

Action Plans to Address Priority Management Needs

- 3.1 Understanding and Interpreting the NWHI**
 - 3.2 Conserving Wildlife and Habitats**
 - 3.3 Reducing Threats to Monument Resources**
 - 3.4 Managing Human Uses**
 - 3.5 Coordinating Conservation and Management Activities**
 - 3.6 Achieving Effective Monument Operations**
-

1 **3.0 Action Plans to Address Priority Management Needs**

2
3 The Monument Management Plan contains 22 Action Plans organized under six priority
4 management needs. Each action plan is guided by a desired outcome, a specific need for action,
5 and strategies and associated activities designed to achieve that need over a 15-year period with
6 5-year reviews.

7
8 The strategies and activities described in each Action Plan were developed based on the current
9 state of knowledge on the most appropriate management measures. Estimated costs to
10 implement the Monument Management Plan are provided in Table 3.1 by Action Plan. The cost
11 of administration and planning, field, and infrastructure development activities was estimated
12 and combined for all agencies responsible for management of the Monument.

13
14 The total estimated cost to implement the Monument Management Plan over the next 15 years is
15 \$355,218,480. Roughly one-quarter of this amount are costs identified in section 3.6.3,
16 Coordinated Field Operations. Most of the Coordinated Field Operations costs would be
17 allocated to one time infrastructure development activities designed to replace or enhance
18 supporting infrastructure at existing field stations, rehabilitation of historic buildings at Midway,
19 and increase transportation and enforcement assets Monumentwide.

20
21 This Monument Management Plan provides long-term guidance for management decisions over
22 a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those
23 outcomes, including the agencies' best estimate of future needs. These are sometimes
24 substantially above current budget allocations and are included primarily for agency strategic
25 planning and program prioritization purposes. Neither this draft nor the subsequent final plan
26 constitutes a commitment of funds, or a commitment to request funds, by Federal or State
27 agencies. All funding for current and possible future Monument activities is subject to the
28 budgeting and appropriations processes of the Federal and State governments.

29
30 After 5 years, the Monument Management Plan will be reviewed, incorporating lessons learned
31 and new data and information from monitoring, ecosystem science, and traditional knowledge,
32 and a comprehensive evaluation to develop or refine management strategies and actions.

1

Table 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year

Priority Management Need	Action Plan	Estimated Annual Cost							PMN Total	% of Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yrs 6-10	Yr 11-15		
Understanding and Interpreting the NWHI	3.1.1 - Marine Conservation Science	\$12,212,725	\$7,176,000	\$7,571,102	\$7,715,012	\$8,037,820	\$9,085,989	\$10,221,737	\$77,385,114	22%
	3.1.2 - Native Hawaiian Culture and History	\$392,244	\$590,261	\$556,599	\$603,914	\$613,188	\$733,277	\$873,808		
	3.1.3 - Historic Resources	\$692,285	\$736,296	\$787,952	\$827,326	\$867,493	\$2,106,913	\$1,556,014		
	3.1.4 - Maritime Heritage	\$364,011	\$383,035	\$412,626	\$430,122	\$480,403	\$583,894	\$773,067		
Conserving Wildlife and Habitats	3.2.1 - Threatened and Endangered Species	\$5,907,989	\$5,662,799	\$5,793,855	\$6,176,022	\$6,564,815	\$7,690,332	\$8,651,624	\$75,890,917	21%
	3.2.2 - Migratory Bird	\$1,876,886	\$1,943,362	\$2,012,385	\$2,211,292	\$2,381,961	\$2,960,635	\$3,246,340		
	3.2.3 - Habitat Management and Conservation	\$1,309,598	\$1,359,670	\$1,407,011	\$1,650,612	\$2,037,429	\$2,374,730	\$2,671,571		

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Table 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year

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		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yrs 6-10	Yr 11-15		
Reducing Threats to the Ecosystem	3.3.1 - Marine Debris	\$1,606,097	\$1,480,770	\$1,862,218	\$1,808,975	\$2,158,530	\$2,471,537	\$2,780,229	\$41,237,446	12%
	3.3.2 - Alien Species	\$1,637,103	\$1,538,700	\$1,754,562	\$2,191,818	\$2,296,067	\$8,193,403	\$3,067,336		
	3.3.3 - Maritime Transportation and Aviation	\$297,324	\$296,285	\$265,592	\$290,264	\$281,121	\$316,261	\$355,794		
	3.3.4 - Emergency Response and Natural Resource Damage Assessment	\$532,898	\$531,087	\$561,755	\$582,483	\$606,759	\$692,931	\$779,547		
Managing Human Uses	3.4.1 - Permitting	\$843,611	\$788,642	\$750,839	\$766,012	\$815,317	\$917,232	\$1,031,886	\$26,593,569	7%
	3.4.2 - Enforcement	\$1,230,450	\$1,223,874	\$1,658,350	\$1,681,637	\$1,715,887	\$1,930,373	\$2,171,670		
	3.4.3 - Midway Atoll Visitor Services	\$868,395	\$1,090,763	\$1,140,574	\$1,291,051	\$1,305,934	\$1,586,386	\$1,784,684		
Coordinating Conservation and	3.5.1 - Agency Coordination	\$578,029	\$608,845	\$669,756	\$597,727	\$600,966	\$676,086	\$760,597	\$26,695,715	8%

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Management Activities	3.5.2 - Constituency Building and Outreach	\$1,163,068	\$1,527,334	\$1,448,710	\$1,359,120	\$1,431,473	\$1,658,847	\$1,865,578		
	3.5.3 - Native Hawaiian Community Involvement	\$272,800	\$282,856	\$311,319	\$322,790	\$354,005	\$419,976	\$496,909		
	3.5.4 - Ocean Ecosystems Literacy	\$1,037,593	\$1,045,054	\$1,241,202	\$1,278,892	\$1,271,596	\$1,560,868	\$1,853,719		
Achieving Effective Monument Operations	3.6.1 - Central Operations	\$933,000	\$976,260	\$1,365,116	\$1,211,354	\$1,374,602	\$1,611,589	\$1,886,344	\$107,415,720	30%
	3.6.2 - Information Management	\$843,350	\$985,745	\$1,089,193	\$1,106,350	\$1,153,712	\$1,297,926	\$1,460,167		
	3.6.3 - Coordinated Field Operations	\$2,746,185	\$6,876,156	\$15,832,853	\$5,734,067	\$10,850,138	\$28,038,706	\$16,454,795		
	3.6.4 - Evaluation	\$259,800	\$319,016	\$328,586	\$347,396	\$760,700	\$740,053	\$832,559		
Total Annual Cost		\$37,605,441	\$37,422,809	\$48,822,157	\$40,184,236	\$47,959,916	\$77,647,945	\$65,575,976		
Total 15-Year Estimated Cost								\$355,218,480		

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. Neither this draft nor the subsequent final plan constitutes a commitment of funds, or a commitment to request funds, by Federal or State agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the Federal and State governments.

3.1 Understanding and Interpreting the NWHI

3.1.1 Marine Conservation Science Action Plan

3.1.2 Native Hawaiian Culture and History Action Plan

3.1.3 Historic Resources Action Plan

3.1.4 Maritime Heritage Action Plan

1 3.1 Understanding and Interpreting the NWHI

2 Resource managers and policymakers need comprehensive information about the ocean and its
3 natural and social environments to make wise decisions. The U.S. Commission on Ocean Policy
4 (2005) and the President's Ocean Action Plan have identified a number of areas of scientific
5 inquiry fundamental to management. These topics include climate change, coral reefs, marine
6 biodiversity, regional ecosystem dynamics, and social and economic research. Many of these
7 apply directly to the NWHI. The Monument Management Plan reflects these nationally
8 recognized natural and social science needs for ecosystem-based management.

9 The NWHI consist of a complex assemblage of ecological, cultural, and historic resources in
10 relatively undisturbed condition compared to the main Hawaiian Islands and many other marine-
11 based ecosystems in the world (Freidlander et al. 2005). The Monument represents a unique
12 opportunity to improve management decisionmaking, to advance ecosystem science through
13 research on ecosystem components and processes, and to develop models and other tools to
14 predict ecosystem responses to natural and anthropogenic perturbations, such as climate
15 variability and change. In addition to the Native Hawaiian cultural significance of the region,
16 submerged maritime heritage resources, such as shipwrecks and sunken aircraft, and other
17 historic and archaeological sites provide insight into the NWHI's rich past.

18 Agencies responsible for caring for this extraordinary place include the State of Hawai'i, the
19 U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration.
20 Establishment of the Monument provides a management framework that encourages and
21 facilitates coordinated management, research, education, and planning with other partners.
22 Universities and other research organizations are also integral to building knowledge about the
23 NWHI. As our understanding of the NWHI's ecological, cultural, and historic resources
24 improves, so will our capacity to achieve effective and long-term protection of this special place.
25 A more complete understanding of the NWHI can also provide insights for improved
26 management throughout the Hawaiian Archipelago.

27 Action plans to understand and interpret the NWHI focus on characterizing and monitoring the
28 region from multiple perspectives. They also emphasize sharing information with partners and
29 the public in relevant ways.

30 Each action plan consists of a set of strategies to address a desired outcome. Over the next
31 15 years, these desired outcomes are:

- 32 • **Marine Conservation Science:** Increase understanding of the distributions, abundances,
33 and functional linkages of organisms and their habitats in space and time to improve
34 ecosystem-based management decisions in the Monument.
- 35 • **Native Hawaiian Culture and History:** Increase understanding and appreciation of
36 Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine
37 National Monument and effectively manage cultural resources for their cultural,
38 educational, and scientific values.

- 1 • **Historic Resources:** Identify, document, preserve, protect, stabilize, and where
2 appropriate, reuse, recover, and interpret historic resources associated with Midway Atoll
3 and other historic resources within Papahānaumokuākea Marine National Monument.
- 4 • **Maritime Heritage:** Identify, interpret, and protect maritime heritage resources in
5 Papahānaumokuākea Marine National Monument.

6
7 Action plans described in this section will be implemented in close coordination with other
8 partners and in conjunction with other priority management needs.

3.1.1 Marine Conservation Science Action Plan

Desired Outcome

Increase understanding of the distributions, abundances and functional linkages of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Monument.

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.2	Alien Species
3.5.1	Agency Coordination
3.6.2	Information Management
3.6.3	Coordinated Field Operations

Current Status and Background

Scientific endeavors in the NWHI were motivated in part by conservation goals as early as 1920 when the Tanager Expedition included people engaged in not only collection of specimens but eradication of invasive species and restoration of habitats damaged by introduced herbivores at Laysan Island. The Pacific Ocean Biological Survey project carried out by the Smithsonian Institution, while not explicitly designed for conservation purposes, laid the foundation of our knowledge of seabird populations and movements at sea. The Tripartite agreement among the State of Hawai‘i, the U.S. Fish and Wildlife Service, and NOAA Fisheries provided a framework for extensive ecological research in the NWHI beginning in 1976. Interwoven with these large institutional efforts are numerous independent research projects that continue to contribute to the body of knowledge available for science-based resource conservation.

Links to goals
Goal 2
Goal 4
Goal 6
Goal 7

Multiagency efforts continued when the Northwestern Hawaiian Islands Reef Assessment and Monitoring Program (NWHIRAMP, historically known as NOWRAMP), was initiated in 2000 to characterize and monitor the coral reefs of the NWHI using a consistent set of sampling protocols to establish a baseline for future data gathering and monitoring change over time. NWHIRAMP is a collaborative partnership of agencies and institutions consisting of quantitative diver surveys of fish, coral, algae, and invertebrate communities, supplemented by towed diver surveys of large fish and substrate type, oceanographic data collection, and sediment contaminant studies (Maragos and Gulko, eds., 2002).

Annual multi-agency efforts are supported by a variety of agencies and institutions, including the University of Hawai‘i’s Hawai‘i Institute of Marine Biology (HIMB). This research partnership focuses on conservation science and has produced many key findings that have management implications not just within the Hawaiian archipelago, but also for the maintenance of healthy coral reef ecosystems around the world. HIMB's ongoing research on genetic connectivity, tagging studies, disease outbreaks, coral health, threat assessments and climate change will be used to inform managers’ understanding of the NWHI as a "natural laboratory" and as a sentinel site for other coral reef sites around the world.

NOAA led a significant mapping effort using satellite imagery, multi-beam sonar, and other remote sensing methods to provide detailed maps of the shallow-water seabed features of the Northwestern Hawaiian Islands, including the *Draft Atlas of the Shallow-Water Benthic Habitats of the NWHI* (NOAA 2003b) and the *Bathymetric Atlas of the NWHI* (Miller et al. 2004). These

1 documents begin to describe the marine habitats and bathymetry of the NWHI and establish
 2 important baseline information for resource managers. Efforts are underway to expand the
 3 coverage of the bathymetry data, interpret the multibeam backscatter imagery, develop a
 4 groundtruthing database, and verify remotely sensed information to further refine and complete
 5 these characterizations.

6
 7 In May 2003, NOAA, through a multiagency partnership, convened a workshop with NWHI
 8 resource managers and researchers from the scientific community to identify information and
 9 science needs and resources for effective conservation and management of the NWHI. The
 10 results from this workshop were analyzed and summarized in a report titled *Information Needs
 11 for Conservation Science and Management of the Northwestern Hawaiian Islands* (Gittings et al.
 12 2004). Workshop results are incorporated into planning and coordination efforts of science and
 13 management activities in the NWHI, and research gaps identified by the workshop informed the
 14 drafting of the archipelago wide, multiagency Hawaiian Archipelago Marine Ecosystem
 15 Research Plan (HAMER). In November 2004, the NWHI Third Scientific Symposium was held
 16 in Honolulu, Hawai‘i, and provided further syntheses of the current state of knowledge and
 17 management of the NWHI (Macintyre 2006).

18
 19 Building on these earlier planning efforts, and due to the complexity and depth of conservation
 20 science needs in the Monument, the MMB expanded the development of a stand-alone Natural
 21 Resources Science Plan to further identify priorities, assess and identify standard protocols, and
 22 formalize collaborative monitoring. A scoping meeting for the draft Natural Resources Science
 23 Plan was held in November 2007 to solicit input on five broad thematic research categories. The
 24 five thematic areas adapted from the HAMER Plan and identified in the draft Natural Resources
 25 Science Plan are:

- 26 • Research on ecological processes and connectivity
- 27 • Research on biodiversity and habitats
- 28 • Research on human impacts
- 29 • Research on ecosystem change, indicators, and
 30 monitoring
- 31 • Modeling and forecasting ecosystem change

32 **Need for Action**

33 Effective stewardship of the Monument should be based on
 34 reliable information on the biological characteristics of the
 35 organisms, their ecological relationships, an understanding
 36 of the natural temporal variations, and anthropogenic
 37 impacts that characterize their ecosystems.

