading. The other areas are in the middle of the chain between Maro Reef and Gardner Pinnacles, and at the eastern end of the island chain between Necker Island and Nihoa Island. These areas, in particular the areas between Pearl and Hermes Atoll and Lisianski Island and between Necker Island and Nihoa Island, provide a preferred alternative for ships transiting through the waters that surround the islands. Moreover, given the remoteness of these islands and the proposed continued use by mariners of these areas for passage, mariners conducting long voyages will be able to take these areas into account in their voyage planning and will only need to adjust their headings by a few degrees to adhere to the ATBAs.

New measure: Establishment of ship reporting system

5.10 The United States proposes to establish a ship reporting system, "CORAL SHIPREP," which is recommendatory for ships in transit through Papahānaumokuākea Marine Monument and mandatory for ships as a condition of entry to a United States port or place, in a 10 nautical mile wide band surrounding the Monument and in three areas through the Monument. The proposed ship reporting system would apply to ships 300 gross tons and greater, fishing vessels, and all ships in the event of a developing emergency situation, and are in transit through the reporting area. The objective of this reporting system is to increase awareness of the PSSA and ATBAs and provide critical alerts and other important information to assist mariners in navigating safely through the area. The proposed ship reporting system will also provide information on vessel traffic in transit through the proposed PSSA which will facilitate response to developing maritime emergencies. The achievement of both of these objectives will result in additional protection of the fragile environment and preservation of cultural resources and areas of cultural importance significant to Native Hawaiians. This proposal complies with Chapter V, Regulation 11 of the International Convention on the Safety of Life at Sea (SOLAS) and the Guidelines and Criteria for Ship Reporting Systems (MSC.43(64)). A copy of the draft proposal, which has been submitted to the Sub-Committee on Safety of Navigation, is attached at annex 5.

5.11 The proposed boundaries of the ship reporting system have been carefully delineated. The 10 nautical mile wide band surrounding the Papahānaumokuākea Marine National Monument and proposed PSSA is essential to remind vessels of the existence of this important area and the navigational hazards before they enter it. Additionally, vessels will be reminded of the IMO-adopted ATBAs so that they will have sufficient time to comfortably alter their course to comply with them. It is noted, of course, that a ship reporting system recognized by IMO cannot direct a ship to alter course and that the ATBAs are of a recommendatory nature only. Therefore, since it is proposed that vessels report when they enter and leave the reporting area, a vessel that chooses to navigate through an ATBA will also be recommended to report when it leaves the reporting area and enters the ATBA. This will allow the vessel to be reminded of the hazardous nature of navigation in this area as well as provide a mechanism to know the vessel's location, thereby facilitating search, rescue, and response operations, if necessary. Thus, a vessel taking such a route will be recommended to report four times: once when it enters the reporting area, once when it leaves the reporting area to enter the ATBA, once when it exits the ATBA and

enters the reporting area on the other side of the ATBA, and once when it again leaves the reporting area. The potential burden of reporting four times is justified by the navigation hazards that exist within the existing and proposed ATBAs. The reporting area also covers the three areas through the Monument that are not included within the ATBAs. The United States has determined that these areas are the most preferable routes to transit the NWHI and thus the vessels using them will be recommended to report only twice, once when entering the reporting area and once when leaving.

5.12 A vessel participating in the ship reporting system should[3] report its name, call sign, or IMO identification number, date and time, position, course and speed, destination, intended route through the reporting area, vessel draft, general categories of hazardous cargo on board, any defects or deficiencies, contact information, vessel size and type, and total number of persons on board. Confidential information may be communicated by non-verbal means prior to the vessel entering the reporting area. Reports are to be made when a vessel crosses the boundary to enter the reporting area and upon crossing the boundary to leave the area. Further reports should be made if there is a change in navigation status or circumstances.

5.13 The shore-based authority for this system is the United States Coast Guard's Communications Area Master Station Pacific (CAMSPAC). For ships 300 gross tons and greater, the communication system will be based on INMARSAT-C. In the event of a developing emergency, ships are urged to contact the 14th District Coast Guard communication station. For vessels unable to communicate through INMARSAT-C, reports should be made prior to, during, or after transiting through the reporting area to nwhi.notification@noaa.gov.

5.14 The establishment of this ship reporting system is specifically tailored to address the identified vulnerabilities of the proposed PSSA. By providing critical alerts and other important information about specific and urgent situations, as well a reminder of the existence of the IMO-adopted ATBAs and PSSA, the ship reporting system will assist mariners in navigating safely through this sensitive and vulnerable area. Additionally, it will provide information on ship traffic in the area, thus facilitating a response to developing maritime emergencies. Therefore, the objectives of increased maritime safety, protection of this fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitation of a response to developing maritime emergencies are greatly furthered by the establishment of the ship reporting system. Since the reporting system may not give orders to a ship to change its operations and no charges may be levied for reporting, the burden on navigation is minimal.

Potential for Adverse Effects Outside of PSSA

5.15 Given the fact that the NWHI are a chain of islands in the middle of the Pacific Ocean, no adverse impacts to the environment outside the proposed PSSA are expected to be caused by the changes to international shipping activities as a result of PSSA designation and the adoption of the associated protective measures.

Conclusion

5.16 It has been established that the recognized attributes of the proposed PSSA are vulnerable to physical damage and damage from pollution by international shipping in transit through the area. The associated protective measures proposed are specifically tailored to meet the need of

[3] For those ships that are required to report, the use of the word "should" is to be read as "shall".

the proposed area to prevent, reduce, or eliminate the identified vulnerability of the area from international shipping activities. The ATBAs serve to keep ships away from the navigation hazards, allow any spilled cargo an opportunity to disperse before coming ashore, and provide time to mount a response to a developing maritime emergency. The ship reporting system will provide mariners with critical alerts and other urgent information to assist them in navigating safely through the area. It will also provide information on vessel traffic, thus facilitating the ability to respond to developing maritime emergencies. The burden on international shipping by the proposed PSSA and its associated protective measures is minimal while the objectives for establishing it—increased maritime safety, protection of the fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitation of the ability to respond to developing maritime emergences – are significantly furthered.

6 Miscellaneous Issues

6.1 The Revised PSSA Guidelines also request information pertaining to a variety of other issues, such as the size of the area (Revised PSSA Guidelines, paragraph 8.2.3), a summary of domestic measures that have been taken to protect the area (Revised PSSA Guidelines, paragraph 7.8), consideration of designation of the area as a World Heritage Site (Revised PSSA Guidelines, paragraph 6.2), enforcement issues, (Revised PSSA Guidelines, paragraph 7.9), and future review of the area and associated protective measures (Revised PSSA Guidelines, 8.4).

6.2 *Size of Area*

6.2.1 The size of the proposed PSSA is commensurate with that necessary to increase maritime safety in an area where navigation is particularly hazardous, to protect the fragile environment, to preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and to facilitate the ability to respond to developing emergencies. Although from end to end the proposed area extends approximately 1,200 miles, in most areas the proposed PSSA extends no further than 50 nautical miles from the shorelines of the islands, with a few areas of greater distance from land in order to recognize the integrated nature of the ecosystem as a contiguous whole. This 50 nautical mile belt around the islands serves important maritime safety, emergency response, and ecological purposes. First, in response to questions raised during the consideration of the six existing ATBAs, the United States pointed out that the prevailing weather and currents in the area are such that it would take on average 24 hours for an oil spill to travel 50 nautical miles. In that time most of the more dangerous volatile material would have evaporated or broken up and dispersed. The 50 nautical mile buffer was thus designed to provide the minimum protection from the most toxic substances likely to be released in a maritime casualty. This point is verified by the spill from *Irene's Challenge*, which occurred approximately 50 miles to the north of Lisianski Island and yet, because of the prevailing weather and currents in the area, no serious damage occurred from the spill of 10.4 million gallons of crude oil. Second, the 50 nautical mile buffer would provide time to launch an emergency response effort to a foundering vessel before it ran aground and damaged any of the recognized attributes of the PSSA.

6.2.2 There is also important ecological support for the boundaries of the proposed PSSA. In 1991, the United States established a Protected Species Zone to protect endangered Hawaiian monk seals and several species of sea birds and sea turtles from long-line fishing operations. This Zone is largely coterminous with the proposed PSSA and includes waters within 50 nautical miles of the islands and banks of the NWHI and the greater than 100 nautical mile corridors used by monk seals when migrating between the islands. While fishing operations formed the basis for establishing this Zone, it manifests that the recognized attributes upon which the designation of the PSSA rests – and which may be injured by international shipping activities – extend out to the boundaries of the proposed area.

6.2.3 The boundaries of the proposed PSSA also have been recognized by other conservation and stewardship designations of this area. The NWHI Coral Reef Ecosystem Reserve is almost the same size as this area and the Papahānaumokuākea Marine National Monument boundaries are precisely coterminous with the proposed PSSA boundaries. Both of these are United States Presidential designations, in recognition of the valuable resources of this integrated ecosystem.

6.3 *Summary of Domestic Measures*

6.3.1 The United States has taken considerable action to ensure maritime safety and to protect the fragile environment and preserve cultural resources and areas of cultural importance significant to Native Hawaiians. In 1909, the President designated the emergent lands, islets, and reefs from Nihoa to Kure Atoll as the Hawaiian Island Bird Reservation. The area was redesignated in 1940 as the Hawaiian Islands National Wildlife Refuge. In 1996, Midway Atoll was designated by the President as Midway National Wildlife Refuge. Today, many parts of the terrestrial area and some sea areas are managed and administered by the United States Fish and Wildlife Service as part of those two National Wildlife Refuges and the Battle of Midway National Memorial. Today, many parts of the terrestrial area and some sea areas are managed and administered by the United States Fish and Wildlife Service as part of the Midway Atoll Wildlife Refuge, the Battle of Midway National Memorial, and the North-western Hawaiian Islands National Wildlife Refuge. In 2000, the vast majority of the area was designated by the President as the North-western Hawaiian Islands Coral Reef Ecosystem Reserve. Kure Atoll is managed by the State of Hawaii Department of Land and Natural Resources as a State Seabird Sanctuary, and, in 2005, the Governor of the State of Hawaii declared all state waters of the NWHI as a state marine refuge wherein extractive uses, including commercial and recreational fishing, are prohibited and a permit is required for entry for all other activities. In this state marine refuge, traditional Native Hawaiian activities are allowed in order to perpetuate their culture.

6.3.2 **Papahānaumokuākea Marine National Monument** – On June 15, 2006, President Bush proclaimed this area as the North-western Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) in recognition of its fragility; to protect the many species of coral, fish, birds, marine mammals, and other flora and fauna, including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles; and to protect cultural resources and areas of significant cultural importance to Native Hawaiians.

6.3.3 **Regulations that apply throughout the Monument** – Human activities are strictly regulated or prohibited pursuant to the Presidential Proclamation and codifying regulations. *See* 50 C.F.R. 404; http://www.whitehouse.gov/news/releases/2006/06/print/20060615-18.html. For example, the Proclamation and codifying regulations prohibit taking, possessing, injuring, or disturbing any resource; altering the seabed; anchoring or deserting a vessel; and possessing fishing gear unless stowed. Many of these activities may be allowed by permit; however, permits cannot be issued for such things as releasing an introduced species. The Proclamation and codifying regulations also prohibit such things as discharging or depositing any material into the Monument, or discharging or depositing any material outside the Monument that subsequently injures Monument resources, except discharges incidental to vessel use, such as approved marine sanitation device effluent, cooling water, and engine exhaust. The Proclamation and codifying regulations also require the closure of commercial fishing in the Monument five years from the date of the Proclamation. While the Proclamation provides that none of its restrictions may apply to or be enforced against foreign flag vessels unless in accordance with international law, it strictly regulates entry into the Monument and, for those vessels subject to United States jurisdiction, requires the mandatory use of vessel monitoring systems on those vessels that may be allowed into the Monument.

6.4 *Consideration of Designation as a World Heritage Site*

6.4.1 The State of Hawaii, supported by the United States Departments of Commerce and the Interior as the other two co-trustees for the Papahānaumokuākea Marine National Monument, is exploring the possibility of designating the Marine National Monument as a UNESCO World Heritage Site. World Heritage Sites are the most outstanding examples of the world's cultural and natural heritage. Currently, there are 830 World Heritage Sites in 138 countries. There are 20 World Heritage Sites in the United States. Inclusion on the list of World Heritage Sites demonstrates international recognition of the importance of a site for both cultural and natural heritage. It also demonstrates a commitment to preserve such heritage as a legacy of the past for future generations. The State of Hawaii has indicated that it will submit an application to the United Staes Department of the Interior on behalf of the Monument co-trustees to be included on the United States Tentative List for nomination to the World Heritage List in 2009. The application is being considered because the area is important for the cultural history of the Native Hawaiian people and their Polynesian heritage, for navigation history embedded in the wrecks that serve as time capsules of our seafaring past, and for natural history of volcanic islands and the formation of a unique coral reef ecosystem.

6.5 *Enforcement*

6.5.1 All means will be used to encourage and promote full compliance with the associated protective measures and awareness of the PSSA. For those ships required to report to the reporting system, if reports are not submitted and the ship can be positively identified, appropriate action will be taken – including interaction with the flag State – and in accordance with customary international law as reflected in the 1982 United Nations Convention on the Law of the Sea. Warships, naval auxiliaries, and other vessels and aircraft owned or operated for the time being only on non-commercial service enjoy sovereign immunity.

6.6 *Review of PSSA and Associated Protective Measures*

6.6.1 Consistent with paragraph 8.4 of the Revised Guidelines for the Identification and Designation of PSSAs, the United States will keep this area under review and, as necessary, will bring to the IMO any concerns and proposals for additional associated protective measures, or modifications to the associated protective measures or PSSA itself.

7 Conclusion

7.1 The Committee is asked to approve this proposal for the designation of the Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area "in principle" at this session, inform the Sub-Committee on Safety of Navigation (NAV) of its assessment, and, after consideration and approval of the associated protective measures by NAV, approve final PSSA designation.

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ANNEX 1

PARTICULARLY SENSITIVE SEA AREA

(Reference chart: United States 19016, 2007 edition; 19019, 2007 edition; 19022, 2007 edition. These charts are based on World Geodetic Survey 1984 and astronomic datum.)

Description of the Particularly Sensitive Sea Area for the Papahānaumokuākea Marine National Monument

To avoid the risk of damage from ship groundings and pollution damage by international shipping activities and the destruction and degradation of this unique, fragile, and pristine coral reef ecosystem, as well as of significant cultural and archaeological resources, mariners should exercise extreme care when navigating in the area bounded by a line connecting the following geographical positions which is designated as a Particularly Sensitive Sea Area:

Point	LATITUDE	LONGITUDE
1	28°26'.24 N	175°10'.65 W
2	28°16'.07 N	175°00'.00 W
3	26°50'.89 N	173°30'.79 W
4	26°36'.00 N	171°37'.70 W
5	26°35'.49 N	171°33'.84 W
6	26°35'.09 N	171°30'.84 W
7	26°34'.07 N	171°27'.50 W
8	26°33'.35 N	171°25'.16 W
9	26°14'.25 N	170°23'.04 W
10	25°50'.55 N	167°57'.88 W
11	25°48'.99 N	167°48'.35 W
12	25°47'.09 N	167°36'.72 W
13	25°39'.84 N	167°26'.48 W
14	25°35'.10 N	167°19'.79 W
15	25°10'.43 N	166°45'.00 W
16	24°40'.91 N	166°03'.36 W
17	24°35'.64 N	165°34'.99 W
18	24°23'.98 N	164°32'.24 W
19	23°52'.82 N	161°44'.54 W
20	23°52'.10 N	161°41'.20 W
21	23°51'.18 N	161°37'.92 W
22	23°50'.08 N	161°34'.71 W
23	23°48'.79 N	161°31'.58 W
24	23°47'.33 N	161°28'.55 W
25	23°45'.69 N	161°25'.62 W
26	23°43'.88 N	161°22'.81 W
27	23°41'.92 N	161°20'.13 W
28	23°39'.80 N	161°17'.60 W
29	23°37'.54 N	161°15'.21 W
30	23°35'.14 N	161°12'.99 W
31	23°32'.62 N	161°10'.93 W
32	23°29'.99 N	161°09'.05 W
33	23°27'.25 N	161°07'.35 W
34	23°24'.42 N	161°05'.85 W
35	23°21'.51 N	161°04'.54 W
36	23°18'.52 N	161°03'.43 W
37	23°15'.48 N	161°02'.53 W
38	23°12'.39 N	161°01'.84 W
39	23°09'.27 N	161°01'.35 W
40	23°06'.13 N	161°01'.09 W
41	23°02'.97 N	161°01'.03 W
42	22°59'.82 N	161°01'.19 W
43	22°56'.69 N	161°01'.57 W
44	22°53'.58 N	161°02'.15 W
45	22°50'.51 N	161°02'.95 W
46	22°47'.50 N	161°03'.95 W
47	22°44'.55 N	161°05'.15 W
48	22°41'.67 N	161°06'.54 W
49	22°38'.88 N	161°08'.13 W
50	22°36'.19 N	161°09'.90 W
51	22°33'.61 N	161°11'.85 W
52	22°31'.14 N	161°13'.97 W
53	22°28'.81 N	161°16'.25 W
54	22°26'.61 N	161°18'.69 W
55	22°24'.56 N	161°21'.26 W
56	22°22'.66 N	161°23'.97 W
57	22°20'.92 N	161°26'.80 W
58	22°19'.35 N	161°29'.74 W
59	22°17'.95 N	161°32'.78 W
60	22°16'.73 N	161°35'.90 W
61	22°15'.70 N	161°39'.10 W
62	22°14'.85 N	161°42'.37 W
63	22°14'.20 N	161°45'.68 W
64	22°13'.73 N	161°49'.03 W
65	22°13'.47 N	161°52'.41 W

66	22°13'.40 N	161°55'.80 W
67	22°13'.53 N	161°59'.18 W
68	22°13'.85 N	162°02'.55 W
69	22°14'.31 N	162°05'.45 W
70	22°14'.37 N	162°05'.89 W
71	22°45'.18 N	164°51'.62 W
72	22°50'.26 N	165°34'.99 W
73	22°55'.50 N	166°19'.63 W
74	22°55'.93 N	166°23'.32 W
75	22°57'.41 N	166°36'.00 W
76	23°03'.75 N	166°45'.00 W
77	23°05'.48 N	166°47'.45 W
78	24°12'.69 N	168°22'.84 W
79	24°12'.69 N	168°22'.84 W
80	24°12'.70 N	168°22'.86 W
81	24°35'.77 N	170°44'.39 W
82	24°36'.29 N	170°47'.58 W
83	24°37'.18 N	170°50'.37 W
84	24°37'.76 N	170°52'.17 W
85	24°56'.23 N	171°50'.19 W
86	25°16'.61 N	174°24'.84 W
87	25°49'.84 N	175°00'.00 W
88	27°14'.76 N	176°29'.87 W
89	27°24'.95 N	177°33'.31 W
90	27°35'.87 N	178°29'.90 W
91	27°36'.64 N	178°33'.93 W
92	27°37'.53 N	178°37'.32 W
93	27°38'.60 N	178°40'.65 W
94	27°39'.85 N	178°43'.90 W
95	27°41'.28 N	178°47'.05 W
96	27°42'.89 N	178°50'.10 W
97	27°44'.66 N	178°53'.03 W
98	27°46'.59 N	178°55'.83 W
99	27°48'.67 N	178°58'.49 W
100	27°50'.89 N	179°01'.00 W
101	27°53'.25 N	179°03'.35 W
102	27°55'.74 N	179°05'.54 W
103	27°58'.34 N	179°07'.54 W
104	28°01'.05 N	179°09'.35 W
105	28°03'.85 N	179°10'.98 W
106	28°06'.74 N	179°12'.40 W
107	28°09'.71 N	179°13'.61 W
108	28°12'.73 N	179°14'.62 W
109	28°15'.80 N	179°15'.41 W
110	28°18'.91 N	179°15'.98 W
111	28°22'.05 N	179°16'.33 W
112	28°24'.72 N	179°16'.44 W
113	28°25'.20 N	179°16'.45 W
114	28°25'.82 N	179°16'.44 W
115	28°28'.35 N	179°16'.36 W
116	28°31'.49 N	179°16'.03 W
117	28°34'.60 N	179°15'.49 W
118	28°37'.68 N	179°14'.72 W
119	28°40'.71 N	179°13'.74 W
120	28°43'.68 N	179°12'.54 W
121	28°46'.58 N	179°11'.13 W
122	28°49'.39 N	179°09'.52 W
123	28°52'.11 N	179°07'.70 W
124	28°54'.72 N	179°05'.70 W
125	28°57'.21 N	179°03'.51 W
126	28°59'.58 N	179°01'.15 W
127	29°01'.81 N	178°58'.62 W
128	29°03'.90 N	178°55'.93 W
129	29°05'.83 N	178°53'.10 W
130	29°07'.60 N	178°50'.13 W
131	29°09'.21 N	178°47'.04 W
132	29°10'.64 N	178°43'.84 W
133	29°11'.89 N	178°40'.54 W
134	29°12'.95 N	178°37'.16 W
135	29°13'.82 N	178°33'.71 W
136	29°14'.50 N	178°30'.21 W
137	29°14'.99 N	178°26'.66 W
138	29°15'.28 N	178°23'.08 W
139	29°15'.36 N	178°19'.49 W
140	29°15'.25 N	178°15'.90 W
141	29°14'.94 N	178°12'.32 W
142	29°14'.43 N	178°08'.78 W
143	29°03'.47 N	177°12'.07 W
144	29°02'.55 N	177°07'.29 W
145	28°38'.96 N	175°35'.47 W
146	28°38'.67 N	175°34'.35 W
147	28°34'.91 N	175°19'.74 W
148	28°26'.24 N	175°10'.65 W

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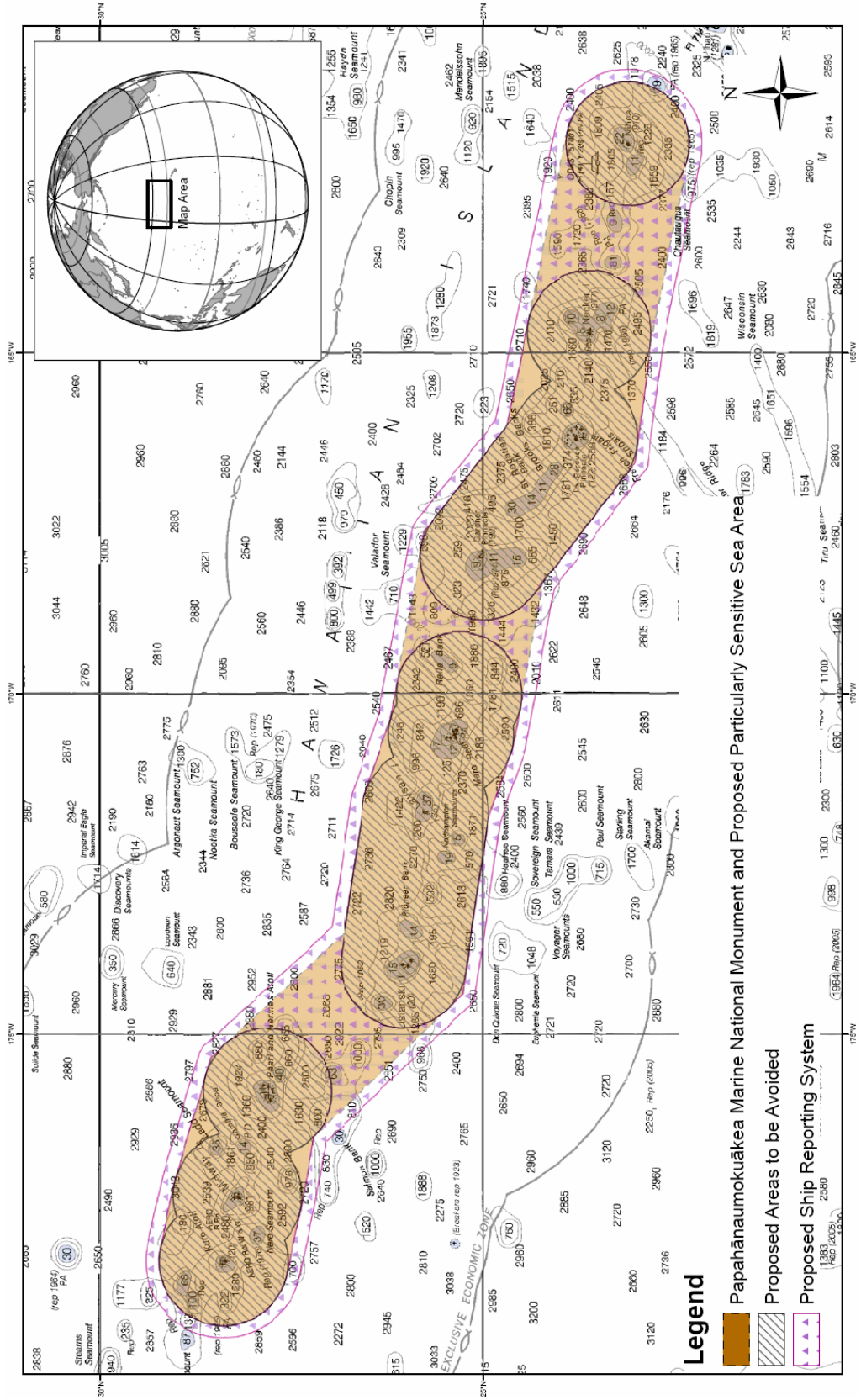
ANNEX 2