38
 39
 40 Recognizing the value of and need for greater understanding
 41 of marine habitats, continued characterization and
 42 monitoring of marine habitats and species are described
 43 within this Action Plan. Due to the continuity between
 44 marine and terrestrial habitats, additional specific
 45 management-related surveys, research, and monitoring
 46 priorities are also found in separate Action Plans within this MMP, in particular Threatened and



Biologists survey algae and coral species throughout the NWHI to monitor ecosystem health. Photo: Jean Kenyon

1 Endangered Species, Migratory Bird, Habitat Management and Conservation, Marine Debris,
2 and Alien Species Action Plans. With coral reefs, seabird colonies, and tropical ecosystems in
3 general around the world in decline, the NWHI present a unique opportunity to characterize an
4 intact ecosystem and begin to understand the degree of natural variability in an ecosystem
5 relatively free of local anthropogenic influences. Studying these remote areas may also make an
6 important contribution toward understanding the impacts of global climate change on coral reef
7 ecosystems. The NWHI are still relatively unexplored, and fundamental information on the
8 species, habitats, and their status is needed. Functional relationships between the species,
9 habitats, ecosystems, and oceanographic and other physical processes of the NWHI marine
10 environments are also not well understood. Evaluation tools, such as models, are needed to
11 describe complex ecosystem functions and provide resource managers with the capability to
12 assess the risks of management decisions.

13 14 **Strategies to Achieve the Desired Outcome**

15 There are three strategies designed to achieve the desired outcome of increasing understanding of
16 the Monument to improve ecosystem-based decisionmaking. Systematic characterization,
17 monitoring, and research are means to acquire this information. Strategy MCS-1 and its
18 associated activities are specific to the marine environment, while strategies MCS-2 and MCS-3
19 apply to all research and monitoring activities in the Monument. The strategies and activities are
20 coded by the acronym for the action plan title, Marine Conservation Science (MCS). A summary
21 of strategies and activities is provided in Table 3.1.1 at the end of this action plan.

- 22
- 23 • MCS-1: Continue and expand research, characterization and monitoring of marine
24 ecosystems for the life of the plan.
- 25 • MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.
- 26 • MCS-3: Communicate results of research and monitoring over the life of the plan.
- 27

28 **Strategy MCS-1: Continue and expand research, characterization and monitoring of** 29 **marine ecosystems for the life of the plan.**

30
31 This strategy is focused on continuing marine research, characterization, and monitoring
32 designed to support an ecosystem-based approach to management. These activities are
33 implemented through a variety of partnerships and collaborations, including those with the
34 University of Hawai'i's Hawai'i Institute of Marine Biology, Hawai'i Undersea Research Lab
35 (HURL), School of Ocean and Earth Science Technology, and others. Findings will be
36 synthesized and made available for managers to inform decisionmaking. Additional marine
37 research and monitoring activities are found in the Threatened and Endangered Species,
38 Migratory Bird, Habitat Management and Conservation, Marine Debris, and Alien Species
39 Action Plans.

40
41 As ecosystem characterization assessments are moving ahead, analysis of data from regular
42 monitoring surveys can be used to evaluate change over time in a given ecosystem. Monitoring
43 data can help scientists understand the causes of change and be used to build ecosystem models.
44 Producing high level ecosystem functional models can only be achieved through broad-based
45 collaborations among agencies and institutions with varying capacities. It is critical that
46 monitoring protocols be established in collaboration with partner agencies so that they may yield

1 reliable, useful information over time. To the extent possible, relevant datasets will be integrated
2 with the national Integrated Ocean Observing System efforts.

3
4 ***Activity MCS-1.1: Continue to characterize types and spatial distributions of shallow-water
5 marine habitats.***

6 The MMB will continue working with partners to conduct fieldwork to validate and update
7 existing habitat maps and bathymetry. This work will build upon remote sensing data originally
8 collected in the development of the *Draft Atlas of the Shallow-Water Benthic Habitats of the
9 NWHI* and the *Bathymetric Atlas of the NWHI*, Draft. The updated dataset, maps, and images
10 will provide a framework for the biogeographic assessment in Activity MCS-2.3 described
11 below. Shallow-water habitats are defined as those less than 16 fathoms (30 m).

12
13 ***Activity MCS-1.2: Continue monitoring of shallow-water coral reef ecosystems.***

14 Monitor shallow water habitats using sampling protocols developed through interagency
15 collaborative efforts. Sites selected should be representative of broad habitat types. Quantitative
16 surveys of coral, algae, fish, and invertebrates will be conducted annually using methods
17 comparable to or intercalibrated with those of existing historical data sets. This monitoring will
18 be conducted in collaboration with partners. The suitability of these methods, data sets, and
19 analyses to meet management needs will be periodically assessed with partners as described in
20 Activity MCS-2.2, and are subject to change based on the outcomes of that activity.

21
22 ***Activity MCS-1.3: Map and characterize deep-water habitat.***

23 Working with partners, the MMB will use data collected with the multibeam sonar systems on
24 *Hi'ialakai* and other vessels to acquire both bathymetric and backscatter data and produce
25 deep-water benthic habitat maps. Habitat maps will be ground-truthed using remote cameras,
26 submersibles, and other technology as appropriate. Continue to develop baseline inventory of
27 the biological resources and biodiversity of deep reefs, seamounts, and banks using all available
28 technologies, including submersibles, remotely operated vehicles, aerial unmanned vehicle, and
29 technical diving. Deep-water habitats are defined as those greater than 16 fathoms (30 m).
30 Research investigations will be continued on the deep coral reef, deep slope, seamount, pelagic,
31 and abyssal ecosystems of the NWHI.

32 ***Activity MCS-1.4: Establish and implement monitoring program for deep-water ecosystems.***

33 Using the shallow-water ecosystem monitoring protocols as a model, protocols will also be
34 developed for deep-water ecosystems. In collaboration with research partners, the Monument
35 will determine management information needs, and establish data collection protocols, statistical
36 sampling design, and site selection criteria for monitoring of deep-water ecosystems, as well as
37 implement monitoring of deep-water reefs, banks, and associated communities. All appropriate
38 technologies and methods will be utilized, including submersibles, ROVs, AUVs, bait station
39 drop cameras, and technical diving. Monitoring of key indicator species will be implemented if
40 determined to be a key monitoring tool.

41
42 ***Activity MCS-1.5: Collect, analyze, and input research, monitoring, and bathymetric data into
43 appropriate databases to inform management decisions.***

44 Information management is critical for managing large volumes of published and unpublished
45 manuscripts, research findings, selected books, data (including both physical and biological data

sets) collected every field season, and other research information. Because of the complexity of information management from multiple sources, it is imperative that such an endeavor be conducted in close collaboration with interagency and research partners (see section 3.6.2 Information Management Action Plan, Activity IM-1.2). Such collaborations necessitate the flow of information to and from other established agency databases, such as NOAA's Coral Reef Watch Program, NOAA's Coral Reef Information System (CoRIS), DLNR's seabird and dolphin database and the multiagency online Oceanographic Atlas of the Pacific. The Monument Information Management System, as well as other databases, will be updated on a regular basis to manage, analyze, summarize, and interpret research data collected from the NWHI. Products, such as maps and reports on the status and trends of important resources in the NWHI, will be generated from these databases for researchers and managers.

Strategy MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.

A management-driven Natural Resources Science Plan will be developed and assessed on a regular basis to ensure that marine and terrestrial research and monitoring conducted in the NWHI is appropriate, relevant, and necessary to ensure effective management, improve management decisionmaking, and advance ecosystem science. The plan will build on existing regional science and research planning efforts. Consistency with HAMER and links to similar research in the main Hawaiian Islands will be maintained so that science conducted in this portion of the archipelago can be used across the archipelago. An interdisciplinary range of investigations designed to meet management needs will be included in the plan.

Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan within 1 year.

Working collaboratively, the MMB will develop a prioritized, interdisciplinary NWHI Monument Natural Resources Science Plan (NRSP). The NRSP will serve as a more detailed implementation plan that supports the management and research strategies contained within this Action Plan, as well as specific management-related surveys, research, and monitoring priorities found in other Action Plans, in particular the Threatened and Endangered Species, Migratory Bird, Habitat Management and Conservation, Marine Debris, and Alien Species Action Plans. It will align management priorities among agencies to facilitate resource and information sharing and will address both baseline information needs and management-driven needs. The NRSP will be a stand-alone document separate from that of the Monument Management Plan, with its own Federal and State environmental review. Each agency or research partner will use the plan as a guide for conducting and authorizing research activities. Information needs and gaps will be reevaluated on a regular basis with input from the MMB, ICC, technical groups, and research partners.

Examples of activities to be included in the NRSP under the five thematic areas are:

Research on ecological processes and connectivity

Understanding the mechanisms that link NWHI populations (and where applicable to the main Hawaiian Islands) at various scales, such as oceanographic processes, recruitment variability, larval and adult behavior, bird migratory and foraging patterns and drivers, the effect of isolation on the genetic structure of terrestrial flora and fauna, and other life history

1 characteristics, will reveal the connectivity and interrelationships of the ecosystems within
2 the NWHI.

3
4 *Research on biodiversity and habitats*

5 Documenting, maintaining, and restoring diversity includes the discovery and description of
6 new species, identifying the spatial distributions of habitats critical for the survival of native
7 species, and maintaining diversity by affecting the recovery of protected species. This may
8 include the study of methods for the restoration of native habitats, plants, and animals;
9 research on terrestrial arthropods and avian components of the biological community;
10 research on circulation patterns, residence times of water, wave climatology, and other
11 physical drivers that structure habitats and result in biological zonation of the marine and
12 terrestrial environments.

13
14 *Research on human impacts*

15 Understanding the impacts of human activities on the ecosystems of the NWHI may include
16 research on the cumulative impacts of both local (e.g., fishing, research, and other permitted
17 activities) and distant activities (marine debris, climate change) as well as the impact of
18 invasive species on the marine and terrestrial biodiversity of the NWHI. Comparative studies
19 between the main Hawaiian Islands and NWHI provide a unique opportunity to examine the
20 effects of anthropogenic activities on coral reef ecosystems.

21
22 *Research on ecosystem change, indicators, and monitoring*

23 Establishing baselines on the abundance and health of Monument biota is the first step
24 toward understanding the range of natural variability that characterizes these ecosystems.
25 Research will address marine and terrestrial biodiversity and communities. Coral bleaching
26 follow-up surveys and assessments will be continued with regional research partners to
27 assess the impacts of major bleaching events in 2002 and 2004. Research to define and
28 understand factors contributing to resilience and recovery from these perturbations will assist
29 managers in responding to future bleaching events. The use of indicator species as a
30 monitoring tool will be evaluated.

31
32 *Modeling and forecasting ecosystem change*

33 Developing functional ecosystem models that reflect the complexity and dynamic nature of
34 the ecosystems of the NWHI is a long-term goal of the Monument's research program. A
35 related goal is to design models that reflect ecological connectivity of the NWHI to the main
36 Hawaiian Islands and other regions of the Pacific. Descriptive and predictive models will be
37 used by managers to better understand ecosystem function, and to evaluate the impacts of
38 proposed activities.

39
40 ***Activity MCS-2.2: Assess monitoring program protocols.***

41 Consistency in data collection protocols over time is of primary importance in any monitoring
42 program in order to enable statistically valid comparisons between time periods. As
43 management needs evolve and our understanding of ecosystem variability improves, monitoring
44 protocols, sampling design, and sampling intervals will be evaluated for their effectiveness in
45 meeting management needs and accurately reflecting change in the environment. An overall
46 goal of these periodic assessments will be to ensure that the sampling and site selection protocols

1 adequately represent the range of habitats in the NWHI, and that the methods provide adequate
 2 statistical power to detect differences between sites or changes between time periods. These
 3 evaluations will be conducted on a cycle consistent with 5-year management plan reviews with
 4 the interagency technical group on research.

5 ***Activity MCS-2.3: Formalize collaborative regional monitoring programs for the NWHI.***

6 Several independent monitoring initiatives are being conducted in the NWHI and new initiatives
 7 planned, such as monitoring for invasive species, seabird colonies, the effectiveness of
 8 Monument management zones, and water quality. Monitoring programs will need to include data
 9 on the organisms in the NWHI in a wide range of habitats as well as oceanographic and
 10 climatological parameters. Monument zones, which are spread across a broad distance and
 11 include a range of habitats, will require the design of an efficient yet effective monitoring
 12 program. The Monument will facilitate the development of formal monitoring programs that are
 13 closely linked to the needs of NWHI resource managers. Partnerships with collaborating
 14 agencies and organizations will be established in which responsibilities, obligations,
 15 deliverables, and timelines for a regional monitoring program are clearly articulated.

16
 17 ***Activity MCS-2.4: Implement research priorities identified in the Monument Natural
 18 Resources Science Plan.***

19 Once the Monument Natural Resources Science Plan is finalized, priorities identified in the plan
 20 will guide research and monitoring activities for both marine and terrestrial environments. These
 21 priorities will be reassessed on a regular basis based on the outcome of research and monitoring
 22 activities, outcome of evaluation assessments, the 5-year reviews of the Monument Management
 23 Plan and regular reviews of the Science Plan. Research and monitoring priorities will be
 24 implemented through a variety of partnerships and collaborations.

25
 26 ***Activity MCS-2.5: Coordinate research update meetings.***

27 Regular meetings among managers, staff, and researchers will be conducted to facilitate the
 28 exchange of information and ensure Monument research objectives identified in the Natural
 29 Resource Science Plan are being met.

30
 31 ***Strategy MCS-3: Communicate results of research and monitoring over the life of the plan.***

32
 33 Research is an exciting way to promote ecosystem literacy and caring for the NWHI. Ecosystem
 34 research-related education and outreach present an ideal opportunity to “bring the place to the
 35 people and not the people to the place.” This strategy serves a dual purpose of presenting the
 36 science to a general audience and promoting the research necessary to manage the Monument.
 37 In addition, research and modeling discoveries can be shared with the public and incorporated
 38 into classroom curricula. Activities contained within this strategy apply to terrestrial and marine
 39 research and monitoring activities in the Monument.

40
 41 ***Activity MCS-3.1: Coordinate an annual meeting to present current research in the NWHI.***

42 Annual meetings provide an important forum for the NWHI multidisciplinary research
 43 community, managers, and interested public to keep abreast of current research initiatives and
 44 recent findings. This meeting will seek to incorporate recent findings from research, including
 45 but not limited to ecosystem, Native Hawaiian, maritime heritage, and socioeconomic studies.

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Activity MCS-3.2: Identify and prioritize research, monitoring, and modeling projects for education and outreach.

Translating NWHI research findings to the public and incorporating it into classroom curricula is a high priority for the Monument. Working with partner agencies, research, monitoring, and modeling projects will be identified and prioritized for dissemination.

Activity MCS-3.3: Include an educational component in marine research expeditions.

Past NOWRAMP/NWHIRAMP expeditions have included educational components that have been highly successful for education and outreach. Components included live web sites with updates from the research vessel, imagery, and video. Using this model and other innovative ideas, marine research and monitoring expeditions aboard NOAA research vessels will include educational and outreach components.

Activity MCS-3.4: Use materials gathered and created through research to develop or enhance education and outreach products.