CHARTLET



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ANNEX 3

SHIPS' ROUTEING
PART D, II/8

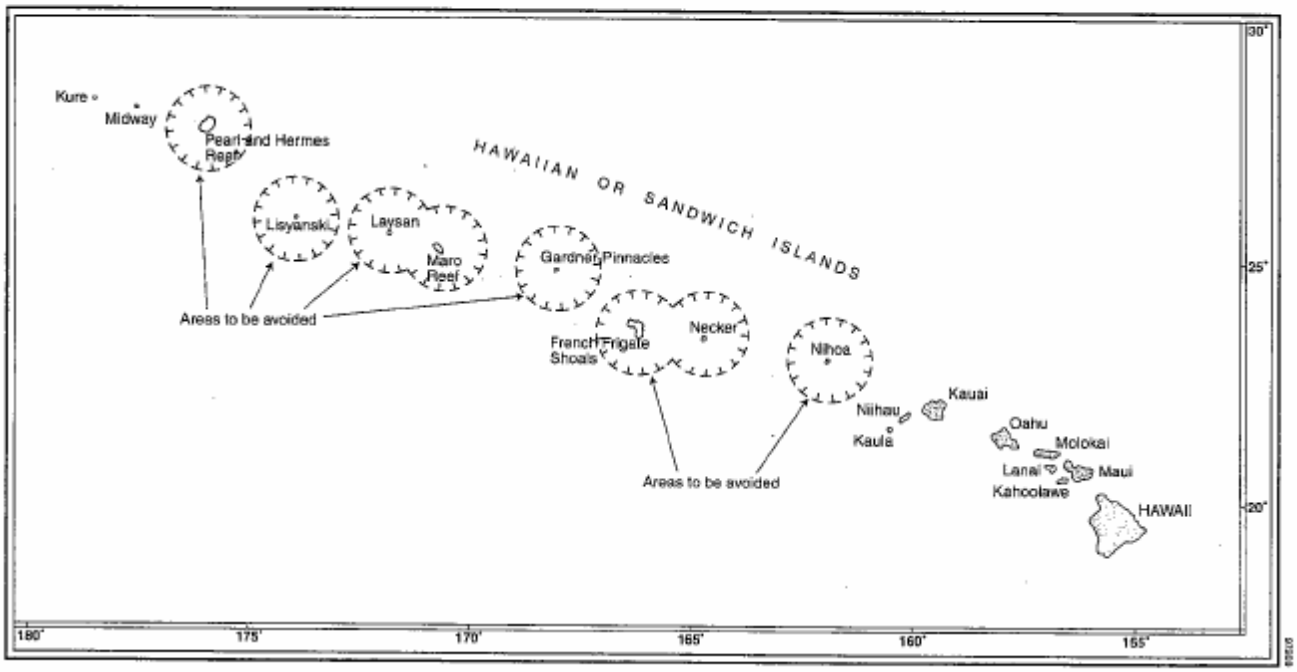
IN THE REGION OF THE NORTH-WEST HAWAIIAN ISLANDS

(Reference chart: United States 540, 1984 edition.
Note: This chart is based on Old Hawaiian Datum.)

Description of the areas to be avoided

In order to avoid the risk of pollution due to an accident in the area, which is designated as a wildlife refuge, all ships of more than 1,000 gross tons carrying cargoes of oil or hazardous materials should avoid the areas contained within a circle of radius 50 nautical miles centred upon the following geographical positions:

(1) 27°50′ N, 175°50′ W (Pearl and Hermes Reef)
(2) 26°00′ N, 173°55′ W (Lisyanski Island)
(3) 25°45′ N, 171°45′ W (Laysan Island)
(4) 25°25′ N, 170°35′ W (Maro Reef)
(5) 25°00′ N, 168°00′ W (Gardner Pinnacles)
(6) 23°45′ N, 166°15′ W (French Frigate Shoals)
(7) 23°35′ N, 164°40′ W (Necker Island)
(8) 23°05′ N, 161°55′ W (Nihoa)



IN THE REGION OF THE NORTH-WEST HAWAIIAN ISLANDS

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ANNEX 4

PROPOSED ASSOCIATED PROTECTIVE MEASURE FOR THE PROPOSED PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT PARTICULARLY SENSITIVE SEA AREA

In accordance with paragraph 7.5.2.2 of the Revised PSSA Guidelines a proposed Associated Protective Measure for the proposed Papahānaumokuākea Marine National Monument Particularly Sensitive Sea Area submitted to the Sub-Committee on Safety of Navigation is appended below.

DRAFT
ROUTEING OF SHIPS, SHIP REPORTING, AND RELATED MATTERS

Amendment and Expansion of the Six Existing Recommended Areas To Be Avoided "In the Region of the North-West Hawaiian Islands"

Submitted by the United States

SUMMARY

Executive summary:	This document sets forth a proposal to amend and expand the six existing IMO-adopted recommended Areas To Be Avoided "In the Region of the North-west Hawaiian Islands" for consideration and approval, and transmission to the Maritime Safety Committee for adoption. The purpose of this proposal is to increase maritime safety where navigation is particularly hazardous, protect the fragile environment, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies.
Action to be taken:	Paragraph 23
Related documents:	NAV 53/3/xx (ship reporting system proposal), NAV 38/3/2, NAV XXI/4/6, NAV XXIII/13, MSC XLII/13, MSC XLIII/16/1, MSC XLIII/18, MEPC 56/INF.2, Regulation 10 of Chapter V of the International Convention on the Safety of Life at Sea, General Provisions on Ships' Routeing (A.752(14)), as amended, Ships' Routeing, Part D, page II/8 (eighth edition)

Introduction

1 The United States proposes to amend and expand the six existing recommended Areas To Be Avoided (ATBAs) "In the Region of the North-West Hawaiian Islands", which were adopted by IMO in 1980 to protect eight of the North-western Hawaiian Islands (NWHI). The proposed language and coordinates for inclusion in the General Provisions on Ships' Routeing is set forth in annex 1, along with a chartlet of the existing ATBAs and a chartlet showing the entire proposal (e.g., amendment of the existing ATBAs and inclusion of other areas). This proposal is an integral part of the United States proposal for designation of this area as a Particularly Sensitive Sea Area (MEPC 56/8). It is one of three associated protective measures, the others being the existing ATBAs and a proposal to establish a ship reporting system in this area (NAV 53/3/5), which is also under consideration by this Sub-Committee.

2 This proposal consists of three parts. First, it proposes for inclusion other areas in this region where navigation is particularly hazardous. Second, it proposes to apply the existing and proposed ATBAs to all ships to improve maritime safety, protect the environment, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. Third, it proposes to modify and update the description and name of the ATBAs to take into account the recent Proclamation by the President of the United States designating this area as the Papahānaumokuākea Marine National Monument and to update the format of the geographical positions of the centre points upon which the existing ATBAs are based and to make other technical corrections to these positions.

Background

3 The North-western Hawaiian Islands consist of an approximately 1,200 mile stretch of small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features located northwest of the main Hawaiian Islands.[4] The area of the NWHI supports a dynamic and integrated coral reef ecosystem. Thanks to its relative isolation, the NWHI's several thousand square miles of coral reefs are among the healthiest in the world. This diverse ecosystem is home to more than 7,000 marine species, approximately one-quarter of which are unique to the Hawaiian Island chain. A number of the species found in the NWHI are endangered or threatened and require special protection, including the critically endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered hawksbill sea turtle. Additionally, though land areas are limited, over 14 million seabirds nest in the NWHI, and the islands are the only home for four endangered land birds. The health of this dynamic ecosystem is further manifested by the existence of top predators such as sharks, jacks, and groupers, which are often the first species to disappear when an ecosystem's health declines.

4 The NWHI are also of great significance to Native Hawaiian culture. The NWHI are considered a sacred place in Native Hawaiian traditions and have long been the site of ceremonial practices, with hundreds of documented archaeological sites on two of the islands, some of which resemble historically important Polynesian sites in Tahiti and the Marqueses. These sites are being studied to increase the understanding of the connection between Native Hawaiian culture and early Polynesians. Native Hawaiians continue to maintain their strong ties to the land and sea areas of the NWHI, understanding the importance of managing the islands and water as inextricably connected to one another. This proposal to amend and expand the existing Areas To Be Avoided will help safeguard this region, so significant in Native Hawaiian culture, from potential damage by passing ships.

5 This area also provides an unparalleled opportunity for research. Given the fact that the NWHI are remote and rich with marine and terrestrial life, they provide one of the few areas in the world where researchers can conduct large-scale comparisons between human-impacted marine ecosystems and un-impacted marine ecosystems. Such comparisons may serve as a living model to guide restoration efforts elsewhere.

[4] The term, "main Hawaiian Islands", is used throughout this proposal to refer to the islands of Hawaii, Maui, Oahu, Molokai, Nihau, Kauai, and Kahoolawe. These islands are the main populated islands of the Hawaiian Islands chain, with the exception of Kahoolawe, which is an uninhabited nature reserve. None of the main Hawaiian Islands are part of the Northwestern Hawaiian Islands.

6 The hazards to navigation in the NWHI are demonstrated by the large number of shipwrecks in this area, including several recent wrecks within the past five years. Records indicate that over 60 shipwrecks lie in waters surrounding the islands and some of these wrecks even serve as the origin of a number of the islands' names.[5] Additionally, several of the wrecks are among the world's most pristine submerged cultural resources and are historically and archeologically significant. Unwarranted damage or removal of submerged archaeological sites is prohibited by state and federal preservation laws, and United States Monument management agencies seek to protect these heritage resources as windows into the past.

7 A significant number of consultations with regard to the issues of maritime safety, protection of the environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and the ability to respond to developing maritime emergencies in the NWHI have been undertaken with representatives from the shipping industry, master mariners, environmental interests, Native Hawaiians, and representatives from United States federal, state, and local governments. These stakeholders' concerns were carefully considered and taken into account in the development of this proposal. The resulting proposal specifically takes into account the burden on, and practical navigation aspects for, international shipping, with a view to minimizing those impacts while meeting the need for additional protection for the NWHI.

Traffic considerations

8 Container ships, bulk carriers, and tankers regularly transit the waters surrounding the NWHI. Although due to its remoteness, the exact route of vessels through this area is unknown, it appears that most traffic passes to the north of the island chain, following the great circle routes to and from ports on the west coast of North America and East Asia. Other trans-Pacific ships travelling from ports in Hawaii transit at least 100 miles south of the NWHI. Occasionally, vessels transiting from the south pass within the boundaries of the recently-proclaimed Monument. A preliminary analysis of vessel traffic patterns within the NWHI was conducted based on data collected by the World Meteorological Organization's Voluntary Observing Ships scheme. This scheme collects geo-referenced data from select non-research vessels that make frequent and regular crossings of all major ocean basins. While the scheme does not capture the total traffic in the area, during a 21-month study period in 2004 and 2005, approximately 132 vessels reported from within the area of what is now the Papahānaumokuākea Marine National Monument: 104 of these vessels were freighters, 8 were tankers, 4 were research vessels, 2 were passenger vessels, 2 were vessels used for educational purposes, 1 was a recreational vessel, 1 was a towing vessel with a 666 foot vessel in tow, and 10 were unidentified vessels. The 132 vessels were flagged in 23 different countries.

9 The most significant challenge to safe navigation in the NWHI is the presence of seamounts, banks, shoals, and submerged and emerging coral reefs which pose significant hazards. Some features in the area create challenges to safe navigation due to their constantly changing size and shape and low elevations. In other islands, local magnetic disturbances have been observed with variations of as much as 33 degrees. Due to the isolation of the NWHI, little communication infrastructure exists and aids to navigation are limited to the area of Midway Atoll. Additionally, the area of the proposed PSSA is currently covered by mostly small scale charts, with the most recent surveys taking place since 2000 near known islands, reefs and atolls. Although modern hydrographic surveys by the University of Hawaii and satellite imagery of the

[5] This figure does not include aircraft or vessels that were sunk in the Battle of Midway.

area have allowed NOAA's Office of Coast Survey to correct the position of several of these features, many of the submerged banks and isolated features have yet to be updated or discovered. This area thus presents a classic case for Area To Be Avoided designation. *See* paragraph 5.5 of the General Provisions of Ships' Routeing (GPSR) (…areas [to be avoided] should be established only in places where inadequate survey or insufficient provision of aids to navigation may lead to a danger of stranding…or where there is the possibility that unacceptable damage to the environment could result from a casualty….).

10 With respect to environmental conditions in the area, the northeast trade winds prevail throughout the year, but westerly blows can be expected during the winter. The average velocity of the winds is 12 knots, with monthly averages of 16 knots in December and 9.5 knots in August. Gales have been experienced in July and September. Occasional heavy showers of short duration also occur, cutting visibility to about 2 miles. The NWHI experience annual high energy large wave events from five to over ten meters which approach largely from the northwest during the winter months. During this time, the average wave power increases substantially and extreme wave events of over ten meters pound the shallow water coral communities, thus posing a hazard to navigation.

Proposal

Areas of Coverage

11 There are three components to this proposal. The first component proposes to add to the existing six Areas To Be Avoided (ATBAs) other areas where navigation is particularly hazardous:

(a) the areas between Lisianski and Laysan Islands and between Gardner Pinnacles and French Frigate Shoals;

(b) the area contained within a radius of 50 nautical miles centred near Raita Bank which overlaps and expands the existing ATBA around Maro Reef; and

(c) the areas contained within circles with radii of 50 nautical miles centred on Kure Atoll and Midway Atoll.

The two areas between existing ATBAs and the area covered by the expansion of the existing ATBA around Maro Reef are proposed for inclusion as ATBAs to increase maritime safety and protect the fragile environment. The areas between Lisianski and Laysan Islands and between Maro Reef and Gardner Pinnacles contain a number of banks, shoals, and emerging and fringing reefs. These areas are thus transited infrequently, undoubtedly due to concerns about maritime safety. Additionally, damage to the environment in these areas would be especially unacceptable. For example, Raita Bank, which is between Maro Reef and Gardner Pinnacles, contains important foraging habitat for the Hawaiian monk seal. The reef system associated with French Frigate Shoals supports the greatest variety of coral species in the NWHI. It is also an important area for threatened and endangered species. For example, over 90% of the threatened Hawaiian population of green sea turtles travels to this specific area for safe nesting. Additionally, critically endangered Hawaiian monk seals take refuge in these areas and often swim between Gardner Pinnacles and French Frigate Shoals.

12 The inclusion of these three areas through the Monument as Areas To Be Avoided would help to ensure the ability to respond to a developing maritime emergency. First, the ATBAs provide time for either a response effort to reach a foundering vessel or for pollution to disperse before it harms fragile resources. Second, most search, rescue, and response facilities are stationed in the main Hawaiian Islands, including Kauai**,** which is to the east of the NWHI. Search, rescue, and response operations have been staged from Midway Atoll, in the far north-western part of the island chain; however, without assistance from resources based in the main Hawaiian Islands, search, rescue, and response from Midway can generally reach only 10 miles offshore due to the limited equipment located permanently on the island. These search and rescue facilities are within easier reach of two of the areas that remain open for transit through the proposed PSSA and which are used by the majority of ships.

13 The United States also proposes for inclusion in the Areas To Be Avoided the farthest north-western points in the island chain, Kure Atoll and Midway Atoll. These islands share the characteristics of the other islands which are already protected by the existing Areas To Be Avoided: navigation can be hazardous in the vicinity of these islands and they are also home to many seabirds, endangered and threatened marine life, and fragile coral reefs. Kure Atoll contains almost 80,000 acres of coral reef habitat. The dangers to navigation in this area are evident from the number of shipwrecks located on the reef, including the *Paradise Queen II* which ran aground in 1998. In 1909, Kure was made part of the Hawaiian Islands Bird Reservation (which in 1940 became the Hawaiian Islands National Wildlife Refuge) in recognition of the atoll's importance as a nesting area for birds such as shearwaters, boobies, frigate birds, albatrosses, terns, and noddies. Kure is also a pupping and resting area for the critically endangered Hawaiian monk seal. Although Midway is perhaps best known for the World War II naval battles that took place in and around the atoll, it too is of critical ecological importance. Nearly two million birds of 19 species nest on Midway and it is home to the largest Laysan albatross colony in the world. Other birds found on Midway include the black-footed albatross, the endangered short-tailed albatross, red-tailed tropicbirds, white terns, black and brown noddies, shearwaters, and Bonin petrels. Dolphins, monk seals, green sea turtles, sharks, and more than 250 species of fish are found in the waters around Midway Atoll and, in recognition of its ecological importance, it was designated by the President as the Midway National Wildlife Refuge.

14 There is a demonstrated need for the 50 nautical mile radii of the ATBAs around these two islands. As the United States pointed out in response to questions raised during the consideration of the six existing ATBAs, the prevailing weather and currents in the area are such that that it would take on average 24 hours for an oil spill to travel 50 nautical miles. In that time most of the more dangerous volatile material would have evaporated or broken up. The 50 nautical mile buffer is thus designed to provide the minimum protection from the most toxic substances likely to be released in a maritime casualty. This point is verified by the spill from *Irene's Challenge*, which occurred approximately 50 miles to the north of Lisianski Island and yet, because of the prevailing weather and currents in the area, no serious damage occurred from the spill of 10.4 million gallons of crude oil. Second, the 50 nautical mile buffer would provide time to launch an emergency response effort to a foundering vessel before it ran aground and damaged fragile coral reef resources. Finally, there are important ecological resources, such as the endangered Hawaiian monk seal, several species of seabirds, and sea turtles, found out to 50 nautical miles. This fact was explicitly recognized in 1991, when the United States established a Protected Species Zone to protect these species from injuries from long-line fishing operations. Although this Zone was established to address injuries from fishing operations, it manifests that these resources exist out to this limit.

Categories of Ships

15 The second component of the proposal is to apply the existing and proposed Areas To Be Avoided to all ships in transit through the area in order to enhance maritime safety, protect the fragile environment of this area, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. It is clear that hazards to navigation exist for all sizes of vessels. This is manifested by the fact that the types of vessels that have run aground on the reefs of the NWHI include fishing vessels, research vessels, and commercial ships. Two vessels, the *Swordman I* (2000) and the *Casitas* (2005) ran aground on Pearl and Hermes Atoll, which is now an existing IMO-adopted ATBA; however, these vessels were under the 1,000 gross ton applicability of this ATBA. Fortunately, the response, clean up, and removal of these vessels which cost $1.5 million and $5 million, respectively, helped to avoid major damage to this fragile reef. It is also important to include all ships to avoid unacceptable danger to this fragile environment from spills of bunker fuel, which could have a devastating impact on the natural resources of the NWHI. The concerns about such damage, undoubtedly heightened by incidents such as the *New Carissa* off the Oregon coast in 1999, the *Jessica* in the Galapagos Islands in 2002, and the *Selendang Ayu* near the Alaskan Aleutian Islands in 2004, all of which involved spills of bunker fuel, have been recognized in amendments to the General Provisions on Ships' Routeing to ensure that the quantity of bunker fuel carried is an important consideration in establishing a routing measure. *See, e.g.,* GPSR, paragraphs 3.1 and 3.11.4. These concerns are further compounded by the remoteness of the NWHI and the difficulties in conducting search, rescue, and response operations. Finally, ships of all sizes can cause damage to unique, valuable, and sensitive resources of the NWHI.

Title of Area, Description, Format, and Technical Corrections

16 The final component of this proposal is to amend the description and name of the Areas To Be Avoided to take into account the June 15, 2006 Proclamation by the President of the United States declaring this area the North-western Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument). The existing description of the Areas To Be Avoided refers to these areas only as a wildlife refuge and this description should be updated to reflect the designation of the Monument. The United States also proposes that the name of the area be updated to reflect the recent designation.

17 The United States also notes that the format for the radii of the 50 nautical mile circles for the existing ATBAs needs to be updated to reflect the current practice of using degrees, minutes, and decimal minutes. Also, technical corrections need to be made to the geographical points upon which the existing ATBAs are based and other technical changes need to be made to reflect the change in use from Old Hawaiian datum to World Geodetic Survey 1984 datum. The updated geographic coordinates are included in the annex. The changes to these centre points result in more closely aligning the boundaries of the existing ATBAs with those of the proposed PSSA.

Impact on Shipping

18 The burden imposed on shipping by the proposed amendment and expansion of the Areas To Be Avoided is expected to be minimal while there will be significant benefits in the form of improved maritime safety, protection of this fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and the facilitation of better response to developing maritime emergencies. Ship traffic has historically avoided the NWHI because of the significant navigation hazards in the area. Most ships that transit the area skirt the island chain to the north. The proposed amendment would leave untouched three areas for ships to use in transiting the waters that surround the islands. In fact, the majority of ships transiting through the Monument have been observed using one of these areas, the area between Pearl and Hermes Atoll and Lisianski Island, because it allows ships to maintain an east-west heading. The other areas are in the middle of the chain between Maro Reef and Gardner Pinnacles, and at the eastern end of the island chain between Necker Island and Nihoa Island. These areas, in particular the area between Pearl and Hermes Atoll and Lisianski Island and between Necker Island and Nihoa Island, provide a preferable alternative for ships transiting through the waters that surround the islands. Moreover, given the remoteness of these islands and the proposed continued use by mariners of these areas through the Monument for passage, mariners conducting long voyages will be able to take these areas into account in their voyage planning and only need to adjust their headings by a few degrees to adhere to the Areas To Be Avoided.

Additional Actions Taken by the United States

19 This proposal for the amendment and expansion of the Areas To Be Avoided is an integral part of a proposal to identify the Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area (PSSA). These proposed Areas To Be Avoided, along with the United States proposal to establish a mandatory ship reporting system in this area (NAV 53/3/5), are the associated protective measures to increase maritime safety, protect the area proposed for PSSA designation from the risk of damage by international shipping activities, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. In preparing the PSSA proposal, the United States comprehensively reviewed the attributes of the proposed area, its vulnerability to damage by international shipping, and the most appropriate mechanism available through IMO to address the identified vulnerabilities. The expansion and amendment of the ATBAs was determined to be essential for achieving the objectives of PSSA designation. The United States submitted its PSSA proposal to the 56th session of the Marine Environment Protection Committee.

20 The United States has also taken appropriate action to implement the international conventions to which it is party, including, where appropriate, enacting domestic legislation and promulgating regulations. Relevant laws in force include domestic legislation and regulations to implement the Convention on International Regulations for Preventing Collisions at Sea, 1972, as amended; the International Convention for the Safety of Life at Sea, 1974, as amended; the International Convention for the Prevention of Pollution from Ships, 1973/1978, as amended; the International Convention on Oil Pollution, Preparedness, Response and Co-operation 1990; the International Convention on Maritime Search and Rescue, 1979, as amended; and the Convention on the International Trade in Endangered Species of Wild Fauna and Flora, 1973. The United States applies its laws in accordance with international law, which includes navigational rights under customary international law as reflected in the United Nations Convention on the Law of the Sea.

21 The United States has taken considerable action to increase maritime safety, protect the fragile environment, and preserve cultural resources and areas of cultural importance significant to Native Hawaiians in the NWHI. This area has been the subject of a variety of strong protective measures, beginning in 1909 when then President Theodore Roosevelt recognized the islands' importance as a seabird nesting ground and created the Hawaiian Islands Bird Reservation. Most recently, in June 2006, President George Bush declared this area as the North-western Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) in recognition of the fragility of this area and to protect the many species of coral, fish, birds, marine mammals, and other flora and fauna including the endangered Hawaiian monk sea, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles, as well as to protect historical and archaeological heritage resources, including cultural resources and areas of significant importance to Native Hawaiians.

22 The Proclamation and codifying regulations creating the Papahānaumokuākea Marine National Monument prohibit taking, possessing, injuring, or disturbing any resource; altering the seabed; anchoring or deserting a vessel; and possessing fishing gear unless stowed. Many of these activities may be allowed by permit; however, permits cannot be issued for such activities as releasing an introduced species or anchoring on coral. The Proclamation also prohibits such activities as discharging or depositing any material into the Monument, or discharging or depositing any material outside the Monument that subsequently injures Monument resources, except discharges incidental to vessel use, such as approved marine sanitation device effluent, cooling water, and engine exhaust. The Proclamation also requires the complete closure of the Monument to commercial fishing five years from the date of the Proclamation. While the Proclamation provides that none of its restrictions may apply to or be enforced against foreign flag vessels unless in accordance with international law, it strictly regulates entry into the Monument and, for those vessels subject to United States jurisdiction, requires the mandatory use of a specific type of vessel monitoring system on those vessels that may be allowed into the Monument.

Action requested of the Sub-Committee

23 The Sub-Committee is asked to approve this proposal for amendment of the Areas To Be Avoided "In the Region of the North-West Hawaiian Islands" as set forth in the annex and forward the proposal to the Maritime Safety Committee for adoption. The United States also requests that the effective date of implementation be six months after adoption.