Many of the materials developed during previous marine research expeditions have been incorporated into other outreach products, specifically displays at the Mokupāpapa Discovery Center, slideshows, and educational curricula. Similarly, educational materials have been associated with satellite tracking of albatross and migration of golden plovers. Education and outreach products will continue to be developed based on research conducted in the Monument. (See section 3.5.4, Ocean Ecosystems Literacy Action Plan).

1 **Table 3.1.1 Summary of Strategies, Activities, and Agency Leads for Marine Conservation**
 2 **Science**
 3

Strategies and Activities	Agency Lead
Strategy MCS-1: Continue and expand research, characterization and monitoring of marine ecosystems for the life of the plan.	
Activity MCS-1.1: Continue to characterize types and spatial distributions of shallow-water marine habitats.	NOAA
Activity MCS-1.2: Continue monitoring of shallow-water coral reef ecosystems.	NOAA
Activity MCS-1.3: Map and characterize deep-water habitat.	NOAA
Activity MCS-1.4: Establish and implement monitoring program for deep-water ecosystems.	NOAA
Activity MCS-1.5: Collect, analyze, and input research, monitoring, and bathymetric data into appropriate databases to inform management decisions.	NOAA
Strategy MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.	
Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan within 1 year.	NOAA
Activity MCS-2.2: Assess monitoring program protocols.	NOAA
Activity MCS-2.3: Formalize collaborative regional monitoring programs for the NWHI.	NOAA
Activity MCS-2.4: Implement research priorities identified in the Monument Natural Resources Science Plan.	NOAA
Activity MCS-2.5: Coordinate research update meetings.	NOAA
Strategy MCS-3: Communicate results of research and monitoring over the life of the plan.	
Activity MCS-3.1: Coordinate an annual meeting to present current research in the NWHI.	NOAA
Activity MCS-3.2: Identify and prioritize research, monitoring, and modeling projects for education and outreach.	NOAA
Activity MCS-3.3: Include an educational component in marine research expeditions.	NOAA
Activity MCS-3.4: Use materials gathered and created through research to develop or enhance education and outreach products.	NOAA FWS

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3.1.2 Native Hawaiian Culture and History Action Plan

Desired Outcome

Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage cultural resources for their cultural, educational, and scientific values.

Links to other Action Plans	
3.1.1	Marine Conservation Science
3.1.3	Historic Resources
3.5.2	Constituency Building and Outreach
3.1.4	Maritime Heritage
3.5.3	Native Hawaiian Community Involvement
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

Current Status and Background

Since the early visioning process in 2000 on how best to protect the NWHI, the need to understand and document the cultural significance of the Monument and its integral relationship with the rest of the archipelago has been growing, leading to an increased effort to research and compile known cultural information about this important region. This research effort has produced a substantial amount of cultural information and theories pertaining to the traditions and practices of Native Hawaiians in the NWHI (Kikiloi in prep.). These include archival research (Tava and Keale 1989; Mackenzie and Kaiama 2003), ethnographic studies (Maly 2003), and archaeological research (Emory 1928; Cleghorn 1988; Liller 2000; and Graves and Kikiloi in prep).

Links to goals
Goal 4
Goal 5
Goal 6
Goal 7

While more cultural research needs to be conducted, several steps have been taken toward integrating this cultural information into educational and outreach efforts. One of these efforts is “Navigating Change,” an education and outreach partnership created in 2001 among NOAA, FWS, the State of Hawai‘i, the Polynesian Voyaging Society, Bishop Museum, and many other groups. This initiative, which includes classroom curricula and multimedia materials, utilizes Native Hawaiian voyaging traditions and cultural values to engage students and the public in learning about and caring for the NWHI as well as the main Hawaiian Islands. Together, the Polynesian Voyaging Society, FWS, NOAA, and the State coordinated voyages by *Hōkūle‘a*, a traditional Hawaiian double-hulled voyaging canoe, to and through the NWHI, as well as the associated educational outreach efforts for the voyages.



Cultural sites at Mokumanamana indicate the use of the NWHI and surrounding oceans by Native Hawaiians in precontact Hawai‘i. Photo: Andy Collins

To effectively engage both English and ‘ōlelo Hawai‘i (Hawaiian language) speakers, and to explicitly recognize the Native Hawaiian history and continued relationship with Papahānaumokuākea, all interpretive signs at Mokupāpapa Discovery Center in Hilo and similar education centers are in both English and ‘ōlelo Hawai‘i. Native Hawaiian

1 values and histories are integrated into the displays, and Hawaiian-speaking volunteers have
2 been recruited to act as docents at Mokupāpapa.

3 The Reserve, in collaboration with the Kamakākūokalani Center for Hawaiian Studies at the
4 University of Hawai‘i, conducted cultural research on the NWHI. This research and synthesis has
5 yielded a university-level course on the NWHI and an informational video that portrays the NWHI
6 from an indigenous perspective. In August 2004, the Kamakākūokalani Center held a 2-day
7 workshop to discuss Native Hawaiian issues and concerns about the NWHI (see also section 3.5.3,
8 the Native Hawaiian Community Involvement Action Plan).

9 Also under contract with the Reserve, the Bernice Pauahi Bishop Museum developed an online
10 “Annotated Bibliography of Cultural Resources for the Northwestern Hawaiian Islands.” The
11 database contents primarily include holdings available in the Bishop Museum’s Library and
12 Archives, the libraries at the University of Hawai‘i at Mānoa, and the State of Hawai‘i Archives
13 that may be valuable to researchers and others learning about the NWHI. The database is
14 accessible to the public on the Internet (www2.bishopmuseum.org/noanwhi/index.asp).

15 To strengthen the agencies’ cultural resource management capability, internal capacity and a
16 liaison program will be developed. Under such a program, liaisons with the Hawaiian
17 community would conduct projects and initiatives to support cultural education, research, and
18 access. The liaisons would work with the Native Hawaiian community, plan and organize
19 cultural working group meetings, and coordinate cultural research and outreach for the
20 Monument (see also section 3.4.3, the Native Hawaiian Community Involvement Action Plan).
21 Through a Native Hawaiian cultural perspective, we can learn more about the NWHI’s
22 ecosystems and histories and develop better ways of managing the area.

23

24 **Need for Action**

25 Both the Executive order that established the Reserve and Proclamation 8031, which established
26 the Monument, recognize and address the significance of the NWHI to Native Hawaiians.
27 Understanding the NWHI from a Native Hawaiian perspective benefits the Monument in many
28 ways. Because Native Hawaiians’ resource management practices were and are mainly guided by
29 their traditional beliefs and familial connections to their natural environment and the imperative to
30 manage the islands and oceans as inextricably linked, Native Hawaiian research contributes to an
31 ecosystem-based approach to management and complements other types of research. Education of
32 and by, and outreach to, the Native Hawaiian community can elicit greater involvement by Native
33 Hawaiians in Monument management. Utilizing cultural information in education and outreach
34 will engage the broader public in learning about and caring for the Monument and Native
35 Hawaiian culture. This action plan presents strategies and activities for research, education, and
36 outreach aimed at accomplishing that desired outcome.

37

38 More research and documentation about Native Hawaiian traditions, practices, and histories of
39 the NWHI need to be done, particularly before the histories held only in the oral tradition are lost
40 with the kūpuna who hold that knowledge. Some of this work can be accomplished through
41 literature searches and other historic, Hawaiian language, and archival research. Other
42 information will require access to the NWHI to conduct new cultural research by both academics
43 and practitioners. As information is gathered and compiled information regarding the location,

1 character, or ownership of certain cultural resources may be withheld from public disclosure,
2 consistent with applicable law such as the National Historic Preservation Act

3
4 The Monument offers a vast, sacred, and protected classroom, which cannot be recreated or
5 modeled anywhere else, for Native Hawaiians or the rest of the world. For example, the
6 experiential learning of traditional wayfinding and cultural protocols by crewmembers of the
7 *Hōkūle‘a* and other Polynesian voyaging wa‘a (canoes) cannot be learned in a museum or from
8 books. Equally, the historic sites of Nihoa and Mokumanamana represent the most pristine and
9 extensive collection of cultural sites within the Hawaiian archipelago, and are being used as a
10 training ground for cultural practitioners who wish to continue to practice such cultural protocols
11 as can only be rediscovered in Papahānaumokuākea. Native Hawaiian cultural tradition is
12 primarily transmitted orally, and current educational studies have shown that Native Hawaiian
13 learning continues to be most productive when done experientially (Tibbetts 2006).

14 **Strategies to Achieve the Desired Outcome**

15 Five strategies have been identified to increase understanding and documentation of Native
16 Hawaiian culture and history related to the Monument. The strategies and activities are coded by
17 the acronym for the action plan title, “Native Hawaiian Culture and History” (NHCH). A
18 summary of strategies and activities is provided in Table 3.1.2 at the end of this action plan.

- 19 • NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs
20 within 18 months.
- 21 • NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural and historical
22 research of the NWHI over the life of the plan.
- 23 • NHCH-3: Increase cultural resource management capacity across MMB agencies over
24 the life of the plan.
- 25 • NHCH-4: Plan, develop, and implement a Monument Cultural Resources Program over
26 the life of the plan.
- 27 • NHCH-5: Provide cultural outreach and educational opportunities to the Native Hawaiian
28 community and the general public over the life of the plan.

29 30 **Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research** 31 **needs within 18 months.**

32
33 Identification and prioritization of research needs will be achieved through consultation with the
34 Native Hawaiian Cultural Working Group and other Native Hawaiian institutions and
35 organizations, and by assessing and identifying gaps in the information assembled in the past in
36 consultation with what was then the Reserve Advisory Council’s Native Hawaiian Cultural
37 Working Group and other cultural experts. Potential research topics include (1) understanding
38 the historical relationship Native Hawaiians have had with the NWHI; (2) understanding cultural
39 practices of this region, such as navigation and voyaging, traditional religious worship, place
40 names and geography, mele (song) and hula (dance), mo‘olelo (legendary histories, mythologies,
41 and stories), and fishing techniques; (3) determining culturally and ecologically appropriate
42 methods of following the Hawaiian protocol of giving ho‘okupu (offerings); (4) acquiring and
43 implementing traditional Hawaiian ecological knowledge; (5) increasing research to support and
44 identify sites for protective status; and (6) clarifying how Hawaiian concepts of restoration and

1 preservation of natural and cultural resources fit into current regulatory constraints. Research on
 2 these topics will give insight into the appropriateness of certain activities and practices that occur
 3 in the area.

4
 5 ***Activity NHCH-1.1: Identify research needs that can be accomplished through***
 6 ***anthropological, archaeological, historical, and Hawaiian cultural methods.***

7 Such research could be conducted through ethnographic interviews, researching oral traditions
 8 and archival historical information written in the English and Hawaiian languages,
 9 archaeological survey and analyses, and cultural field experience. Research needs will be
 10 developed within 12 months and consistently updated via such venues as the annual cultural
 11 resources research conference (see section 3.4.3, the Native Hawaiian Community Involvement
 12 Action Plan).

13 ***Activity NHCH-1.2: Develop cultural research priorities alongside associated management***
 14 ***challenges and opportunities.***

15 Once research needs have been identified, priorities will be established that are directly linked to
 16 key management challenges and available opportunities to conduct such research. These needs
 17 and priorities will be assembled in a report that will be completed within 18 months.

18
 19 **Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural and historical**
 20 **research of the NWHI over the life of the plan.**

21
 22 Ongoing research and documentation about Native Hawaiian traditions, practices, and histories
 23 of Papahānaumokuākea are as important as ongoing scientific research in helping us ensure
 24 successful management of the Monument. Thus, working closely with partners, we will continue
 25 to conduct and support cultural and historical research and seek ways to facilitate access to the
 26 NWHI for such purposes. The MMB will also work to support complementary Western science
 27 and traditional ecological knowledge investigations, management, and outreach strategies. This
 28 will be done in cooperation with partners, both organizations and individual researchers.
 29 Additionally, research findings may help clarify appropriate cultural activities for an area and aid
 30 in gaining appropriate additional protections for cultural resources.

31
 32 Research findings would be integrated and presented as part of an annual meeting to present
 33 current research being conducted in the NWHI (see section 3.1.1, the Marine Conservation
 34 Science Action Plan). This annual meeting provides an important forum for the NWHI
 35 multidisciplinary research community, managers, and interested public to keep abreast of current
 36 research initiatives and recent findings.

37
 38 ***Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical***
 39 ***research about the NWHI.***

40 Limited cultural and historical research about the NWHI has already been directly conducted by
 41 NOAA and the FWS in conjunction with partner organizations such as the Office of Hawaiian
 42 Affairs and the Bishop Museum. Monument staff will continue to compile existing information
 43 about the region and initiate new research based on the priorities developed under strategy
 44 NHCH-1.

1 **Activity NHCH-2.2: Continue to provide direct financial and logistical support.**

2 Research on the issues identified through the process described in strategy NHCH-1 may be
3 supported by the MMB through grants, logistical support, berthing space aboard research vessels
4 (see section 3.6.3, the Coordinated Field Operations Action Plan), and other in-kind resources.
5 Such support has already begun prior to Monument establishment and will be continued.

6 **Activity NHCH-2.3: Facilitate field research and cultural education opportunities annually**
7 **during the field season.**

8 Consistent with activities that have already begun in the Monument, the MMB will continue to
9 facilitate research and education opportunities in the field for students, teachers, and cultural
10 specialists during every field season. Such support includes providing berthing space aboard
11 research vessels, logistical support, and putting researchers and educators in touch with others
12 doing similar work.

13

14 **Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group.**

15 Within a year, the Monument will convene a variety of experts on the history and meaning of
16 Hawaiian names for known and yet-to-be-discovered regions, islands, geographical and oceanic
17 features, sites, and plant and animal species. These names and their histories and meanings will
18 be included and updated regularly in the forthcoming Monument Information Management
19 System (see below) to ensure that such names continue to reflect Hawaiian knowledge and
20 experience.

21

22 **Activity NHCH-2.5: Incorporate cultural resources information into the Monument**
23 **Information Management System.**

24 As cultural information is compiled and generated, in collaboration and cooperation with Native
25 Hawaiian organizations and institutions that are also creating databases of such information
26 (such as OHA's Wahi Pana Database), it will be incorporated into the Monument Information
27 Management System (see section 3.6.2, the Information Management Action Plan). This system
28 will incorporate a security layer for the protection of proprietary cultural information.

29 **Activity NHCH-2.6: Support Native Hawaiian cultural accesses to assure cultural research**
30 **needs are met.**

31 Once priorities have been developed, access needs to meet these priority requirements will be
32 considered and established as opportunities arise to create additional partnership contracts,
33 grants, or formal agreements with Native Hawaiian organizations. Such access needs may
34 include, but not be limited to (1) consistent access to Mokumanamana for Hawaiian religious
35 practices, and (2) regular access for Polynesian voyaging canoes for wayfinding, navigational,
36 and cultural protocol training. The former will allow for lessons to be learned at specific sites for
37 specific purposes and to determine significant astronomical relationships to this sacred island's
38 features. The latter allows for voyaging training in a voyaging route of Native Hawaiians'
39 kūpuna. It provides the traditional navigational apprenticeship in an ancient art, which
40 Hawaiians conceive as learning to pull an island out of the sea from beyond the horizon using
41 only observation and knowledge of the natural environment.