ANNEX 1

In the Region of the Papahānaumokuākea Marine National Monument

(Reference chart: United States 19016, 2007 edition; 19019, 2007 edition; 19022, 2007 edition. These charts are based on World Geodetic Survey 1984 and astronomic datum.)[6]

Description of the Areas To Be Avoided

Given the magnitude of obstacles that make navigation in these areas hazardous, and in order to increase maritime safety, protection of the environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies in the Papahānaumokuākea Marine National Monument, all ships solely in transit should avoid the following areas:

1. Those areas contained within a circle of radius of 50 nautical miles centred upon the following geographical positions:

a. 28°25'.18 N, 178°19'.75 W (Kure Atoll)
b. 28°14'.20 N, 177°22'.10 W (Midway Atoll)
c. 27°50'.62 N, 175°50'.53 W (Pearl and Hermes Atoll)
d. 26°03'.82 N, 173°58'.00 W (Lisianski Island)
e. 25°46'.18 N, 171°43'.95 W (Laysan Island)
f. 25°25'.45 N, 170°35'.32 W (Maro Reef)
g. 25°19'.50 N, 170°00'.88 W (Maro Reef and Raita Bank)
h. 25°00'.00 N, 167°59'.92 W (Gardner Pinnacles)
i. 23°45'.52 N, 166°14'.62 W (French Frigate Shoals)
j. 23°34'.60 N, 164°42'.02 W (Necker Island)
k. 23°03'.38 N, 161°55'.32 W (Nihoa Island)

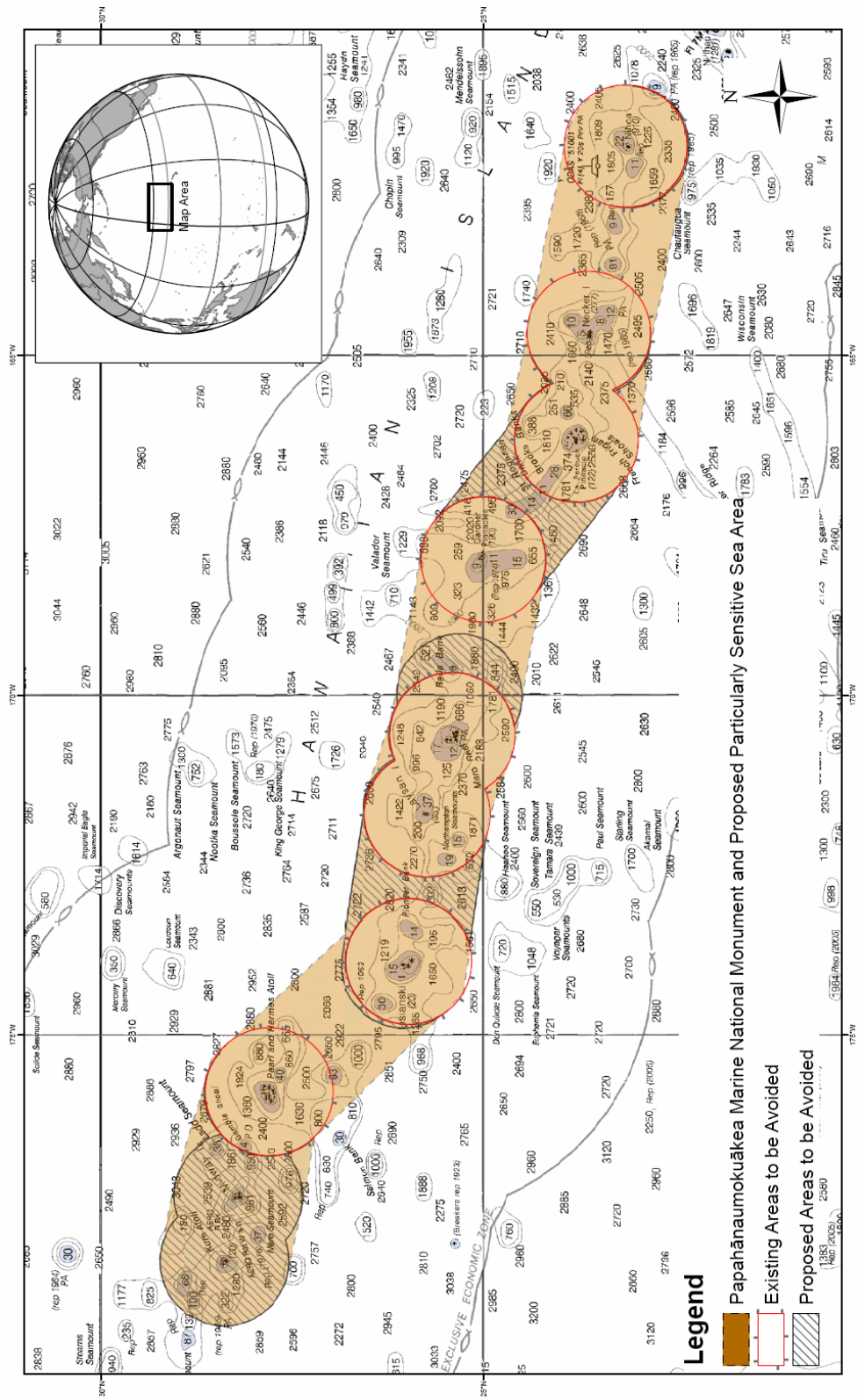
2. The areas contained between the following geographical co-ordinates:

		Begin Co-ordinates		End Co-ordinates	
		Latitude	Longitude	Latitude	Longitude
Area 1	Lisianski Island (N) --> Laysan Island	26°53'.22 N	173°49'.64 W	26°35'.58 N	171°35'.60 W
	Lisianski Island (S) ---> Laysan Island	25°14'.42 N	174°06'.36 W	24°57'.63 N	171°57'.07 W
Area 2	Gardner Pinnacles (N)--> French Frigate Shoals	25°38'.90 N	167°25'.31 W	24°24'.80 N	165°40'.89 W
	Gardner Pinnacles (S) ---> French Frigate Shoals	24°14'.27 N	168°22'.13 W	23°05'.84 N	166°47'.81 W

[6] The charts are available in paper, raster, or ENC form and may be found at http://chartmaker.ncd.noaa.gov/NSD/coastpilot.htm. Mariners are also urged to consult the latest edition of the United States Coast Pilot No. 7, available at http://chartmaker.ncd.noaa.gov/nsd/coastpilot7.htm and in particular Chapter 14 which pertains to Hawaii, available at http://chartmaker.ncd.noaa.gov/nsd/Cp7/CP7-39ed-Ch14_7.pdf.

CHARTLET

Existing and Proposed Areas To Be Avoided



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ANNEX 5

PROPOSED ASSOCIATED PROTECTIVE MEASURE FOR THE PROPOSED PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT PARTICULARLY SENSITIVE SEA AREA

In accordance with paragraph 7.5.2.2 of the Revised PSSA Guidelines a proposed Associated Protective Measure for the proposed Papahānaumokuākea Marine National Monument Particularly Sensitive Sea Area submitted to the Sub-Committee on Safety of Navigation is appended below.

DRAFT
ROUTEING OF SHIPS, SHIP REPORTING, AND RELATED MATTERS

Ship Reporting System for the Papahānaumokuākea Marine National Monument

Submitted by the United States

SUMMARY

Executive summary:	This document sets forth a proposal for the establishment of a ship reporting system for the Papahānaumokuākea Marine National Monument, "CORAL SHIPREP" that is recommendatory for ships transiting through the Monument, and is mandatory for ships entering or departing a United States port or place, for consideration and transmission to the Maritime Safety Committee for recognition. The objective of this system is to improve maritime safety where navigation is particularly hazardous, protect the fragile environment, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies.
Action to be taken:	Paragraph 13
Related documents:	NAV 53/3/4 (ATBA proposal); MEPC 56/INF.2, MSC.43(64) as amended by MSC.111(73); MSC.189(79); A.851(20); SOLAS, Chapter V, Regulation 11

Introduction

1 The United States proposes to establish a ship reporting system, which is recommendatory for ships in transit through Papahānaumokuākea Marine National Monument (the Monument) and mandatory for ships as a condition of entry to a United States port or place, in a 10 nautical mile wide band surrounding the recently designated Monument and in three areas through the Monument. The proposed system, "CORAL SHIPREP", is set forth in the annex. A chartlet and geographic co-ordinates of the proposed reporting area are attached to the annex. This proposal is an integral

part of the United States proposal for designation of this area as a Particularly Sensitive Sea Area (MEPC 56/8). It is one of three associated protective measures, the others being the six existing Areas To Be Avoided (ATBAs) and a proposal to amend and expand those ATBAs around the North-western Hawaiian Islands (NWHI) (NAV 53/3/4), which are under consideration by this Sub-Committee.

2 The objective of this ship reporting system is to provide important protection for the fragile environment of the Papahānaumokuākea Marine National Monument and its cultural resources as it is an area of cultural importance significant to Native Hawaiians. As important, given the obstacles that make navigation hazardous in this area, this system will provide mariners with critical alerts and other important information to assist them in navigating safely through the area. Furthermore, it will increase knowledge of ship movements and facilitate a timely response to any developing maritime emergencies.

Background

3 In accordance with Resolution MSC.43(64)(Guidelines and Criteria for Ship Reporting Systems), the United States took into account several factors in addition to those required to be set forth in the annex to this proposal.

Environmental conditions and resources in the area

4 The area proposed for the ship reporting system is a 10 nautical mile wide band surrounding the Monument and three areas through it. As set forth more fully in the United States proposal to amend and expand the six existing Areas To Be Avoided (NAV 53/3/4) and in the United States proposal for designation of the Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area (PSSA) (MEPC 56/8), the Monument area encompasses an approximately 1,200 mile stretch of small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features located northwest of the main Hawaiian Islands.[7] This healthy, thriving, and integrated ecosystem is home to more than 7,000 marine species, including the critically endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered hawksbill sea turtle. Additionally, the limited land areas of the NWHI serve as nesting areas for over 14 million seabirds and are the only home for four endangered land birds. Hundreds of documented archaeological sites have been found on two of the islands and there are areas of cultural importance significant to Native Hawaiians throughout this area. Native Hawaiians continue to maintain their strong ties to this area because they view it as a sacred place. Extensive biological, geological, historical, and cultural research is conducted in the NWHI. Records indicate that over 60 historic shipwrecks lie in waters surrounding the islands, many of them historically and archeologically significant.[8]

[7] The term, "main Hawaiian Islands", is used throughout this proposal to refer to the islands of Hawaii, Maui, Oahu, Molokai, Nihau, Kauai, and Kahoolawe. These islands are the main populated islands of the Hawaiian Islands chain, with the exception of Kahoolawe, which is an uninhabited nature reserve. None of the main Hawaiian Islands are part of the Northwestern Hawaiian Islands.

[8] This figure does not include aircraft or vessels that were sunk in the Battle of Midway.

Traffic considerations

5 Container ships, bulk carriers, and tankers regularly transit the waters surrounding the NWHI. Although due to its remoteness, the exact route of vessels through this area is unknown, it appears that most traffic passes to the north of the island chain, following the great circle routes to and from ports on the west coast of North America and East Asia. Other trans-Pacific ships travelling from ports in Hawaii transit at least 100 miles south of the NWHI. Occasionally, vessels transiting from the south pass within the boundaries of the recently-proclaimed Monument. A preliminary analysis of vessel traffic patterns within the NWHI was conducted based on data collected by the World Meteorological Organization's Voluntary Observing Ships scheme. Under this scheme, geo-referenced data is collected from select non-research vessels that make frequent and regular crossings of all major ocean basins. While this scheme does not capture the all vessel traffic, during a 21-month study period in 2004 and 2005, approximately 132 vessels reported from within the proposed reporting area: 104 of these vessels were freighters, 8 were tankers, 4 were research vessels, 2 were passenger vessels, 2 were vessels used for educational purposes, 1 was a recreational vessel, 1 was a towing vessel with a 666 foot vessel in tow, and 10 were unidentified vessels. The 132 vessels were flagged in 23 different countries.

6 The most significant challenge to safe maritime navigation in the NWHI is the presence of seamounts, banks, shoals, and submerged and emerging coral reefs which pose significant hazards. Some features in the area create challenges for safe navigation due to their constantly changing size and shape and low elevations. In other islands, local magnetic disturbances have been observed with variations of as much as 33 degrees. Due to the isolation of the NWHI, little communication infrastructure exists and aids to navigation are limited to the area of Midway Atoll. Additionally, the area of the proposed PSSA is currently covered by mostly small scale charts, with the most recent surveys taking place since 2000 near known islands, reefs and atolls. Although modern hydrographic surveys by the University of Hawaii and satellite imagery of the area have allowed NOAA's Office of Coast Survey to correct the position of several of these features, many of the submerged banks and isolated features have yet to be updated or discovered. Establishing a ship reporting system will assist ships in navigating safely through this area.

Hydrographical and meteorological elements

7 The northeast trade winds prevail throughout the year, but westerly blows can be expected during the winter. The average velocity of the winds is 12 knots, with monthly averages of 16 knots in December and 9.5 knots in August. Gales have been experienced in July and September. Occasional heavy showers of short duration also occur, cutting visibility to about 2 miles. The NWHI experience annual high energy large wave events from five to over ten meters which approach largely from the northwest during the winter months. During this time, the average wave power increases substantially and extreme wave events of over ten meters pound the shallow water coral communities, thus posing a hazard to navigation.

Summary of measures being taken

8 This proposal for the establishment of a ship reporting system is an integral part of a proposal to identify the Papahānaumokuākea Marine National Monument as a PSSA. This ship reporting system, along with the United States proposal to amend and expand the six existing Areas To Be Avoided (NAV 53/3/4), constitute the associated protective measures to improve maritime safety,

help to protect the area proposed for PSSA designation from the risk of damage by international shipping activities, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. In preparing the PSSA proposal, the United States comprehensively reviewed the attributes of the proposed area, its vulnerability to damage by international shipping, and the most appropriate mechanism available through IMO to address the identified vulnerabilities. The establishment of this ship reporting system was determined to be an essential mechanism for achieving the objectives of PSSA designation. The United States submitted its PSSA proposal to the fifty-sixth session of the Marine Environment Protection Committee.

Proposal

9 This proposal to establish the ship reporting system, "CORAL SHIPREP", is critical to accomplishing the United States goals of improving maritime safety, protecting the fragile environment in this area, preserving cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitating a timely response to developing maritime emergencies. Given the unique, sensitive, and vulnerable resources in this area, as well as the vast expanse of sea and hazards to navigation, this reporting system will provide an important mechanism to achieve these goals.

10 The proposed boundaries of the ship reporting system have been carefully delineated. The 10 nautical mile wide band surrounding the Papahānaumokuākea Marine National Monument and proposed PSSA is essential to remind vessels of the existence of this important area before they enter it. Additionally, vessels will be reminded of the IMO-adopted ATBAs so that they will have sufficient time to comfortably alter their course to comply with them. It is recognized, of course, that a ship reporting system recognized by IMO cannot direct a ship to alter course and that the ATBAs are of a recommendatory nature only. Since it is proposed that vessels report when they enter and leave the reporting area, a vessel that chooses to navigate through an ATBA will also be recommended to report when it leaves the reporting area and enters the ATBA. This will allow the vessel to be reminded of the hazardous nature of navigation in this area as well as provide a mechanism to ascertain the vessel's approximate location, facilitating search, rescue, and response operations, if necessary. Thus, a vessel taking such route will be recommended to report four times: once when it enters the reporting area, once when it leaves the reporting area to enter the ATBA, once when it exits the ATBA and enters the reporting area on the other side of the ATBA, and once when it once again leaves the reporting area. The potential burden of reporting four times is justified by the navigation hazards that exist within the existing and proposed ATBAs. The reporting area also covers the three areas through the Monument that are not included within the ATBAs. The United States believes that these areas through the Monument provide the most preferable routes to transit the NWHI and thus the vessels using these areas will be recommended to report only twice, once when entering the reporting area and once when leaving.

11 In addition to the information on the existence and precise boundaries of the Papahānaumokuākea Marine National Monument (the proposed PSSA) and the ATBAs, the ship reporting system will also enable vessels to receive critical alerts and other important information about specific and urgent situations. Furthermore, it will result in increased knowledge of ship movements in the area, thus enhancing the safety of navigation by enabling a timely response to be launched to any developing maritime emergencies.

12 The attached annex contains the required elements to establish the ship reporting system, along with a chartlet and geographic coordinates of the proposed reporting area.

Action requested of the Sub-Committee

13 The Sub-Committee is asked to consider this proposal for establishment of a ship reporting system for the Papahānaumokuākea Marine National Monument, "CORAL SHIPREP", as set forth in the annex and forward the proposal to the Maritime Safety Committee for recognition. The effective date of implementation will be six months after recognition.

* * *

ANNEX

MSC DRAFT RESOLUTION
(recognized on October xx, 2007)

RECOGNITION OF THE SHIP REPORTING SYSTEM FOR THE PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT, "CORAL SHIPREP"

THE MARITIME SAFETY COMMITTEE,

RECALLING article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), in relation to the adoption of ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the guidelines and criteria for ship reporting systems adopted by MSC.43(64), as amended by MSC.111(73) and MSC.189(79),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its fifty-third session,

1. RECOGNIZES in accordance with SOLAS regulation V/11, the ship reporting system for the Papahānaumokuākea Marine National Monument, "CORAL SHIPREP",

2. AGREES that the ship reporting system, "CORAL SHIPREP", will enter into force at [0000] hours UTC on [April xx, 2008], and

3. REQUESTS the Secretary-General to bring this resolution and its annex to the attention of the Member Governments and Contracting Parties to the SOLAS Convention.

ANNEX

SHIP REPORTING SYSTEM
"CORAL SHIPREP"

1 Categories of ships

1.1 Ships required to participate in the system

1.1.1 All ships 300 gross tons or greater and all ships in the event of a developing emergency, and that are in transit through the reporting area and as a condition of entry to a United States port or place are required to participate in CORAL SHIPREP, except for sovereign immune vessels which are exempt under SOLAS, Chapter V, Regulation 1.

1.2 Ships recommended to participate in the system

1.2.1 All ships 300 gross tons or greater, fishing vessels, and all ships in the event of a developing emergency, and that are in transit through the reporting area are recommended to participate in CORAL SHIPREP.

2 Geographical coverage of the system and the number and edition of the reference chart used for the delineation of the system

2.1 The geographical coverage of CORAL SHIPREP is depicted in the chartlet in Annex 1 and the precise geographic coordinates are set forth in Annex 2.

2.2 The reference charts that include the ship reporting area are United States 19016 2007 edition, 19019 2007 edition, and 19022 2007 edition. These charts are based on World Geodetic System (WGS) 1984 and astronomic datum.

3 Format, content of reports, times and geographical positions for submitting reports, authorities to whom reports should[9] be sent, available services

3.1 *Format*

3.1.1 The ship report should be drafted in accordance with the format shown in paragraph 2 of the appendix to IMO Resolution A.851(20).

[9] For those ships that are required to report, the use of the word "should" in this Annex is to be read as "shall."

3.2 *Content*

3.2.1 The report for a ship entering the system should contain the following information:

System identifier: CORAL SHIPREP

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position
E or F	Course and speed of ship
I	Destination
L	Intended route through the reporting area
O	Vessel draft
P	General categories of hazardous cargo on board
Q or R	Defects or deficiencies, if relevant
T	Contact information of ship's agent or owner
U	Ship size and type (e.g., length, tonnage, and type)
W	Total number of persons on board

3.2.2 The report for a ship leaving the system should contain the following information:

System identifier: CORAL SHIPREP

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position

3.2.3 A ship may elect, for reasons of commercial confidentiality, to communicate that section of the report which provides information on general categories of hazardous cargo by non-verbal means prior to entering the reporting area.

3.3 *Geographical positions for submitting reports*

3.3.1 Each ship should submit a full report in accordance with paragraph 3.2.1 as soon as it crosses the boundary to enter the ship reporting system.

3.3.2 Each ship should submit a report in accordance with paragraph 3.2.2 as soon as it crosses the boundary to leave the ship reporting system.

3.3.3 Further reports should be made whenever there is a change in navigation status or circumstances, particularly in relation to item Q of the reporting format.

3.4 *Authority to who reports should be sent*

3.4.1 The shore-based authority is the United States Coast Guard's Communication Area Master Station Pacific (CAMSPAC). For ships 300 gross tons and greater, an e-mail address to be used for reporting through INMARSAT-C will be provided in advance of implementation of this system through Notices to Mariners. In the event of a developing emergency, ships are urged to call the United States Coast Guard 14th District. Vessels unable to report in through INMARSAT-C should report to nwhi.notification@noaa.gov.

4 Information to be provided to ship and procedures to be followed

4.1 The CORAL SHIPREP Shore-based Authority will provide critical alerts and information to shipping about specific and urgent situations and other information that may affect safety of navigation within the IMO-adopted Areas To Be Avoided and the Papahānaumokuākea Marine National Monument[10], as well as remind ships about the existence of the IMO-adopted Areas To Be Avoided [and necessity of navigating with extreme caution through the Particularly Sensitive Sea Area].[11]

4.2 Navigational warnings and emergency broadcasts will be issued as NAVTEX messages or specifically directed at GMDSS equipped vessels using INMARSAT-C.

5 Communication required for the system and frequencies on which reports should be transmitted

5.1 This system will be based on INMARSAT-C and an e-mail and ships equipped with such capabilities should report through INMARSAT-C.

5.2 In the event of a developing emergency, a ship is urged to call United States Coast Guard 14th District at 808-541-2500 to request a response and assistance.

5.3 For vessels unable to communicate through INMARSAT-C, reports should be made prior to, during, or after transiting through the reporting area to nwhi.notification@noaa.gov.

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[10] The words "Particularly Sensitive Sea Area" should be added here after final action is taken by MEPC.

[11] This language will have to be updated after final action is taken by MEPC.

5.4 Commercially sensitive information will be kept confidential and should be transmitted prior to entry into the reporting system. Such information may be sent to nwhi.notification@noaa.gov.

5.5 The language used for reports to the system should be English, employing the IMO *Standard Marine Communications Phrases*, where necessary.

5.6 Communications associated with CORAL SHIPREP are, in accordance with SOLAS Chapter V, Regulation 11, free of charge to affected vessels.

6 Rules and regulations in force in the area of the system

6.1 *International actions*

6.1.1 The United States has taken appropriate action to implement the international conventions to which it is party including, where appropriate, enacting domestic legislation and promulgating regulations. Relevant laws in force include domestic legislation and regulations to implement the Convention on International Regulations for Preventing Collisions at Sea, 1972, as amended; the International Convention for the Safety of Life at Sea, 1974, as amended; the International Convention for the Prevention of Pollution from Ships, 1973/1978, as amended; the International Convention on Oil Pollution, Preparedness, Response and Co-operation 1990; the International Convention on Maritime Search and Rescue, 1979, as amended; and the Convention on the International Trade in Endangered Species of Wild Fauna and Flora, 1973.

6.1.2 In recognition of the fragile environment in this area and potential hazards to navigation, the IMO has adopted several Areas To Be Avoided to protect the North-western Hawaiian Islands [and has designated the area as a Particularly Sensitive Sea Areas where mariners should navigate with extreme caution].[12]

6.1.3 The United States applies its laws in accordance with international law, which includes navigational rights under customary international law as reflected in the United Nations Convention on the Law of the Sea. No restrictions shall apply to or be enforced against foreign flagged vessels unless in accordance with such law.

6.2 *Domestic Actions*

6.2.1 The United States has taken considerable action to ensure maritime safety and to protect the fragile environment and cultural resources and areas of cultural importance significant to Native Hawaiians in the NWHI. This area has been the subject of a variety of protective measures, beginning in 1909 when then President Theodore Roosevelt recognized the islands' importance as a seabird nesting ground. Most recently, in June 2006, President George Bush proclaimed this area as the North-western Hawaiian Islands Marine National

[12] This language will have to be updated after final action is taken by MEPC.

Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) in recognition of its fragility and to protect the many species of coral, fish, birds, marine mammals, and other flora and fauna, including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles as well as to protect historical and archaeological heritage resources, including cultural resources and areas of significant importance to Native Hawaiians.

6.2.2 The June 15, 2006 Presidential Proclamation and codifying regulations prohibit taking, possessing, injuring, or disturbing any resource; altering the seabed; anchoring or deserting a vessel; and possessing fishing gear unless stowed. All of these activities may be allowed by permit; however, permits cannot be issued for such things as releasing an introduced species. The Proclamation also prohibits such activities as discharging or depositing any material into the Monument, or discharging or depositing any material outside the Monument that subsequently injures Monument resources, except discharges incidental to vessel use, such as approved marine sanitation device effluent, cooling water, and engine exhaust. The Proclamation also requires the complete phase-out of commercial fishing in the Monument within five years. Subject to the international law point noted above in paragraph 6.1.3, the United States strictly regulates entry into the Monument and, for those vessels subject to United States jurisdiction, requires the mandatory use of vessel monitoring systems on those vessels that may be allowed into the Monument for specific purposes.

7 Shore-based facilities to support operation of the system

7.1 The shore-based authority is the United States Coast Guard's Communications Area Master Station Pacific (CAMSPAC). CAMSPAC provides maritime distress communication services and safety and weather broadcasts to commercial and recreational mariners, and also provides secure voice communications and record message delivery services for all United States Coast Guard cutters, aircraft, and shore units. Additionally, CAMSPAC is one of the United States Coast Guard's Pacific Area's (PACAREA) Continuity of Operations sites. CAMSPAC delivers contingency and interagency communication services for Incident Commanders by deploying a state-of-the-art transportable communications centre. CAMSPAC is the Operational Commander of the United States Coast Guard's Pacific Area Communications System, consisting of communication stations in Honolulu Hawaii, Kodiak Alaska, and remote facilities in Guam. There are approximately 150 people assigned to CAMSPAC.

7.2 CORAL SHIPREP will use INMARSAT-C communications equipment. A computer server handles and sorts incoming reports and sends the return message. Incoming reports are text messages that arrive via either internet e-mail or telex. When the ship reporting system server receives a report, the server sends the ship a specific return message. Area coordinators will monitor and update the information to the server for inclusion in the outgoing message.

8 Alternative communication if the shore-based facilities fail

8.1 NAVTEX Broadcast Notice to Mariners may be used to notify mariners of the temporary failure of the system and can provide mariners with basic information necessary to navigate safely through this area.

8.2 For those ships reporting through INMARSAT-C, the standard protocol now used for such systems will be used to re-route incoming and outgoing communications through an alternative address and it is expected that this will minimize the system's downtime, though a short delay may occur.