Activity NHCH-2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.

1 To provide proper stewardship of cultural resources and artifacts, necessary agreements will be
2 established in concert with the Cultural Resources Program Plan (see strategy NHCH-4). The
3 agreements will be developed as the need arises.

**4 Strategy NHCH 3: Increase cultural resource management capacity across MMB agencies
5 over the life of the plan.**

6
7 To effectively carry out the strategies and activities outlined within this action plan, the MMB
8 agencies will increase their collective capacity to effectively understand, manage, and protect the
9 Native Hawaiian cultural resources of the Monument and fulfill Federal and State mandates and
10 requirements.

11 Activity NHCH-3.1: Assess Monument cultural resource capacity.

12 Limited staff capacity currently exists among the Monument management agencies in the area of
13 cultural resource management. Agencies will identify staff needs and work toward building staff
14 capacity to carry out the strategies and activities contained within this plan. Staffing needs will
15 be identified and included in the development of the Monument Cultural Resources Program
16 Plan (see Activity NHCH-4.1).

***17 Activity NHCH-3.2: Engage Native Hawaiian practitioners and cultural experts and the
18 Native Hawaiian Cultural Working Group in the development and implementation of the
19 Monument's management activities.***

20 The Native Hawaiian Cultural Working Group and other Native Hawaiian cultural practitioners
21 and experts will be consistently consulted and integrated into the creation and implementation of
22 programs (see section 3.4.3, the Native Hawaiian Community Involvement Action Plan).
23 Examples of their participation may include the following: (1) providing cultural briefings to
24 every person preparing to enter the Monument, as a condition of their being permitted access;
25 (2) when feasible, accompanying permittees accessing the Monument in order to experience,
26 practice, and learn from the Monument resources while educating others; and (3) including
27 Native Hawaiians, particularly the younger generations, as part of cultural and scientific research
28 teams when feasible.

***29 Activity NHCH-3.3: Increase knowledge base of Native Hawaiian values and cultural
30 information through "in-reach" programs for resource managers.***

31 Efforts will be made to increase the knowledge base of Native Hawaiian cultural significance
32 by Monument resource managers. This will be accomplished by having Monument resource
33 managers and staff and MMB members, as appropriate, participate in informal and formal
34 briefings, cultural workshops, and cultural exchanges in cooperation with other marine
35 protected area sites that integrate traditional ecological knowledge into their management.

***36 Activity NHCH-3.4: Identify and integrate Native Hawaiian traditional ecological knowledge
37 and management concepts into Monument management.***

38 In the past, traditional resource management involved recognizing local variations, observing
39 patterns, periodically applying kapu (restrictions on resource extraction and other activities) by

1 konohiki (local managers), and maintaining a deep respect for, and intimate knowledge of, the
 2 environment. The MMB will work with the Native Hawaiian community and other cultural
 3 experts to identify how traditional ecological knowledge and associated practices may be
 4 integrated into Monument management and research activities. A report on traditional
 5 ecological knowledge and management practices, including recommendations for integrating
 6 these perspectives into management of the NWHI, will be developed to guide implementation.

7
 8 **Strategy NHCH-4: Plan, develop, and implement a Monument Cultural Resources**
 9 **Program over the life of the plan.**

10
 11 All cultural resources in the NWHI are under the jurisdiction of the Monument, and therefore the
 12 MMB will support efforts to protect these important elements, including archaeological sites and
 13 the sacred resources of the NWHI, according to the parameters and conditions included within
 14 Sections 106 and 110 of the National Historic Preservation Act. This may include documenting
 15 and evaluating the NWHI as a Traditional Cultural Property and development of a Cultural
 16 Resources Program to fully integrate cultural resource protection into Monument management
 17 (see Activity HR-3.2, in section 3.1.3, the Historic Resources Action Plan). The first step in this
 18 process will be a Section 106 consultation under the National Historic Preservation Act. This
 19 consultation will result in the signing of a Programmatic Agreement among the Co-Trustees, the
 20 State of Hawai‘i Historic Preservation Officer, and the Advisory Council on Historic
 21 Preservation. The second step in this process is the development of a formal Cultural Resources
 22 Program Plan.

23 ***Activity NHCH-4.1: Prepare a Cultural Resources Program Plan.***

24 Within 18 months, the MMB will initiate the development of a Cultural Resources Program Plan,
 25 in partnership with the Native Hawaiian Cultural Working Group, cultural practitioners and
 26 experts, and others. As part of the plan development, the program partners will identify cultural
 27 resources, sites, and other locations within the Monument that are appropriate for use in
 28 contemporary Native Hawaiian protocols. In addition, the plan will include policies and
 29 procedures on the collection, curation, and disposition of archaeological materials, other
 30 artifacts, and human remains. The MMB and partners will complete the plan within 2 years of
 31 initiation.

32 ***Activity NHCH-4.2: Develop and implement specific preservation plans, as appropriate, to***
 33 ***protect cultural sites and collections at Nihoa and Mokumanamana.***

34 Both Nihoa and Mokumanamana are recognized as culturally significant and are listed on the
 35 National Register of Historic Places and protected by the FWS in accordance with the National
 36 Wildlife Refuge System Administration Act of 1966, as amended, and the National Historic
 37 Preservation Act of 1966. To further protect these sites, preservation plans for both islands will
 38 be developed and implemented, as will plans for other cultural elements and yet-to-be discovered
 39 sites within the Monument. These preservation plans will address the monitoring and
 40 stabilization of cultural sites and curatorship or return/repatriation agreement with museums and
 41 institutions that house the artifact collections. These preservation plans will be initiated within
 42 18 months.

1 **Activity NHCH-4.3: Initiate implementation of the Monument Cultural Resources Program.**
2 Within 6 months of completion of the Cultural Resources Program Plan, the MMB will initiate
3 the strategies and activities contained within the plan.

4 **Strategy NHCH-5: Provide cultural outreach and educational opportunities to the Native**
5 **Hawaiian community and the general public over the life of the plan.**

6 Native Hawaiian values and cultural information will be used to guide outreach and education
7 programs targeted to both Native Hawaiians and the general public. Native Hawaiian values and
8 resource management practices can be relevant to multiple audiences and help to provide a more
9 complete understanding of the NWHI and the need to protect its ecosystems and other cultural
10 resources. Permittee education and outreach programs will target Monument users.

11 Staff will strive to provide more outreach to the Native Hawaiian community so that the cultural
12 information compiled and incorporated into Monument materials reaches Native Hawaiians, many
13 of whom otherwise may not have access to such information. Developing culturally relevant
14 materials can also make information more accessible and engaging to Native Hawaiians. For
15 example, making Hawaiian language tours available at Mokupāpapa Discovery Center would
16 increase the center's value and accessibility to Hawaiian language immersion school groups as a
17 culturally relevant learning tool.

18 The Native Hawaiian Cultural Working Group, Native Hawaiian community leaders, cultural
19 experts, and others will be consulted for cultural accuracy and appropriateness and for input on
20 how information is used and shared.

21 **Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general**
22 **outreach and education programs.**

23 Cultural information and traditional Native Hawaiian values will be infused into education and
24 outreach materials aimed at the general public. The "Navigating Change" program, school
25 curricula, promotion of Hawaiian place names in Monument materials, videos, articles, and the
26 lecture series at Mokupāpapa are some of the ways the MMB will accomplish this (see sections
27 3.5.2 and 3.5.4, the Constituency Building and Outreach and Ocean Ecosystems Literacy action
28 plans).

29 **Activity NHCH-5.2: Develop a culturally based strategy for education and outreach to the**
30 **Native Hawaiian community.**

31 This strategy, to be developed within 3 years, includes making information relevant, attractive,
32 and accessible to Native Hawaiians. Outreach and education targeting Native Hawaiians will
33 be accomplished through special events, cultural groups, schools (K-12), and colleges.
34 Products that may be developed include videos and public television programs, publications,
35 and school curricula. Traditional products will be encouraged, such as hula, mele, and oli. The
36 MMB will continue to utilize 'Ōlelo Hawai'i in outreach and education materials and programs
37 as appropriate (see sections 3.5.2 and 3.5.4, Constituency Building and Outreach and Ocean
38 Ecosystems Literacy Action Plans).

1 ***Activity NHCH-5.3: Integrate Native Hawaiian values and cultural information into the***
2 ***Monument permittee education and outreach program.***

3 Within 2 years, the MMB will provide appropriate cultural information and guidelines to all
4 Monument users and will help in fostering a deeper respect for the NWHI through better
5 understanding of, and respect for, Hawaiian values and the cultural significance of the place (see
6 section 3.4.1, Permitting Action Plan). This includes, but is not limited to, the cultural briefing
7 required prior to any permitted access to the Monument; the creation of a nonmandatory course for
8 permit applicants that would engage in experiential approaches to maximize learning through
9 various modalities; the development of a cultural observer program; and the creation of
10 comprehensive research sources, such as willing cultural experts, libraries, and electronic databases
11 of cultural and historic information with security layers for confidential information, which will
12 assist applicants in appropriately completing permit applications.

1 **Table 3.1.2 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Culture**
 2 **and History**
 3

Strategies and Activities	Agency Lead
Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months.	
Activity NHCH-1.1: Identify research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods.	OHA
Activity NHCH-1.2: Develop cultural research priorities alongside associated management challenges and opportunities.	OHA
Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural and historical research of the NWHI over the life of the plan.	
Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.	OHA
Activity NHCH-2.2: Continue to provide direct financial and logistical support.	NOAA OHA State of Hawai‘i FWS
Activity NHCH-2.3: Facilitate field research and cultural education opportunities annually during the field season.	OHA
Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group.	OHA
Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System.	NOAA
Activity NHCH-2.6: Support Native Hawaiian cultural accesses to assure cultural research needs are met.	OHA
Activity NHCH-2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.	FWS
Strategy NHCH-3: Increase cultural resource management capacity across MMB agencies over the life of the plan.	
Activity NHCH-3.1: Assess Monument cultural resource capacity.	NOAA
Activity NHCH-3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument’s management activities.	OHA
Activity NHCH-3.3: Increase knowledge base of Native Hawaiian values and cultural information through “in-reach” programs for resource managers.	OHA
Activity NHCH-3.4: Identify and integrate Native Hawaiian traditional ecological knowledge and management concepts into Monument management.	OHA
Strategy NHCH-4: Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan.	
Activity NHCH-4.1: Prepare a Cultural Resources Program Plan.	FWS
Activity NHCH-4.2: Develop and implement specific preservation plans, as appropriate, to protect cultural sites and collections at Nihoa and Mokumanamana.	FWS
Activity NHCH-4.3: Initiate implementation of the Monument Cultural Resources Program.	FWS

1

Strategies and Activities	Agency Lead
Strategy NHCH-5: Provide cultural outreach and educational opportunities to the Native Hawaiian community and the general public over the life of the plan.	
Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs.	NOAA
Activity NHCH-5.2: Develop a culturally based strategy for education and outreach to the Native Hawaiian community.	NOAA
Activity NHCH-5.3: Integrate Native Hawaiian values and cultural information into the Monument permittee education and outreach program.	OHA

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1 **3.1.3 Historic Resources Action Plan**

2
3
4 **Desired Outcome**

6 Identify, document, preserve, protect, stabilize, and
8 where appropriate, reuse, recover, and interpret historic
10 resources associated with Midway Atoll and other
12 historic resources within Papahānaumokuākea Marine
14 National Monument.

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.1.4	Maritime Heritage
3.6.3	Coordinated Field Operations

16
17
18 **Current Status and Background**

20 NOAA and FWS comply with the Federal Archaeological Program, a
22 collection of laws and regulations that pertain to the protection of historical
24 and archaeological properties on Federal and federally managed lands. The
26 National Historic Preservation Act directs all Federal agencies to develop
27 programs to protect historical and archaeological resources. Section 106 requires agencies to
28 consider the potential impacts of their actions, including the review of permit applications for
29 projects that may allow the disturbance of Federal lands where archaeological remains may lie.
30 Section 110 requires agencies to actively search for archaeological resources and to assess them
31 for their significance and eligibility for inclusion in the National Register of Historic Places. The
32 locations of cultural and historic resources are considered sensitive data and are not openly
33 released even through the Freedom of Information Act. State agencies comply with similar State
34 laws for protection of historic and cultural resources.

Links to goals
Goal 5
Goal 7
Goal 8

35
36 For the purposes of the Monument Management Plan, historic resources are the nonmarine sites,
37 structures, artifacts, culture and places in the Monument associated with the historic period (after
38 first Western contact with Native Hawaiians in 1778). Historic resources in the Monument fall
39 into two broad categories: Midway Atoll historic period resources, and those elsewhere in the
40 Monument.

41
42 At Midway Atoll, historic period cultural resources include 63 structures and buildings eligible
43 for inclusion in the National Register of Historic Places. These historic properties are mostly
44 associated with World War II, the Battle of Midway National Historic Landmark and Memorial,
45 and the early 20th-century Commercial Pacific Cable Company. Section 1.3 describes the history
46 and context of the historic properties that remain on Midway Atoll. FWS currently manages the
47 historic properties at Midway Atoll according to a Programmatic Agreement (Programmatic
48 Agreement 1996) and Historic Preservation Plan (Speulda et al. 1999).

49
50 Jurisdiction and control of Midway Atoll were transferred from the Navy to the FWS in 1996 by
51 Executive Order 13022. In preparation for the transfer, the Navy identified, evaluated, and
52 mitigated effects on the 63 historic properties. The Navy conducted this effort in consultation
53 with the Pacific Division of the Naval Facilities Engineering Command, FWS, Advisory Council
54 on Historic Preservation, National Park Service, State Historic Preservation Officer of the State
55 of Hawai‘i, Sixth Defense Battalion of the U.S. Marine Corps, Defenders of Midway Islands
56 Reunion Association, and International Midway Memorial Foundation. The consultation
57 resulted in a Programmatic Agreement for the treatment of the 63 historic properties
58 (Programmatic Agreement 1996). One of the stipulations in the Programmatic Agreement

1 directed the FWS to prepare a Historic Preservation Plan for the long-term management of the
2 63 historic properties. FWS completed the plan in 1999 (Speulda et al. 1999).

3
4 The Midway Atoll Historic Preservation Plan focuses on long-term management and treatment
5 for each of the 63 historic properties. It also identifies procedures for treating new discoveries
6 and caring for museum collections, and includes recommendations for interpretation, education,
7 and public outreach.

8
9 The Programmatic Agreement and Historic Preservation Plan prescribe one of six different
10 treatment categories to each of the 63 historic properties. The treatment categories are (1) reuse,
11 (2) secure, (3) leave as-is, (4) fill in, (5) demolish, or (6) relocate. Many factors were used to
12 determine the treatment category to which a historic property was assigned, including historic
13 importance, interpretive value, overall setting, association with key historic themes, and
14 structural integrity. The determinations were made in consideration of recommendations from
15 interest groups, specialists, and the Advisory Council on Historic Preservation.