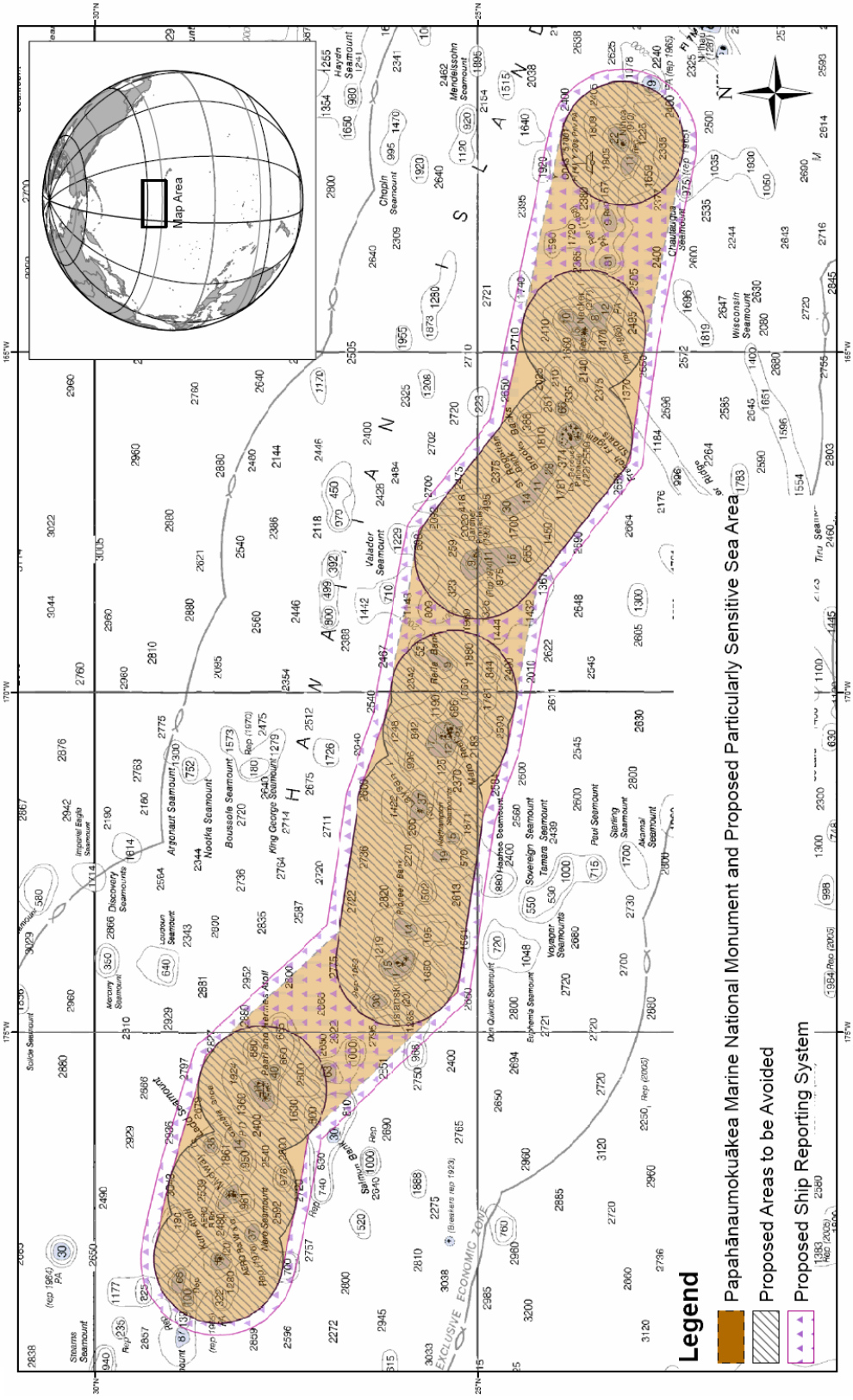
9 Measures to be taken if a ship does not report

9.1.1 The primary objective of the system is to increase maritime safety, protect the environment, preserve cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies. All means will be used to encourage and promote the full participation of the ships recommended to submit reports.

9.1.2 If reports are not submitted by those ships required to report and the ship can be positively identified, appropriate action will be taken – including interaction with the flag State – in accordance with customary international law as reflected in the 1982 United Nations Convention on the Law of the Sea.

ANNEX 1

CHARTLET



ANNEX 2

GEOGRAPHIC CO-ORDINATES

SHIP REPORTING SYSTEM

(Reference chart: United States 19016, 2007 edition; 19019, 2007 edition; 19022, 2007 edition. These charts are based on World Geodetic Survey (WGS) 1984 and astronomic datum.)

1. Outer Boundary

Point	**LATITUDE**	**LONGITUDE**
1	29°25'.47 N	178°16'.97 W
2	28°43'.73 N	175°13'.84 W
3	27°00'.77 N	173°25'.78 W
4	26°44'.91 N	171°28'.07 W
5	26°24'.23 N	170°20'.59 W
6	25°56'.43 N	167°32'.10 W
7	24°50'.20 N	165°58'.69 W
8	24°05'.52 N	161°56'.86 W
9	24°05'.29 N	161°56'.62 W
10	24°04'.37 N	161°51'.53 W
11	24°03'.44 N	161°46'.45 W
12	24°02'.41 N	161°41'.39 W
13	24°01'.31 N	161°36'.35 W
14	23°59'.68 N	161°31'.55 W
15	23°57'.85 N	161°26'.85 W
16	23°55'.54 N	161°22'.31 W
17	23°52'.96 N	161°17'.92 W
18	23°50'.12 N	161°13'.72 W
19	23°46'.94 N	161°10'.08 W
20	23°43'.49 N	161°06'.47 W
21	23°39'.71 N	161°03'.09 W
22	23°35'.72 N	161°00'.14 W
23	23°31'.59 N	160°57'.46 W
24	23°27'.32 N	160°55'.23 W
25	23°22'.74 N	160°53'.71 W
26	23°18'.29 N	160°52'.17 W
27	23°13'.57 N	160°51'.04 W
28	23°08'.68 N	160°50'.46 W
29	23°03'.70 N	160°50'.17 W
30	22°58'.67 N	160°50'.35 W
31	22°53'.84 N	160°51'.04 W
32	22°49'.11 N	160°52'.20 W
33	22°44'.46 N	160°53'.56 W
34	22°40'.03 N	160°55'.52 W
35	22°35'.73 N	160°57'.68 W
36	22°31'.54 N	161°00'.25 W
37	22°27'.57 N	161°03'.23 W
38	22°23'.76 N	161°06'.64 W
39	22°20'.24 N	161°10'.23 W
40	22°17'.02 N	161°14'.13 W
41	22°14'.04 N	161°18'.34 W
42	22°11'.35 N	161°22'.80 W
43	22°09'.19 N	161°27'.45 W
44	22°07'.29 N	161°32'.11 W
45	22°05'.87 N	161°36'.94 W
46	22°04'.62 N	161°41'.89 W
47	22°03'.94 N	161°47'.09 W
48	22°03'.41 N	161°52'.36 W
49	22°03'.41 N	161°57'.51 W
50	22°03'.82 N	162°02'.83 W
51	22°04'.49 N	162°08'.04 W
52	22°05'.43 N	162°13'.12 W
53	22°05'.97 N	162°16'.41 W
54	22°06'.29 N	162°16'.85 W
55	22°34'.57 N	164°47'.27 W
56	22°47'.60 N	166°38'.23 W
57	24°03'.82 N	168°27'.91 W
58	24°25'.76 N	170°45'.39 W
59	24°46'.54 N	171°53'.03 W
60	25°07'.60 N	174°28'.71 W
61	27°05'.82 N	176°35'.51 W
62	27°27'.32 N	178°38'.66 W
63	27°28'.93 N	178°43'.56 W
64	27°30'.64 N	178°48'.40 W
65	27°32'.74 N	178°52'.96 W

66	27°35'.06 N	178°57'.30 W
67	27°37'.89 N	179°01'.49 W
68	27°40'.90 N	179°05'.60 W
69	27°44'.17 N	179°09'.41 W
70	27°47'.74 N	179°12'.85 W
71	27°51'.45 N	179°16'.00 W
72	27°55'.32 N	179°18'.82 W
73	27°59'.33 N	179°21'.13 W
74	28°03'.49 N	179°23'.15 W
75	28°07'.82 N	179°24'.76 W
76	28°12'.31 N	179°26'.18 W
77	28°16'.95 N	179°27'.05 W
78	28°21'.61 N	179°27'.63 W
79	28°26'.18 N	179°27'.77 W
80	28°30'.87 N	179°27'.48 W
81	28°35'.61 N	179°26'.95 W
82	28°40'.09 N	179°25'.75 W
83	28°44'.46 N	179°24'.31 W
84	28°48'.70 N	179°22'.50 W
85	28°52'.81 N	179°20'.43 W
86	28°56'.71 N	179°17'.77 W
87	29°00'.58 N	179°14'.92 W
88	29°04'.18 N	179°11'.69 W
89	29°07'.62 N	179°08'.20 W
90	29°10'.86 N	179°04'.37 W
91	29°13'.76 N	179°00'.21 W
92	29°16'.24 N	178°55'.78 W
93	29°18'.51 N	178°51'.26 W
94	29°20'.45 N	178°46'.50 W
95	29°22'.26 N	178°41'.67 W
96	29°23'.52 N	178°36'.64 W
97	29°24'.53 N	178°31'.54 W
98	29°25'.16 N	178°26'.31 W
99	29°25'.42 N	178°20'.92 W
100	29°25'.29 N	178°16'.70 W

2. Inner Boundary Around Kure Atoll, Midway Atoll, and Pearl and Hermes Atoll

Point	**LATITUDE**	**LONGITUDE**
1	27°14'.76 N	176°29'.87 W
2	27°24'.95 N	177°33'.31 W
3	27°35'.87 N	178°29'.90 W
4	27°36'.64 N	178°33'.93 W
5	27°37'.53 N	178°37'.32 W
6	27°38'.60 N	178°40'.65 W
7	27°39'.85 N	178°43'.90 W
8	27°41'.28 N	178°47'.05 W
9	27°42'.89 N	178°50'.10 W
10	27°44'.66 N	178°53'.03 W
11	27°46'.59 N	178°55'.83 W
12	27°48'.67 N	178°58'.49 W
13	27°50'.89 N	179°01'.00 W
14	27°53'.22 N	179°03'.39 W
15	27°55'.69 N	179°05'.61 W
16	27°58'.29 N	179°07'.61 W
17	28°01'.01 N	179°09'.47 W
18	28°03'.81 N	179°11'.10 W
19	28°06'.71 N	179°12'.53 W
20	28°09'.67 N	179°13'.75 W
21	28°12'.70 N	179°14'.75 W
22	28°15'.78 N	179°15'.54 W
23	28°18'.91 N	179°16'.11 W
24	28°22'.04 N	179°16'.45 W
25	28°24'.72 N	179°16'.56 W
26	28°25'.20 N	179°16'.57 W
27	28°25'.81 N	179°16'.56 W
28	28°28'.35 N	179°16'.44 W
29	28°31'.49 N	179°16'.10 W
30	28°34'.61 N	179°15'.54 W
31	28°37'.69 N	179°14'.75 W
32	28°40'.71 N	179°13'.74 W
33	28°43'.68 N	179°12'.54 W
34	28°46'.58 N	179°11'.13 W
35	28°49'.39 N	179°09'.52 W
36	28°52'.11 N	179°07'.70 W
37	28°54'.72 N	179°05'.70 W
38	28°57'.21 N	179°03'.51 W
39	28°59'.58 N	179°01'.15 W
40	29°01'.81 N	178°58'.62 W
41	29°03'.90 N	178°55'.93 W
42	29°05'.83 N	178°53'.10 W
43	29°07'.60 N	178°50'.13 W
44	29°09'.21 N	178°47'.04 W
45	29°10'.64 N	178°43'.84 W
46	29°11'.89 N	178°40'.54 W
47	29°12'.95 N	178°37'.16 W
48	29°13'.82 N	178°33'.71 W
49	29°14'.50 N	178°30'.21 W
50	29°14'.99 N	178°26'.66 W
51	29°15'.28 N	178°23'.08 W
52	29°15'.36 N	178°19'.49 W
53	29°15'.25 N	178°15'.90 W
54	29°14'.94 N	178°12'.32 W
55	29°14'.43 N	178°08'.78 W

56	29°03'.47 N	177°12'.07 W
57	29°02'.55 N	177°07'.29 W
58	28°38'.96 N	175°35'.47 W
59	28°38'.67 N	175°34'.35 W
60	28°34'.91 N	175°19'.74 W
61	28°26'.24 N	175°10'.65 W
62	28°24'.61 N	175°08'.95 W
63	28°24'.53 N	175°09'.04 W
64	28°20'.09 N	175°04'.91 W
65	28°16'.05 N	175°01'.92 W
66	28°11'.78 N	174°59'.33 W
67	28°07'.29 N	174°57'.23 W
68	28°02'.63 N	174°55'.68 W
69	27°57'.84 N	174°54'.62 W
70	27°53'.01 N	174°54'.05 W
71	27°48'.12 N	174°54'.05 W
72	27°43'.28 N	174°54'.62 W
73	27°38'.48 N	174°55'.71 W
74	27°33'.81 N	174°57'.32 W
75	27°29'.30 N	174°59'.43 W
76	27°25'.00 N	175°02'.03 W
77	27°20'.93 N	175°05'.07 W
78	27°17'.18 N	175°08'.59 W
79	27°13'.73 N	175°12'.47 W
80	27°10'.59 N	175°16'.67 W
81	27°07'.88 N	175°21'.25 W
82	27°05'.57 N	175°26'.09 W
83	27°03'.66 N	175°31'.15 W
84	27°02'.22 N	175°36'.40 W
85	27°01'.29 N	175°41'.78 W
86	27°00'.73 N	175°47'.22 W
87	27°00'.68 N	175°52'.74 W
88	27°01'.09 N	175°58'.16 W
89	27°01'.99 N	176°03'.53 W
90	27°03'.34 N	176°08'.81 W
91	27°05'.12 N	176°13'.91 W
92	27°07'.37 N	176°18'.79 W
93	27°09'.98 N	176°23'.40 W
94	27°13'.02 N	176°27'.74 W
95	27°13'.77 N	176°28'.70 W

3. Inner Boundary Around Lisianski Island, Laysan Island, Maro Reef, and Raita Bank

Point	**LATITUDE**	**LONGITUDE**
1	26°50'.89 N	173°30'.79 W
2	26°36'.00 N	171°37'.70 W
3	26°35'.49 N	171°33'.84 W
4	26°35'.10 N	171°30'.84 W
5	26°34'.07 N	171°27'.50 W
6	26°33'.35 N	171°25'.16 W
7	26°14'.26 N	170°23'.04 W
8	26°08'.69 N	169°48'.96 W
9	26°08'.36 N	169°49'.03 W
10	26°07'.62 N	169°45'.83 W
11	26°06'.03 N	169°40'.57 W
12	26°03'.97 N	169°35'.64 W
13	26°01'.51 N	169°30'.91 W
14	25°58'.65 N	169°26'.45 W
15	25°55'.32 N	169°22'.34 W
16	25°51'.67 N	169°18'.60 W
17	25°47'.78 N	169°15'.19 W
18	25°43'.54 N	169°12'.34 W
19	25°39'.05 N	169°09'.93 W
20	25°34'.37 N	169°08'.08 W
21	25°29'.54 N	169°06'.76 W
22	25°24'.61 N	169°05'.93 W
23	25°19'.63 N	169°05'.64 W
24	25°14'.65 N	169°05'.93 W
25	25°09'.69 N	169°06'.66 W
26	25°04'.85 N	169°08'.02 W
27	25°00'.17 N	169°09'.96 W
28	24°55'.66 N	169°12'.35 W
29	24°51'.35 N	169°15'.14 W
30	24°47'.37 N	169°18'.48 W
31	24°43'.69 N	169°22'.22 W
32	24°40'.34 N	169°26'.31 W
33	24°37'.42 N	169°30'.78 W
34	24°35'.00 N	169°35'.64 W
35	24°33'.02 N	169°40'.66 W
36	24°31'.34 N	169°45'.88 W
37	24°30'.31 N	169°51'.08 W
38	24°29'.68 N	169°56'.53 W
39	24°29'.56 N	170°01'.81 W
40	24°29'.61 N	170°04'.57 W
41	24°35'.77 N	170°44'.39 W
42	24°36'.29 N	170°47'.58 W
43	24°37'.18 N	170°50'.37 W

44	24°37'.76 N	170°52'.17 W
45	24°56'.23 N	171°50'.19 W
46	25°16'.61 N	174°24'.84 W
47	25°29'.56 N	174°38'.45 W
48	25°33'.28 N	174°42'.03 W
49	25°37'.33 N	174°45'.20 W
50	25°41'.68 N	174°47'.84 W
51	25°46'.23 N	174°50'.05 W
52	25°50'.93 N	174°51'.77 W
53	25°55'.80 N	174°52'.91 W
54	26°00'.71 N	174°53'.47 W
55	26°05'.67 N	174°53'.61 W
56	26°10'.59 N	174°53'.07 W
57	26°15'.46 N	174°52'.08 W
58	26°20'.20 N	174°50'.57 W
59	26°24'.75 N	174°48'.44 W
60	26°29'.15 N	174°45'.94 W
61	26°33'.26 N	174°42'.96 W
62	26°37'.11 N	174°39'.49 W
63	26°40'.60 N	174°35'.63 W
64	26°43'.75 N	174°31'.43 W
65	26°46'.49 N	174°26'.87 W
66	26°48'.90 N	174°22'.09 W
67	26°50'.79 N	174°17'.03 W
68	26°52'.20 N	174°11'.79 W
69	26°53'.21 N	174°06'.43 W
70	26°53'.74 N	174°00'.98 W
71	26°53'.74 N	173°55'.48 W
72	26°53'.29 N	173°50'.02 W
73	26°52'.56 N	173°44'.58 W
74	26°51'.85 N	173°39'.14 W
75	26°51'.13 N	173°33'.69 W
76	26°50'.75 N	173°30'.87 W

4. Inner Boundary Around Gardner Pinnacles, French Frigate Shoals, and Necker Island

Point	**LATITUDE**	**LONGITUDE**
1	25°49'.64 N	167°52'.66 W
2	25°49'.70 N	167°52'.65 W
3	25°48'.99 N	167°48'.35 W
4	25°47'.09 N	167°36'.72 W
5	25°39'.84 N	167°26'.48 W
6	25°35'.10 N	167°19'.79 W
7	25°10'.43 N	166°45'.00 W
8	24°40'.91 N	166°03'.36 W
9	24°35'.64 N	165°34'.99 W
10	24°23'.78 N	164°31'.12 W
11	24°23'.59 N	164°31'.14 W
12	24°23'.31 N	164°29'.74 W
13	24°21'.85 N	164°24'.52 W
14	24°20'.10 N	164°19'.39 W
15	24°17'.75 N	164°14'.56 W
16	24°14'.99 N	164°09'.97 W
17	24°11'.86 N	164°05'.69 W
18	24°08'.30 N	164°01'.80 W
19	24°04'.48 N	163°58'.23 W
20	24°00'.27 N	163°55'.22 W
21	23°55'.85 N	163°52'.59 W
22	23°51'.17 N	163°50'.56 W
23	23°46'.33 N	163°48'.98 W
24	23°41'.37 N	163°47'.99 W
25	23°36'.34 N	163°47'.56 W
26	23°31'.27 N	163°47'.60 W
27	23°26'.27 N	163°48'.28 W
28	23°21'.34 N	163°49'.50 W
29	23°16'.53 N	163°51'.14 W
30	23°11'.96 N	163°53'.47 W
31	23°07'.54 N	163°56'.15 W
32	23°03'.46 N	163°59'.38 W
33	22°59'.65 N	164°03'.01 W
34	22°56'.27 N	164°07'.10 W
35	22°53'.22 N	164°11'.49 W
36	22°50'.60 N	164°16'.18 W
37	22°48'.48 N	164°21'.16 W
38	22°46'.73 N	164°26'.28 W
39	22°45'.49 N	164°31'.60 W
40	22°44'.83 N	164°37'.03 W
41	22°44'.65 N	164°42'.51 W
42	22°44'.92 N	164°47'.99 W
43	22°45'.11 N	164°49'.52 W
44	22°45'.39 N	164°51'.48 W
45	22°45'.17 N	164°51'.53 W
46	22°50'.26 N	165°34'.99 W
47	22°55'.50 N	166°19'.63 W
48	22°55'.93 N	166°23'.32 W
49	22°57'.41 N	166°36'.00 W

50	23°03'.75 N	166°45'.00 W
51	23°05'.48 N	166°47'.45 W
52	24°12'.70 N	168°22'.86 W
53	24°12'.88 N	168°22'.78 W
54	24°16'.05 N	168°27'.28 W
55	24°19'.15 N	168°31'.66 W
56	24°22'.27 N	168°35'.95 W
57	24°25'.71 N	168°39'.94 W
58	24°29'.51 N	168°43'.55 W
59	24°33'.67 N	168°46'.63 W
60	24°38'.06 N	168°49'.29 W
61	24°42'.68 N	168°51'.46 W
62	24°47'.45 N	168°53'.12 W
63	24°52'.34 N	168°54'.28 W
64	24°57'.32 N	168°54'.82 W
65	25°02'.32 N	168°54'.95 W
66	25°07'.30 N	168°54'.43 W
67	25°12'.19 N	168°53'.32 W
68	25°16'.99 N	168°51'.76 W
69	25°21'.57 N	168°49'.60 W
70	25°25'.94 N	168°46'.93 W
71	25°30'.09 N	168°43'.86 W
72	25°33'.89 N	168°40'.42 W
73	25°37'.37 N	168°36'.52 W
74	25°40'.49 N	168°32'.24 W
75	25°43'.24 N	168°27'.68 W
76	25°45'.57 N	168°22'.82 W
77	25°47'.43 N	168°17'.76 W
78	25°48'.79 N	168°12'.47 W
79	25°49'.72 N	168°07'.09 W
80	25°50'.11 N	168°01'.62 W
81	25°50'.18 N	168°00'.09 W

5. Inner Boundary Around Nihoa Island

Point	**LATITUDE**	**LONGITUDE**
1	23°52'.82 N	161°44'.54 W
2	23°52'.10 N	161°41'.20 W
3	23°51'.18 N	161°37'.92 W
4	23°50'.08 N	161°34'.71 W
5	23°48'.79 N	161°31'.58 W
6	23°47'.33 N	161°28'.55 W
7	23°45'.69 N	161°25'.62 W
8	23°43'.88 N	161°22'.81 W
9	23°41'.92 N	161°20'.13 W
10	23°39'.80 N	161°17'.60 W
11	23°37'.54 N	161°15'.21 W
12	23°35'.14 N	161°12'.99 W
13	23°32'.62 N	161°10'.93 W
14	23°29'.99 N	161°09'.05 W
15	23°27'.25 N	161°07'.35 W
16	23°24'.42 N	161°05'.85 W
17	23°21'.51 N	161°04'.54 W
18	23°18'.52 N	161°03'.43 W
19	23°15'.48 N	161°02'.53 W
20	23°12'.39 N	161°01'.84 W
21	23°09'.27 N	161°01'.35 W
22	23°06'.13 N	161°01'.09 W
23	23°02'.97 N	161°01'.03 W
24	22°59'.82 N	161°01'.19 W
25	22°56'.69 N	161°01'.57 W
26	22°53'.58 N	161°02'.15 W
27	22°50'.51 N	161°02'.95 W
28	22°47'.50 N	161°03'.95 W
29	22°44'.55 N	161°05'.15 W
30	22°41'.67 N	161°06'.54 W
31	22°38'.88 N	161°08'.13 W
32	22°36'.19 N	161°09'.90 W
33	22°33'.61 N	161°11'.85 W
34	22°31'.14 N	161°13'.97 W
35	22°28'.81 N	161°16'.25 W
36	22°26'.61 N	161°18'.69 W
37	22°24'.56 N	161°21'.26 W
38	22°22'.66 N	161°23'.97 W
39	22°20'.92 N	161°26'.80 W
40	22°19'.35 N	161°29'.74 W
41	22°17'.95 N	161°32'.78 W
42	22°16'.73 N	161°35'.90 W
43	22°15'.70 N	161°39'.10 W
44	22°14'.85 N	161°42'.37 W
45	22°14'.20 N	161°45'.68 W
46	22°13'.73 N	161°49'.03 W
47	22°13'.47 N	161°52'.41 W
48	22°13'.40 N	161°55'.80 W
49	22°13'.53 N	161°59'.18 W
50	22°13'.85 N	162°02'.55 W
51	22°14'.31 N	162°05'.45 W
52	22°14'.37 N	162°05'.89 W
53	22°14'.59 N	162°06'.88 W
54	22°15'.87 N	162°12'.18 W
55	22°17'.70 N	162°17'.31 W

56	22°19'.97 N	162°22'.20 W
57	22°22'.73 N	162°26'.84 W
58	22°25'.88 N	162°31'.15 W
59	22°29'.41 N	162°35'.09 W
60	22°33'.28 N	162°38'.61 W
61	22°37'.47 N	162°41'.72 W
62	22°41'.93 N	162°44'.34 W
63	22°46'.63 N	162°46'.47 W
64	22°51'.48 N	162°48'.05 W
65	22°56'.46 N	162°49'.09 W
66	23°01'.50 N	162°49'.58 W
67	23°06'.58 N	162°49'.49 W
68	23°11'.61 N	162°48'.89 W
69	23°16'.57 N	162°47'.70 W
70	23°21'.36 N	162°45'.98 W
71	23°26'.02 N	162°43'.75 W
72	23°30'.40 N	162°41'.01 W
73	23°34'.51 N	162°37'.83 W
74	23°38'.26 N	162°34'.18 W
75	23°41'.69 N	162°30'.18 W
76	23°44'.72 N	162°25'.79 W
77	23°47'.36 N	162°21'.11 W
78	23°49'.55 N	162°16'.16 W
79	23°51'.24 N	162°10'.99 W
80	23°52'.44 N	162°05'.63 W
81	23°53'.14 N	162°00'.25 W
82	23°53'.36 N	161°54'.75 W
83	23°53'.09 N	161°49'.28 W
84	23°52'.82 N	161°47'.09 W
85	23°52'.39 N	161°44'.67 W