16
17 In the treatment category assignments, 23 buildings and structures were identified for reuse,
18 including the Officers' housing; carpentry, machine, and transportation shop buildings; the
19 refrigeration plant; the recreation facility; the seaplane hangar and ramp; and water reservoirs.
20 Thirteen buildings were slated for securing and stabilization in place, including the command
21 post, radar buildings, power plant, and the cable station buildings. Twenty structures were
22 placed in the "leave as-is" category and will deteriorate in place under natural environmental
23 conditions. These properties include the Eastern Island gun, runways, and revetments, and the
24 Sand Island cemetery, Japanese gravestones, two 5-inch guns, and gun batteries. Four properties
25 were filled with sand, including a pillbox and an underground bunker. Fifteen properties were
26 slated for demolition, including the N.O.B. armory, the submarine base buildings, the general
27 storehouse and air terminal building, two barracks, and the blackout hangar and associated shops.
28 Three objects were identified for removal to a secure location including a torpedo, a pillbox
29 turret, and submarine netting.

30
31 Beyond the abundant, significant, and dramatic historic resources at Midway Atoll, few other
32 significant historic resources within the Monument are presently known. As outlined in
33 section 1.3, the postcontact history of the Monument archipelago beyond Midway is rich and
34 varied. However, the present record of tangible nonmarine sites that relate to this history is small.
35 This is because historians and archaeologists simply have not spent much time researching
36 locations on the islands and atolls of the Monument for evidence of postcontact historical events
37 such as shipwreck survivor camps, bird and other resource extraction camps, or World War II
38 facilities.

39 40 **Need for Action**

41 Although the Midway Atoll Programmatic Agreement and Historic Preservation Plan are still in
42 force, they need to be updated. Since the time the plan was written, in 1999, a visitor services
43 plan has been adopted, lead-based paint abatement has become an important priority, and the
44 Monument has been created. Furthermore, the Sixth Defense Battalion of the U.S. Marine Corps
45 and Defenders of Midway Islands Reunion Association, and the International Midway Memorial
46 Foundation continue to maintain strong interest in the preservation and interpretation of historic
47 resources at Midway Atoll. The historic properties require continual repair and maintenance

1 according to the terms of the Historic Preservation Plan and the Secretary of the Interior's
2 Standards for the Treatment of Historic Properties. The effects of weathering and erosion by
3 saltwater, salt spray, salty soils, precipitation, plant growth, solar radiation, and wind continue to
4 threaten the integrity of the historic properties at Midway Atoll.

5
6 Among the islands that compose the Monument beyond Midway Atoll, surveys are needed to
7 identify and evaluate historic resources that relate to shipwreck survivor camps, bird and other
8 resource extraction camps, and World War II facilities. Beyond the historic resources of
9 Midway Atoll, the other atolls and islands of the Monument have histories and associated
10 historic resources that relate to the postcontact history of exploration, commerce, war, and
11 conservation of the Monument.

12 13 **Strategies to Achieve the Desired Outcome**

14 The strategies and associated activities in this action plan constitute a historic resource program
15 of identification, documentation, protection, preservation, reuse, and interpretation of the varied
16 historic resources in the Monument. The Monument Management Plan calls for the
17 implementation of a range of activities that preserve, stabilize, reuse, rehabilitate, and interpret
18 the historic structures and the stories and artifacts associated with them.

19
20 Seven strategies have been developed for achieving the desired outcome of identifying,
21 interpreting, and protecting historic resources in the NWHI. The strategies and activities are
22 coded by the acronym for the action plan title, "Historic Resources" (HR). A summary of
23 strategies and activities is provided in Table 3.1.3 at the end of this action plan.

- 24
- 25 • HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present needs of
- 26 the Refuge and Monument within 1 year.
- 27 • HR-2: Implement, supervise, and monitor the historic preservation treatments identified
- 28 in the Midway Atoll Historic Preservation Plan at two historic properties each year.
- 29 • HR-3: Prepare an updated Battle of Midway National Historic Landmark nomination
- 30 within 4 years.
- 31 • HR-4: Improve the function and capacity of the Midway museum within 8 years.
- 32 • HR-5: Document and inventory historic resources beyond Midway Atoll NWR within
- 33 15 years.
- 34 • HR-6: Conduct archaeological and historical research on the historical events and
- 35 structures at Midway Atoll NWR within 15 years.

36 37 **Strategy HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present** 38 **needs of the Refuge and Monument within 1 year.**

39
40 The Midway Historic Preservation Plan was written in 1999. Since then a visitor services plan
41 has been adopted, lead-based paint abatement has become an important priority, and the
42 Monument has been designated. The historic properties require continual repair and maintenance
43 according to the terms of the Historic Preservation Plan and the Secretary of the Interior's
44 Standards for the Treatment of Historic Properties. The effects of weathering and erosion by
45 saltwater, salt spray, salty soils, precipitation, plant growth, solar radiation, and wind continue to
46 threaten the integrity of the historic properties at Midway Atoll NWR. Within 1 year of
47 Monument Management Plan approval, the Monument partners will update the Historic

1 Preservation Plan and reconcile it with the existing Midway Visitor Services Plan and the lead-
2 based paint removal plan.

3
4 ***Activity HR-1.1: Reconcile the Historic Preservation Plan with the Midway Visitor Service***
5 ***Plan, lead-based paint abatement plan, and other facilities maintenance and use plans.***

6 This activity will require consultation and coordination among refuge program specialists and the
7 MMB to align priorities and needs among these plans. The needs of the Historic Preservation
8 Plan will be balanced with the priorities of lead-based paint removal, visitor services, habitat
9 management, and management infrastructure.

10
11 ***Activity HR-1.2: Submit the updated Historic Preservation Plan for approval to the Advisory***
12 ***Council on Historic Preservation and Monument partners.***

13 The updated Historic Preservation Plan will require execution of an agreement document
14 between the Monument Co-Trustees and the Advisory Council on Historic Preservation.

15
16 **Strategy HR-2: Implement, supervise, and monitor the historic preservation treatments**
17 **identified in the Midway Atoll Historic Preservation Plan at two historic properties each**
18 **year.**

19
20 The Midway Atoll Historic Preservation Plan (Speulda et al. 1999) and its enabling authorities
21 (National Historic Preservation Act of 1966 and the Programmatic Agreement for Treatment of
22 Historic Properties at Midway) have prescribed specific historic preservation treatments for the
23 63 historic properties at Midway Atoll NWR. Implementing this prescription requires a program
24 that identifies needs and procedures, and supervises the conduct of preservation treatments at the
25 properties. This strategy will be coordinated with the facilities operation plan and the lead-based
26 paint abatement priorities. An important activity in this strategy is to adaptively reuse historic
27 buildings and structures at Midway Atoll NWR. Many of Midway's historic properties can serve
28 the need for administrative and public space as Monument activities grow.

29
30 ***Activity HR-2.1: Within 3 years, create dedicated capacity to implement the updated Historic***
31 ***Preservation Plan.***

32 Limited staff and funds currently exist at the Midway Atoll NWR or among the Monument
33 management agencies for historic preservation and cultural and historic resources management.
34 Agencies will identify staff needs and work toward building staff capacity to carry out the
35 strategies and activities contained within this and related action plans. Staffing needs will be
36 identified and included in the development of the Monument Cultural Resources Program plan
37 (see section 3.1.2, the Native Hawaiian Culture and History Action Plan).

38 ***Activity HR-2.2: Annually train Monument staff and the Midway contractors on the content of***
39 ***the Historic Preservation Plan and implementation of appropriate treatments.***

40 All Midway personnel who are involved in maintaining Midway Atoll infrastructure need to be
41 aware of the historic preservation responsibilities and procedures on the atoll. This will ensure
42 that the use and maintenance of the historic properties occurs according to the treatment
43 identified in the Historic Preservation Plan. Training media will be produced so that all new and
44 visiting personnel and all regular permanent personnel stay current on historic preservation
45 priorities on an annual basis.

1 **Activity HR-2.3: Incorporate into the Midway Atoll visitor services program semiannual**
2 **opportunities and events for visitors or volunteers to implement historic preservation**
3 **treatments.**

4 This activity will resurrect and refine the previous Refuge program to recruit volunteers to help
5 maintain historic properties including painting, window restoration, and landscape maintenance.

6 **Strategy HR-3: HR-3: Prepare an updated Battle of Midway National Historic Landmark**
7 **nomination within 4 years.**

8
9 The American victory at the Battle of Midway changed the course of World War II in the Pacific.
10 The Battle of Midway National Historic Landmark was created in 1986 to honor this great
11 achievement and the sacrifices of those involved. The National Historic Landmark (NHL)
12 focuses on the remains of nine defensive positions on Midway's Sand Island that are directly
13 associated with this historic battle. These include six magazines, a pillbox, a 3-inch gun
14 emplacement at Battery D and 5-inch gun emplacements at Battery C. We now have a better
15 understanding of historic features at Midway that played an important role in the battle. As a
16 result, it is appropriate to update this important ensemble of National Historic Landmark features.
17 Additional structures to consider for inclusion in the National Historic Landmark include Battery
18 A, which had not been located when the National Historic Landmark was drafted; the
19 underground bunker on south beach; and the south beach pillbox (S-6). The Eastern Island
20 runways will also be considered for inclusion in the National Historic Landmark.

21
22 **Activity HR-3.1: Identify, collect, and review publications, data sets, and documents on the**
23 **National Historic Landmark within 2 years of Monument Management Plan adoption.**

24 Archival research is the first step to identify resources that may be appropriate to include in the
25 National Historic Landmark.

26 **Activity HR-3.2: Plan and conduct a field survey and documentation of selected National**
27 **Historic Landmark sites and features within 2 years.**

28 Standard historical archaeological practice will be exercised in this activity.

29
30 **Activity HR-3.3: Consult with interested parties and update the National Historic Landmark**
31 **nomination within 4 years.**

32 This activity includes evaluation of the findings, preparation of a report, an updated National
33 Historic Landmark nomination, and consultation with the Advisory Council on Historic
34 Preservation, the National Park Service National Historic Landmark staff, the Hawai'i State
35 Historic Preservation Office, and interested and knowledgeable parties such as the Sixth Defense
36 Battalion of the U.S. Marine Corps and Defenders of Midway Islands Reunion Association, and
37 the International Midway Memorial Foundation.

38
39 **Activity HR-3.4: Implement repair and maintenance treatments at National Historic**
40 **Landmark features within 6 years.**

41 The National Historic Landmark features require periodic repair and maintenance. Depending on
42 the treatment, some of the repair and maintenance can be accomplished by volunteers or other
43 unskilled labor, while other repair work will require the involvement of specially trained historic
44 preservation architects and engineers.

1 **Strategy HR-4: Improve the function and capacity of the Midway museum within 8 years.**

2
3 The Midway museum should be a general repository containing written material, photographs,
4 artifacts, oral histories, and personal memorabilia relating to Midway's history. The museum
5 should include a climate-controlled storage area, as well as research desks and tape recording
6 and listening booths. The Midway museum should be a unique repository for records and
7 materials useful for interpreting the history and natural history of Midway Atoll.

8
9 **Activity HR-4.1: Prepare a Scope of Collections Statement within 5 years.**

10 The Scope of Collections Statement document will help define the scope and types of documents,
11 artifacts, and other historic materials that may be donated, or otherwise acquired by Monument
12 staff for proper museum curation.

13
14 **Activity HR-4.2: Remodel the Midway museum space within 7 years.**

15 This activity will remodel the Midway museum space to meet the needs of the Scope of
16 Collections Statement and the visiting public, and to preserve the artifacts and historical
17 materials according to the museum curation standards set forth by the Department of the Interior
18 Manual 411 DM (Department of the Interior 1997).

19
20 **Activity HR-4.3: Organize and curate collections within 8 years.**

21 Organize and curate Midway Museum collections according the museum curation standards set
22 forth by the Department of the Interior (411 DM).

23
24 **Strategy HR-5: Document and inventory historic resources beyond Midway Atoll NWR**
25 **within 15 years.**

26 Studying and protecting historic resources beyond Midway Atoll begins with basic documentary
27 research and field site surveys. These activities are similar to those involved with ecosystem
28 research. Both involve consolidation of past research and archival data, and field inventory of
29 nonmarine areas within the Monument. Historic resource surveys are compatible with planned
30 multitasking missions, interagency cooperation, and operational efficiency.

31
32 **Activity HR-5.1: Identify, collect, and review publications, data sets, and documents within**
33 **12 years.**

34 Archival research is the first step to identify historic resources that may occur on other islands
35 and atolls in the archipelago beyond Midway.

36 **Activity HR-5.2: Plan, conduct, and report on field surveys and documentation of selected sites**
37 **within 15 years.**

38 Standard historical archaeological practice will be exercised in this activity.

39
40 **Strategy HR-6: Conduct archaeological and historical research on the historical events and**
41 **structures at Midway Atoll NWR within 15 years.**

42
43 Much has been written and documented about the history and historic properties at Midway
44 Atoll, particularly with respect to its role in World War II. However, Midway's history is rich
45 and varied. Many nontraditional perspectives and sources of information have yet to be

1 investigated. A healthy and responsible historic preservation program at Midway will conduct
2 new research.

3
4 ***Activity HR-6.1: Begin a long-term annual program to compile, collect, curate, and publish***
5 ***oral histories of life on Midway Atoll within 3 years.***

6 From the Commercial Pacific Cable Station era to World War II and through the Cold War,
7 many people have lived on or visited Midway Atoll. Their stories provide a perspective on
8 Midway, commerce, and war that is rarely captured in standard histories and official documents.
9 Some of these personal oral histories have been recorded; many others need to be collected. This
10 activity will ensure that alternative perspectives on the unique history of Midway Atoll will not
11 be lost to the passing of the ages.

12
13 ***Activity HR-6.2: Conduct archaeological investigation of the Commercial Pacific Cable***
14 ***Station site within 10 years.***

15 The Commercial Pacific Cable Station era was a unique chapter in the history of Midway Atoll.
16 Archaeological and historical research, including excavation, will shed light on the lifestyle and
17 struggles of Midway's earliest permanent residents.

1 **Table 3.1.3 Summary of Strategies, Activities, and Agency Leads for Historic Resources**
 2

Strategies and Activities	Agency Lead
Strategy HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present needs of the Refuge and Monument within 1 year.	
Activity HR-1.1: Reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead-based paint abatement plan, and other facilities maintenance and use plans.	FWS
Activity HR-1.2: Submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners.	FWS
Strategy HR-2: Implement, supervise, and monitor the historic preservation treatments identified in the Midway Atoll Historic Preservation Plan at two historic properties each year.	
Activity HR-2.1: Within 3 years, create dedicated capacity to implement the updated Historic Preservation Plan.	FWS
Activity HR-2.2: Annually train Monument staff and the Midway contractors on the content of the Historic Preservation Plan and implementation of appropriate treatments.	FWS
Activity HR-2.3: Incorporate into the Midway Atoll visitor services program semiannual opportunities and events for visitors or volunteers to implement historic preservation treatments.	FWS
Strategy HR-3: HR-3: Prepare an updated Battle of Midway National Historic Landmark nomination within 4 years.	
Activity HR-3.1: Identify, collect, and review publications, data sets, and documents on the National Historic Landmark within 2 years of Monument Management Plan adoption.	FWS
Activity HR-3.2: Plan and conduct a field survey and documentation of selected National Historic Landmark sites and features within 2 years.	FWS
Activity HR-3.3: Consult with interested parties and update the National Historic Landmark nomination within 4 years	FWS
Activity HR-3.4: Implement repair and maintenance treatments at National Historic Landmark features within 6 years.	FWS
Strategy HR-4: Improve the function and capacity of the Midway museum within 8 years.	
Activity HR-4.1: Prepare a Scope of Collections Statement within 5 years.	FWS
Activity HR-4.2: Remodel the Midway museum space within 7 years.	FWS
Activity HR-4.3: Organize and curate collections within 8 years.	FWS
Strategy HR-5: Document and inventory historic resources beyond Midway Atoll NWR within 15 years.	
Activity HR-5.1: Identify, collect, and review publications, data sets, and documents within 12 years.	FWS
Activity HR-5.2: Plan, conduct, and report on field surveys and documentation of selected sites within 15 years.	FWS
Strategy HR-6: Conduct archaeological and historical research on the historical events and structures at Midway Atoll NWR within 15 years.	
Activity HR-6.1: Begin a long-term annual program to compile, collect, curate, and publish oral histories of life on Midway Atoll within 3 years.	FWS
Activity HR-6.2: Conduct archaeological investigation of the Commercial Pacific Cable Station site within 10 years.	FWS

3

1 **3.1.4 Maritime Heritage Action Plan**

3 **Desired Outcome**

5 Identify, interpret, and protect maritime
7 heritage resources in Papahānaumokuākea
9 Marine National Monument.

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.1.3	Historic Resources Action Plan
3.3.4	Emergency Response and Natural Resource Damage Assessment
3.4.1	Permitting
3.5.3	Native Hawaiian Community Involvement

11 **Current Status and Background**

13 The maritime heritage of the NWHI began
15 hundreds, if not thousands, of years ago with Polynesian and Native Hawaiian
17 voyages across the Hawaiian archipelago and beyond. This history, the
19 lessons this history provides, and the need to further the understanding of this
21 heritage are critical and are dealt with in other areas of this Monument
23 Management Plan (see section 3.1.2, the Native Hawaiian Culture and History
25 Action Plan, and section 3.5.3, the Native Hawaiian Community Involvement
26 Action Plan).

Links to goals
Goal 3
Goal 4
Goal 5
Goal 7

28 Preliminary survey of the maritime heritage resource base was begun during the Northwestern
29 Hawaiian Islands Reef Assessment and Monitoring Program research expedition in 2002 and
30 continued opportunistically in 2003 and 2005-2006. Initial investigations in the NWHI led to the
31 discovery of the naval steamer USS *Saginaw*, wrecked in 1870, the submarine rescue vessel USS
32 *Macaw*, lost in 1944, the sailing ship *Carrollton*, lost in 1906, and the whale ship *Parker*, lost in
33 1842. In 2004, NOAA divers located the remains of the British whaling ships *Pearl* and
34 *Hermes*, lost in 1822. These two archaeological sites provide a unique material record of historic
35 activities, being the oldest wrecks yet found in the Hawaiian Islands and the only known whalers
36 of the British South Seas Company in the world. Applying heritage practices to maritime
37 resources challenges society to value what has only too often been considered out of sight and
38 out of mind.

39 Best practices in the maritime heritage field, at both the national and international levels,
40 highlight similarities between heritage preservation and natural resources conservation. These
41 best practices aim to value maritime heritage resources in a manner that complements, rather
42 than conflicts with, ecosystem management. While excavation may be appropriate in certain
43 circumstances, in situ management is considered the first or preferred alternative in the overall
44 research design. In situ management does not preclude recovery, but does set forth a
45 “precautionary” approach in terms of the artifacts and their environment. Proposed heritage
46 work in the NWHI region emphasizes a low-impact approach, to an extent consistent with the
47 Monument’s conservation goals and guiding principles. The coordinated management of
48 heritage and natural resources is achieved through a unified permitting process.

50 **Need for Action**

51 For the purposes of this Monument Management Plan, the definition of maritime heritage
52 resources includes submerged and beached shipwrecks, aircraft, and other sites of historical,
53 cultural, and archaeological significance. These resources have not been adequately inventoried
54 or protected within the NWHI. The main Hawaiian Islands have experienced the illegal removal
55 of historic artifacts, as well as the potential destruction of historic material from nearshore

1 construction and dredging projects. By comparison, NWHI maritime heritage resources are
2 relatively intact and undisturbed. NOAA, the State of Hawai‘i, and FWS have the statutory
3 responsibility to inventory, evaluate, and interpret these heritage resources, and together increase
4 maritime heritage preservation in the Monument and awareness of these unique resources
5 throughout the State.

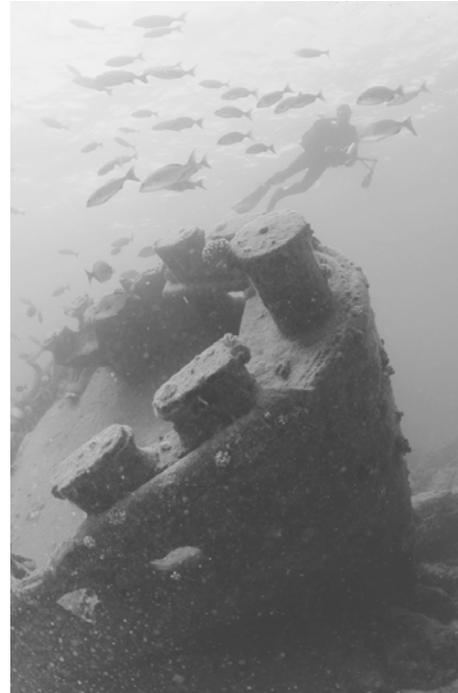
6
7 NOAA, the State of Hawai‘i, and FWS share similar goals of heritage resource preservation in
8 the Monument. Protection and management of sites that meet established heritage criteria are
10 mandated by State and Federal preservation laws.

12 Maritime heritage resources, when properly studied and
14 interpreted, add an important dimension to our
16 understanding and appreciation of our nation’s rich
18 maritime legacy, and make us more aware of the critical
20 need to be wise stewards of our ocean planet.

22
24 NOAA and FWS comply with the Federal
26 Archaeological Program, a collection of laws and
28 regulations that pertain to the protection of historical
30 and archaeological properties on Federal and Federally
32 managed lands. The National Historic Preservation Act
34 directs all Federal agencies to develop programs to
36 protect historical and archaeological resources. Section
38 106 requires agencies to consider the potential impacts
40 of their actions, including the review of permit
42 applications for projects that may allow the disturbance
44 of the seabed, where archaeological remains may lie.
46 Section 110 requires agencies to actively search for
48 archaeological resources and to assess them for their
50 significance and eligibility for inclusion in the National
52 Register of Historic Places. This action plan presents
54 strategies and activities for addressing maritime
56 heritage resource management and protection needs in
57 the Monument. To this end, each program or agency may contribute its own particular expertise:
58 the Maritime Heritage Program, under NOAA’s National Marine Sanctuary Program, features
59 field survey skills in underwater archaeology; FWS manages its comprehensive cultural
60 resources program; and the State of Hawai‘i Department of Land and Natural Resources
61 provides the context of the State inventory.

62
63 **Strategies to Achieve the Desired Outcome**

64 The strategies and associated activities in this action plan are designed to increase our
65 understanding of maritime heritage resources and foster effective and protective management in
66 the Monument. These strategies will be carried out in collaboration with maritime heritage staff
67 of the National Marine Sanctuary Program, Pacific Islands Region; the Historic Preservation
68 Division of the State Department of Land and Natural Resources; and the FWS Cultural
69 Resources Team.



NOAA diver surveys the USS *Macaw* remains off Midway Atoll. Photo: James Watt

1 Three strategies have been developed for achieving the desired outcome of identifying,
 2 interpreting, and protecting maritime heritage resources in the NWHI. The strategies and
 3 activities are coded by the acronym for the action plan title, “Maritime Heritage” (MH). A
 4 summary of strategies and activities is provided in Table 3.1.4 at the end of this action plan.

- 6 • MH-1: Document and inventory maritime heritage resources throughout the life of the
 7 plan.
- 8 • MH-2: Incorporate maritime heritage into public education and outreach throughout the
 9 life of the plan.
- 10 • MH-3: Coordinate interagency efforts to protect maritime heritage resources for the life
 11 of the plan.

12
 13 **Strategy MH-1: Document and inventory maritime heritage resources throughout the life**
 14 **of the plan.**

15 Studying and protecting maritime heritage resources begin with basic documentary research and
 16 field site surveys. These activities are similar to those involved with ecosystem research. Both
 17 involve consolidation of past research and archival data, scientific SCUBA diving operations,
 18 and bathymetric mapping and remote sensing surveys. Maritime heritage surveys are compatible
 19 with planned multitasking missions, interagency cooperation, and operational efficiency.

20 ***Activity MH-1.1: Identify, collect, and review publications, data sets, and documents annually.***

21 Archival research and review of existing documents are the first steps in creating and confirming
 22 the maritime heritage resource inventory in the NWHI, as well as in formulating an effective
 23 field survey plan. Documents from five maritime heritage sites will be added to the site database
 24 per year.

25
 26 ***Activity MH-1.2: Plan and carry out coordinated field mapping surveys of selected sites***
 27 ***annually.***

28 Conducting field mapping surveys is the next step in understanding and interpreting heritage sites.
 29 Techniques can include shoreline terrestrial survey and inventory; marine remote sensing using
 30 magnetometer and side-scan sonar to locate potential heritage targets; and noninvasive diving
 31 surveys to assess and inventory sites (Dean 1992). These phases generally take place during
 32 multidisciplinary research cruises and are the result of coordinated interagency planning. Results
 33 are incorporated into a comprehensive Monument maritime heritage resource inventory maintained
 34 by NOAA’s National Marine Sanctuary Program. As an ongoing annual activity, maritime
 35 heritage field surveys will be conducted and progress reports will be completed annually.

36 ***Activity MH-1.3: Complete a status report on potential environmental hazards within 1 year,***
 37 ***and update it annually.***

38 Wreck sites and other debris can represent potential environmental hazards that may be
 39 identified through field survey work. The MMB will be informed of any discovered potential
 40 hazards in order to assess the need for response or remediation (see 3.3.4, Emergency Response
 41 and Natural Resource Damage Assessment Action Plan). A status report on potential
 42 environmental hazards from wreck sites, disposal, etc. will be compiled by year 1 and updated
 43 annually.

1 ***Activity MH-1.4: Develop status report on maritime heritage artifact recovery operations***
 2 ***within 2 years, and recover and conserve maritime heritage artifacts as appropriate.***

3 When excavation and analysis of material remains are appropriate for site interpretation, and
 4 when these tasks can be done in a manner that respects the integrity of the ecosystem and the
 5 environmental goals of the Monument, recovery of selected artifacts is a way of bringing the data
 6 to the public, rather than taking more visitors to the NWHI site. Such recovery will be carried
 7 out through the established permitting processes of the Monument (see section 3.4.1, Permitting
 8 Action Plan and Appendix A). A status report on potential/completed maritime heritage
 9 recovery operations will be completed by year 2 and updated annually.

10
 11 ***Activity MH-1.5: Develop and implement an internal maritime heritage resource database***
 12 ***within 5 years.***

13 An internal database of known maritime heritage resources will be established and maintained by
 14 the Monument maritime archaeologist for the prioritization of targets, to be completed by year 5.

15 **Strategy MH-2: Incorporate maritime heritage into public education and outreach**
 16 **throughout the life of the plan.**

17 Raising public awareness of the maritime heritage field is essential to better valuing and
 18 protecting the resource. Protection comes through understanding the nature of heritage resources
 19 and what we can learn from them, as well as familiarity with established preservation laws.
 20 Education and outreach efforts for maritime sites emphasize “bringing the place to the people,
 21 not the people to the place” in a responsible manner.

22 ***Activity MH-2.1: Incorporate maritime heritage materials into Monument education and***
 23 ***outreach projects annually.***

24 Resources and opportunities for collaboration for education and outreach are available through
 25 the MMB agencies and other entities. Monument maritime archaeologists will coordinate and
 26 participate in public outreach regarding Monument heritage resources and maritime history.
 27 Outreach efforts may include presentations, displays, still and video projects, and website
 28 materials. This activity includes potential support for the promotion of Native Hawaiian cultural
 29 outreach and education via section 3.1.2, the Native Hawaiian Culture and History Action Plan.

30 ***Activity MH-2.2: Develop and deliver public maritime heritage educational materials at selected***
 31 ***presentations, conferences, and events.***

32 Shipwreck topics often appeal to large audiences at local, national, and international levels, and
 33 offer a chance to not only highlight the relatively new field of maritime heritage, but also to
 34 emphasize the unique nature of the NWHI, the need for conservation and ecosystem
 35 management, and the overall stewardship of all ocean resources. A minimum of two maritime
 36 heritage presentations will be given at professional conferences or public events each year.

1 **Strategy MH-3: Coordinate interagency efforts to protect maritime heritage resources for**
 2 **the life of the plan.**

3 Because of NOAA's previous maritime heritage work in the region, efforts to inventory,
 4 evaluate, interpret, and preserve maritime heritage resources in the NWHI will be coordinated by
 5 a staff maritime archaeologist through the NMSP, and conducted in close collaboration and
 6 coordination with the MMB. Each program or agency provides expertise in related fields:
 7 maritime archaeology field survey (NOAA); museum program, terrestrial archaeology, and
 8 National Historic Preservation Act (NHPA) implementation (FWS); and State survey, inventory
 9 and preservation (Department of Land and Natural Resources).

10 ***Activity MH-3.1: Coordinate interagency maritime heritage resources management annually.***

11 Communication by the MMB with heritage preservation efforts on a larger scale is essential. This
 12 involves sharing research and preservation efforts in the Monument with the related professional
 13 fields of archaeology and cultural resource management, among others. Coordination of field
 14 activities is also necessary for the more effective use of facilities and equipment. Efforts to
 15 collaborate and coordinate will occur annually for the duration of the plan.

16 ***Activity MH-3.2: Enhance protective measures for selected sites within the NWHI through the***
 17 ***National Register nomination process within 2 years.***

18 Protection of specific heritage sites will be enhanced by Federal recognition under the National
 19 Heritage Preservation Act and the National Register of Historic Places (Delgado 1985).
 20 Additionally, preservation measures of the Department of Land and Natural Resources will be
 21 implemented for resources on State submerged lands (up to 3 nautical miles from emergent
 22 lands) via the State Historic Preservation Division. Protective status for specific sites will be
 23 sought as needed using measures described above. This activity includes potential support for
 24 the protection and preservation of Native Hawaiian cultural resources discussed in the Native
 25 Hawaiian Culture and History Action Plan (section 3.1.2). The National Register nomination
 26 process for maritime heritage sites will begin by year 2.
 27

28 ***Activity MH-3.3: Develop and implement a Monument Maritime Heritage Research Plan***
 29 ***within 2 years.***

30 The Monument Maritime Heritage Resource Research Plan will be completed within 2 years.
 31 Working collaboratively with partner and local agencies, universities, and experts in the field, the
 32 MMB will develop a research plan that outlines maritime heritage priorities for the NWHI. This
 33 effort will be coordinated by the Monument maritime archaeologist.

1 **Table 3.1.4 Summary of Strategies, Activities, and Agency Leads for Maritime Heritage**

2

Strategies and Activities	Agency Lead
Strategy MH-1: Document and inventory maritime heritage resources throughout the life of the plan.	
Activity MH-1.1: Identify, collect, and review publications, data sets, and documents annually.	NOAA
Activity MH-1.2: Plan and carry out coordinated field mapping surveys of selected sites annually.	NOAA
Activity MH-1.3: Complete a status report on potential environmental hazards within 1 year, and update it annually.	NOAA
Activity MH-1.4: Develop status report on maritime heritage artifact recovery operations within 2 years, and recover and conserve maritime heritage artifacts as appropriate.	NOAA
Activity MH-1.5: Develop and implement an internal maritime heritage resource database within 5 years.	NOAA
Strategy MH-2: Incorporate maritime heritage into public education and outreach throughout the life of the plan.	
Activity MH-2.1: Incorporate maritime heritage materials into Monument education and outreach projects annually.	NOAA
Activity MH-2.2: Develop and deliver public maritime heritage educational materials at selected presentations, conferences, and events.	NOAA
Strategy MH-3: Coordinate interagency efforts to protect maritime heritage resources for the life of the plan.	
Activity MH-3.1: Coordinate interagency maritime heritage resources management annually.	NOAA
Activity MH-3.2: Enhance protective measures for selected sites within the NWHI through the National Register nomination process within 2 years.	NOAA
Activity MH-3.3: Develop and implement a Monument Maritime Heritage Research Plan within 2 years.	NOAA

3

3.2 Conserving Wildlife and Habitats

3.2.1 Threatened and Endangered Species Action Plan

3.2.2 Migratory Birds Action Plan

3.2.3 Habitat Management and Conservation Action Plan

3.2 Conserving Wildlife and Habitats

Coastal development in the main Hawaiian Islands has resulted in the destruction of natural habitats for many protected species, giving rise to the NWHI's function as a wildlife haven relatively undisturbed by human presence. A significant number of species found in the NWHI are at risk of extinction and depend upon the unique habitat found there for their survival. Ninety percent of green turtles nest in the NWHI, and the majority of Hawaiian monk seals pup there. The NWHI also host one of the largest and most important assemblages of seabirds in the world.

Past human activities in the NWHI have left lasting habitat impacts in the form of sunken and grounded vessels, dilapidated buildings and structures, military sites, and introduced species that have become invasive. The remnants of these activities can sometimes pose a threat to wildlife and their natural habitat. To address these impacts, the FWS maintains a full-time presence at French Frigate Shoals, Laysan Island, and Midway Atoll to monitor wildlife, eliminate noxious weeds, restore native vegetation, prevent the extinction of native species, and clean up contaminated sites. NOAA maintains seasonal field camps at several islands to monitor Hawaiian monk seal populations, as well as working with FWS at seasonal sea turtle camps. The State also maintains a part-time presence at Kure Atoll to undertake similar activities.

Action plans to take care of threatened and endangered species, migratory birds, and the habitats upon which they depend focus on undertaking on-the-ground conservation and management strategies. These strategies and activities focus on population enhancement through the maintenance and improvement of key ecosystem components.

Each action plan consists of a set of strategies to address a desired outcome. Over the next 15 years, these desired outcomes are:

- **Threatened and Endangered Species:** Protect marine mammals and aid in the recovery of threatened and endangered plants and animals in the Monument.
- **Migratory Birds:** Conserve migratory bird populations and habitats in the Monument.
- **Habitat Management and Conservation:** Protect and maintain all the native ecosystems and biological diversity of the Monument.

Action plans described in this section will be implemented in close coordination with jurisdictional agency partners and in conjunction with other priority management needs.

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3.2.1 Threatened and Endangered Species Action Plan

Desired Outcome

Protect marine mammals and aid in the recovery of threatened and endangered plants and animals within Papahānaumokuākea Marine National Monument.

Current Status and Background

Two Federal acts, as well as multiple State statutes, protect specific species in the NWHI. The Federal acts are the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). The Endangered Species Act of 1973 provides for the conservation of species at risk of extinction throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The Act also gives the states authority for managing endangered species programs. The MMPA provides protection and conservation of all marine mammals whether or not listed under the ESA. Due to the overlap of protections, this Action Plan activities are directed at both ESA listed and non-ESA listed marine mammals. The State of Hawai‘i has additional protections in its version of the ESA, codified chapter 195D, HRS, which also affords other indigenous species treatment as threatened or endangered if criteria are met (section 195D-4, HRS) as well as chapter 183D, HRS Wildlife, and chapter 125, Wildlife Sanctuaries, Hawai‘i Administrative Rules Title 13. Most of the strategies and activities presented in this plan come directly from or are adapted from the most recent versions of existing recovery plans for each of these species protected by the Endangered Species Act.

Hawaiian Monk Seal: The Hawaiian monk seal is in crisis. The population is in a decline that has lasted 20 years, and only about 1,200 monk seals remain. Modeling predicts that the species’ population will fall below 1,000 animals by the year 2012. Actions to date have not been sufficient to result in a recovering population. Most of the entire world population of Hawaiian monk seals breeds and forages inside the Monument. A recent revision of the recovery plan for the Hawaiian monk seal provides guidance for the lead agency in this recovery program, NOAA Fisheries. The action plan details the ways in which the MMB can facilitate and support those efforts (NOAA Fisheries 2007).

Cetaceans: In the NWHI, sighting and acoustic recordings of baleen whales as well as toothed whales and dolphins have been documented. Five species of baleen whales listed as “endangered” under the Endangered Species Act of 1973 and as “depleted” under the Marine Mammal Protection Act of 1972 have been sighted or heard in the Monument area. In addition to these five, the endangered sperm whale and at least 18 other non-ESA listed species are found in the Monument. It has now been documented that humpback whales are calving in the eastern portion of the Monument (Johnston et al. 2007). Recovery actions for this listed species are summarized in the final recovery plan for the humpback whale, *Megaptera novaeangliae* (NOAA Fisheries 1991). Draft recovery plans are available for the fin whale and sperm whale (NOAA Fisheries 2006a, 2006b), and a final plan is available for the recovery of the blue whale (NOAA Fisheries 1998).

Links to other Action Plans	
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.2	Alien Species
3.4.1	Permitting Action Plan
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Links to goals
Goal 1
Goal 3
Goal 4

1 **Marine Turtles:** Marine turtles that are known to occur in the Monument are the Hawaiian
2 population of the green turtle and hawksbill, loggerhead, and leatherback turtles. While there are
3 no records of the endangered olive ridley within Monument waters, their wide distribution
4 throughout the tropical Pacific makes it likely that they do sometimes occur there. Green and
5 loggerhead sea turtles are listed as threatened species; the hawksbill and leatherback turtles are
6 classified as endangered species. Recovery plans are in place for each of these species in the
7 Pacific and 5-year reviews were jointly published in 2007 (NOAA Fisheries and FWS 1998a;
8 1998b; 1998c; 1998d; 1998e, 2007). Sea turtle population declines have occurred across the
9 Pacific due to nesting habitat loss, harvesting of eggs and turtles for commercial and subsistence
10 purposes, and fishery interactions. About 90 percent of the green turtles in the Hawaiian Islands
11 nest in the NWHI, the majority on a few islets at French Frigate Shoals (Balazs and Chaloupka
12 2003).

13
14 **Birds:** Five critically endangered bird species in the NWHI are afforded protection under the
15 Endangered Species Act. Three species are passerines: the Laysan finch, found on Laysan Island
16 and Pearl and Hermes Atoll, and the Nihoa finch and the Nihoa millerbird, which are endemic to
17 Nihoa Island. Research, recovery, and management of these species takes into consideration the
18 recommendations of the Northwestern Hawaiian Islands Passerines Recovery Plan (FWS 1984)
19 and ongoing input from species experts. Numerous sites were evaluated and ranked for
20 translocation of these species to establish additional populations; this information and some
21 recommendations for proceeding with translocation were provided recently by Morin and Conant
22 (2007).

23
24 The Laysan duck has the most restricted range of any duck species and is especially vulnerable
25 to extinction because of its small population size (fewer than 800 individuals) and extremely
26 limited range. In 2004 and 2005, approximately 50 Laysan ducks were translocated to Midway
27 Atoll NWR, where to date they are flourishing. Additional activities are described in the Draft
28 Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*) (FWS 2004).

29
30 The short-tailed albatross breeds on Torishima, an island owned and administered by Japan. The
31 short-tailed albatross was first observed at Midway Atoll between 1936 and 1941. Since then,
32 one to three individuals have been observed every year in the NWHI. The Short-tailed Albatross
33 Draft Recovery Plan (FWS 2005) provides suggestions for ways in which Monument staff can
34 facilitate recovery of this species.

35
36 **Plants:** Six plant species known historically from the NWHI are listed as endangered. Three
37 plant taxa have probably always been rare and restricted to Nihoa Island, although one species,
38 the loulu or fan palm, also occurred on Laysan Island. *Mariscus pennatiformis* ssp. *bryanii* is
39 known only from Laysan Island. *Cenchrus agrimonioides* var. *laysanensis* was historically
40 known from Laysan Island and Midway and Kure Atolls, but has not been seen there since about
41 1980 (O'Connor 1999; HBMP database 2007). A recovery plan for three species found only at
42 Nihoa (Nihoa fan palm, *Schiedea verticillata*, and *Amaranthus brownii*) was finalized in 1998
43 (FWS 1998). Recovery actions for the other three species (*Cenchrus agrimonioides*, *Mariscus*
44 *pennatiformis*, and *Sesbania tomentosa* or 'ohai) are described in the Recovery Plan for the
45 Multi-Island Plants (FWS 1999).

1 **Need for Action**

2 A coordinated and comprehensive approach is required to protect and recover these
3 23 endangered or threatened species. Cooperation among the MMB agencies is crucial to ensure
4 that management actions conducted in the Monument are effective in protecting and enhancing
5 populations of these endangered species and marine mammals.
6

7 **Strategies to Achieve the Desired Outcome**

8 The strategies and associated activities in this action plan are designed to increase populations of
9 threatened and endangered species and foster effective and protective management in the
10 Monument. These strategies will be carried out in collaboration with and coordination by the
11 Co-Trustees and other entities. The proposed activities in this Action Plan are characterized by
12 more urgency and perhaps in some cases more controversy than those in some of the other
13 Action Plans. Extra consideration is needed during prioritization of activities and in permitting
14 in light of the high cost of failure. A great effort to coordinate with key stakeholder groups
15 and the Native Hawaiian community will ensure that all interests have been identified.
16

17 Eight strategies have been developed for achieving the desired outcome of protecting marine
18 mammals and aiding in the recovery of threatened and endangered plants and animals in the
19 Monument. The strategies and activities are coded by the acronym for the action plan title,
20 “Threatened and Endangered Species” (TES). A summary of strategies and activities is provided
21 in Table 3.2.1 at the end of this action plan.
22

- 23 • TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of
24 the plan.
- 25 • TES-2: Determine the status of cetacean populations and verify and manage potential
26 threats over the life of the plan.
- 27 • TES-3: Ensure that nesting populations of green turtles at source beaches are stable or
28 increasing for the life of the plan.
- 29 • TES-4: Work with the international recovery team for short-tailed albatrosses to facilitate
30 an increase in the total breeding population of this species to at least 25 breeding pairs
31 occurring on sites other than Torishima and Senkaku islands for the life of the plan.
- 32 • TES-5: Conduct activities to increase Laysan duck populations in the Monument over the
33 life of the plan.
- 34 • TES-6: Maintain stable populations of the Laysan finch, Nihoa finch, and Nihoa
35 millerbird in the Monument over the life of the plan.
- 36 • TES-7: Establish populations of each listed plant species on one to three additional
37 Monument islands and ensure genetic material is also protected in approved repositories
38 for the life of the plan.
- 39 • TES-8: Ensure protection of threatened and endangered species by facilitating
40 Endangered Species Act consultations for Monument activities throughout the life of the
41 plan.
42
43
44
45

1 **Strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal for**
2 **the life of the plan.**

3
4 For the past 2 decades, a concerted effort has been made to save the Hawaiian monk seal. The
5 U.S. Government, the State of Hawai‘i, nongovernment organizations, private sector entities, and
6 countless individuals in local communities across Hawai‘i have worked to recover the species.
7 These efforts have not been sufficient to prevent a continued decline in the species. However,
8 without these efforts, the situation would likely be much worse.
9

10 As recommended by the 2007 Recovery Plan for the Hawaiian Monk Seal, several key actions
11 are required to address current and potential threats to the monk seal in attempts to alter the
12 trajectory of the Hawaiian monk seal population and to move the species toward recovery. The
13 most critical activities described in the plan that are applicable to the monk seal population in the
14 Monument are to (1) investigate food limitations and take actions to increase female juvenile
15 survival, (2) prevent entanglement of seals in marine debris, (3) reduce shark predation on seals,
16 (4) reduce exposure to and spread of infectious disease, (5) continue population monitoring and
17 research, (6) reduce impacts from grounded vessels, (7) reduce the impact of human interactions,
18 and (8) conserve monk seal habitat.
19

20 To advance efforts on these key actions to address threats to monk seal survival and recovery,
21 the MMB will pursue several key strategies in support of monk seal recovery efforts. These
22 efforts will advance the objective of reversing the population decline of monk seal populations in
23 the Monument and achieving a positive growth rate during the life of this plan.
24

25 ***Activity TES-1.1: Support marine debris removal activities to promote recovery.***

26 Hawaiian monk seals have one of the highest documented entanglement rates of any pinniped
27 species, and marine debris and derelict fishing gear are chronic forms of pollution affecting the
28 NWHI. The incidence of entangled monk seals at the breeding sites of the NWHI has been well
29 documented and field staff actively disentangle seals. Monument staff will support efforts to
30 reduce marine debris as detailed in the strategies and activities in the Marine Debris Action Plan.
31 These efforts, particularly in key monk seal habitat, will decrease the number of injuries and
32 mortalities due to entanglement (see section 3.3.1, Marine Debris Action Plan).
33

34 ***Activity TES-1.2: Support and facilitate emergency response for monk seals.***

35 The ability to respond to situations in the Monument that threaten monks seals, such as ship
36 groundings, oil spills, and disease outbreak, requires a well-coordinated interagency effort and is
37 constrained by limited transportation and logistical capabilities. Several agencies have response
38 protocols, but further coordination and collaboration among the agencies will help minimize the
39 effects during these events. Agreed-upon and standardized protocols will be put into place to
40 ensure that a rapid and well-organized response, including assessment, proper collection of
41 evidence, and continued monitoring, occurs during and after an event. The Monument can
42 facilitate these types of responses through coordination, permitting, and transportation and
43 logistical support.

1 **Activity TES-1.3: Conserve Hawaiian monk seal habitat.**

2 Consideration should be given to evaluating the loss of habitat due to erosion and other factors
 3 (e.g., sea level rise) that have contributed to the loss of critical habitat for seals. Predicted
 4 increases in sea level this century and beyond may severely reduce the amount of habitat for
 5 seals to rest, breed, and rear their pups. Feasibility of restoration will be evaluated to consider
 6 rebuilding habitat essential for the reproduction of monk seals and other protected species (e.g.,
 7 turtles and sea birds) at several alternative sites that could lead to rebuilding preferred, stable
 8 pupping habitat (i.e., accessibility, long shoreline, stable beach).
 9

10 **Activity TES-1.4: Reduce the likelihood and impact of human interactions on monk seals.**

11 Efforts will be made to ensure that all users of the NWHI are aware of the impacts of disturbing
 12 monk seals on breeding beaches and in nearshore waters. Any proposed activity in the
 13 Monument that may increase seal disturbance or threaten survival (such as nearshore ship traffic,
 14 beach use, noise, unnecessary research, or any other impact that could negatively affect the
 15 marine or terrestrial habitat of the monk seal) should be scrutinized carefully during the permit
 16 review process to ensure recovery of the monk seal population is not hampered by the activity.
 17

18 **Activity TES-1.5: Support outreach and education on Hawaiian monk seals.**

19 Increased outreach and education activities focused on the Hawaiian monk seal are now being
 20 conducted. Continuation of these activities will provide the public and interest groups with
 21 information to understand the critical status of the Hawaiian monk seal population and the urgent
 22 action that is needed to prevent extinction.
 23

24 **Strategy TES-2: Determine the status of cetacean populations and verify and manage
 25 potential threats over the life of the plan.**

26
 27 Management actions and efforts to reduce the impacts to cetaceans in the NWHI have been
 28 limited, based on the sparse species information available.
 29

30 **Activity TES-2.1: Census cetacean populations.**

31 In order to best develop management strategies for cetaceans in the Monument, surveys and
 32 observations will be pursued to gain information on species presence and abundance estimates.
 33

34 **Activity TES-2.2: Conduct annual spinner dolphin mark and recapture photo identification
 35 surveys.**

36 Annual spinner dolphin mark/recapture photo identification surveys will be continued at
 37 Midway, Kure, and Pearl and Hermes Atolls in order to maintain the only long-term data set
 38 (1998-2007) in the NWHI.
 39

40 **Activity TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans
 41 in the Monument.**

42 Monument staff will reduce the potential for cetaceans to be adversely affected by marine debris.
 43 The long term solution is ultimately a decrease in the amount of debris entering the ocean;
 44 strategies to address this are included in section 3.3.1, the Marine Debris Action Plan.
 45

1 **Activity TES-2.4: Respond to any suspected disease and unusual mortality incidents affecting**
 2 **cetaceans.**

3 To date, no cases of a NWHI cetacean with an infectious disease have been documented. Should
 4 an ill cetacean be sighted, the animal will be examined and sampled for a broad spectrum of
 5 possible diseases, treated appropriately, and monitored for recovery. Performing timely and
 6 complete necropsies with cetaceans will facilitate disease surveillance and monitoring in the
 7 NWHI. Contingency response plans will be developed to respond to disease outbreaks, and
 8 necessary human and material resources will be identified to initiate an appropriate response.
 9

10 **Activity TES-2.5: Prevent human interactions with cetaceans.**

11 Efforts will be made to prevent negative human-cetacean interactions that may occur as a result
 12 of visitor programs or research activities through design controls on both. The controls will aim
 13 to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and prevent
 14 geological research using sound levels known to be dangerous to marine mammals.
 15

16 **Strategy TES-3: Ensure that nesting populations of green turtles at source beaches are**
 17 **stable or increasing over the life of the plan.**

18
 19 The Hawaiian green turtle population is a discrete genetic stock of *Chelonia mydas* that is
 20 endemic to the Hawaiian Archipelago. This population of threatened green turtles has been
 21 monitored since the 1970s and is one of the few populations in the Pacific that is increasing in
 22 numbers. The principal rookery for the Hawaiian green turtle stock is located on sand islands at
 23 French Frigate Shoals. More than 90 percent of all green turtle nesting in the Hawaiian
 24 Archipelago occurs here. The main rookery island at French Frigate Shoals is East Island, where
 25 at least 50 percent of the nesting occurs, and approximately 200-500 females nest each year.
 26 Other atolls within the NWHI that support green turtle nesting include Laysan Island, Lisianski
 27 Island, and Pearl and Hermes Atoll. Individual nests have been documented for the first time at
 28 Midway Atoll in 2006 and 2007.
 29

30 Green turtles were listed under the Endangered Species Act in 1978 because of overexploitation
 31 for commercial and other purposes, the lack of adequate regulatory mechanisms and effective
 32 enforcement, evidence of declining numbers, and habitat loss and degradation. The protections
 33 of the Endangered Species Act have been effective at restoring Hawaiian green turtle population
 34 abundance as evidenced by a long-term, steady increase in the number of nesting females at the
 35 principal Hawaiian green turtle rookery at French Frigate Shoals.
 36

37 **Activity TES-3.1: Collect biological information on nesting turtle populations.**

38 Research has been conducted on the green turtle nesting population in the NWHI since 1973 and
 39 comprises one of the longest time series of nesting abundance data for any sea turtle population
 40 around the globe. Information on abundance of nesting turtles is critical for making intelligent
 41 management decisions, understanding the status of the Hawaiian green turtle population, and
 42 evaluating the success of management programs. Maintenance of standardized and consistent
 43 monitoring protocols is crucial to understanding population trends, leading to effective
 44 management (See section 3.1.1, Marine Conservation Science Action Plan). In addition to
 45 maintaining current nesting monitoring at East Island, distribution of nesting activity throughout

1 the Monument will be periodically reassessed. As the population increases, new sites may be
2 used for nesting.

3
4 ***Activity TES-3.2: Protect and manage nesting habitat.***

5 Green turtle nesting habitat, including basking beaches, will be protected by use of best
6 management practices to prevent the introduction of mammalian predators on eggs and
7 hatchings, reduce artificial lighting near nesting beaches, prohibit undesirable habitat alteration,
8 and control human access. Limited entry policies will be continued, and human activities will be
9 strictly regulated at islands and reefs used by green turtles.

10
11 Rises in sea level as a result of climate change are predicted to reduce the availability of green
12 turtle nesting habitat at French Frigate Shoals, and changes in nest-site temperature regimes may
13 affect population ecology by modifying sex ratios of hatchling populations. Management actions
14 may need to be undertaken to delay habitat loss as a result of rising sea level. Awareness of
15 these impacts will improve our ability to reduce impacts and manage habitat for sea turtle
16 populations.

17
18 ***Activity TES-3.3: Protect and manage marine habitat, including foraging areas and migration***
19 ***routes.***

20 Areas of high turtle foraging activity in the Monument will be identified and mapped, along with
21 high-use corridors used by turtles migrating between their breeding sites and foraging areas
22 outside the Monument. Activities in the Monument, such as anchoring and vessel transit, will be
23 managed to minimize disturbance to foraging areas; reduce discharge and introduction of
24 contaminants, silt, and oil; and minimize vessel hazards to turtles transiting the open water areas
25 of the Monument.

26
27 **Strategy TES-4: Work with the international recovery team for short-tailed albatrosses to**
28 **facilitate an increase in the total breeding population of this species to at least 25 breeding**
29 **pairs occurring on sites other than Torishima and Senkaku islands.**

30
31 The short-tailed albatross was listed as federally endangered in the United States in 2000. The
32 foraging range of the short-tailed albatross overlaps with that of the black-footed and Laysan
33 albatrosses and covers most of the Northwestern and Northeastern Pacific Ocean. The short-
34 tailed population dropped dramatically due to feather hunters in the late nineteenth century. The
35 world population of short-tailed albatross is currently estimated at fewer than 2,000 birds, with
36 85 percent of individuals breeding at a single colony on Torishima Island in Japan and the
37 remaining individuals breeding on Senkaku Island, just to the southwest of Torishima.

38
39 ***Activity TES-4.1: Work cooperatively with the Japanese government to establish one or more***
40 ***breeding populations on islands free from threats such as active volcanoes and introduced***
41 ***mammals.***

42 While most of the recovery actions for short-tailed albatrosses will necessarily be carried out by
43 the Japanese government, activities such as providing use of surrogate species for development
44 of translocation techniques and technical assistance will contribute to the recovery of this
45 species. In 2006, 10 Laysan albatross chicks from Midway Atoll were translocated to Kīlauea
46 Point National Wildlife Refuge on Kaua‘i, where Japanese ornithologists raised them to learn

1 appropriate nurturing techniques. With this knowledge, it may be possible to translocate short-
2 tailed albatross from Torishima to safer habitats. FWS staff also help Japanese biologists with
3 satellite tagging projects studying feeding patterns, how weather systems and winds influence
4 short-tailed albatross movements, and how ocean productivity and seafloor bathymetry affect
5 their distribution.

6 This activity also includes attempts to attract birds to Midway Atoll using decoys and recorded
7 colony sounds, and monitoring and maintaining any new breeding colony sites established at
8 Midway Atoll. In recent years, one to three short-tailed albatross have been attracted to Midway,
9 and two birds were practicing their mating dance on Eastern Island at Midway this year.

10
11 ***Activity TES-4.2: Conduct studies to examine the correlation between reproductive success***
12 ***and contaminant loads.***

13 Analysis of the feathers, eggs, and dead chicks of black-footed albatrosses at Midway Atoll will
14 determine the levels of persistent environmental contaminants. This data will be used as a
15 surrogate for estimating contaminant body-burdens in short-tailed albatrosses.

16
17 ***Activity TES-4.3: Create and disseminate information on fisheries bycatch and bycatch***
18 ***reduction to all fisheries occurring outside the Monument.***

19 Materials will be created for public outreach and attendance at domestic and international
20 meetings to carry out government-to-government communication on fisheries mitigation
21 measures that can reduce bycatch during commercial fishing operations.

22
23 **Strategy TES-5: Conduct activities to increase Laysan duck populations in the Monument**
24 **over the life of the plan.**

25
26 The Laysan duck, endemic to the Hawaiian Islands, was federally listed as endangered in 1967.
27 Prior to 2004, only a single population of the species remained, on Laysan Island. Since 2004, a
28 second population of Laysan ducks has been established at Midway Atoll, through two
29 translocations of subadults from Laysan Island. Current population estimates at both Midway
30 and Laysan indicate a population size of fewer than 800 individuals. Within 15 years, the target,
31 based on interim downlisting criteria in the Draft Revised Recovery Plan for the Laysan Duck
32 (FWS 2004), is to ensure that at least five stable populations occur in predator-free or predator-
33 controlled sites throughout the Monument and main Hawaiian Islands, and that the population at
34 Laysan is stable or increasing. The plan also calls for island-specific management plans for each
35 population that identify habitat improvement, predator control, and population supplementation
36 as needed.

37
38 ***Activity TES-5.1: Continue population monitoring on Laysan Island and Midway Atoll.***

39 Activities include population size estimation through mark-recapture, and monitoring of
40 reproductive success and survival for population modeling; disease screening and prevention to
41 avoid translocation of unhealthy individuals; and genetics research to prevent loss of genetic
42 diversity during population translocations.

Activity TES-5.2: Carry out translocations to other sites in the Monument.

Required activities include restoring or creating habitat necessary to support Laysan duck populations; transporting juveniles from established populations to additional islands; and conducting postrelease monitoring to assess foraging behavior, body condition, survival, and reproductive success of translocated birds as identified in the Draft Revised Recovery Plan for the Laysan Duck (FWS 2004).

Strategy TES-6: Maintain stable populations of the Laysan finch, Nihoa finch and Nihoa millerbird in the Monument over the life of the plan.

The Laysan finch, Nihoa finch, and Nihoa millerbird are endemic passerines in the NWHI that have extremely limited distributions within relatively sensitive biological systems. Because of the inherently small population sizes of these species due to extremely limited habitat availability, all three of these passerine species in the Monument have been listed as federally endangered. The most recent population estimates indicate a total population size of approximately 10,000 Laysan finches, which occur only on Laysan Island and at Pearl and Hermes Atoll (a result of translocations conducted in 1967); fewer than 5,000 Nihoa finches, which occur only on Nihoa Island; and fewer than 600 Nihoa millerbirds, also endemic to Nihoa Island.

Activity TES-6.1: Continue to conduct annual censuses of populations of each passerine species and monitor their food and habitat requirements.

In particular, these monitoring activities allow for detection of changes in population and habitat availability by monitoring the status of native plant and terrestrial invertebrate populations. Monitoring methods will be assessed and altered as necessary to improve trend detection and develop knowledge of habitat requirements for these species.

Activity TES-6.2: Implement translocations of each species and site restoration as needed by developing appropriate techniques for capture, translocation, and release.

Capture, translocation, and restoration are critical steps in establishing additional populations. These potential translocations will provide a buffer against catastrophic declines of current natural populations.

Strategy TES-7: Establish populations of each listed plant species on one to three additional Monument islands and ensure genetic material is also protected in approved repositories.

Amaranthus brownii, *Schiedea verticillata*, and *Pritchardia remota* are believed to be endemic to the island of Nihoa. *A. brownii*, an herbaceous annual, is the rarest native plant species on Nihoa; when last seen in 1983, only 35 plants were located. *S. verticillata*, a perennial herbaceous species, is confined to approximately 10 colonies totaling fewer than 400 individuals on Nihoa. *P. remota*, a long-lived perennial fan palm, has fewer than 1,500 individuals and occurs in four valleys on Nihoa. Due to the small number of existing individuals and their extremely limited distributions, these species are subject to an increased likelihood of extinction from random events. *Cenchrus agrimonioides* var. *laysanesis* was known historically only from the NWHI at Laysan Island, Kure Atoll, and Midway Atoll. Although *C. agrimonioides* var.

1 *agrimonioides* currently occurs on O‘ahu and Maui, the *laysanensis* variety has not been
2 observed since 1973. *Mariscus pennatiformis* spp. *bryanii*, a member of the sedge family, is
3 known only from Laysan Island, and comprises only 1 to 200 individuals annually.

4
5 ***Activity TES-7.1: Ensure all endangered plant species from Nihoa and Laysan Islands are***
6 ***fully represented in an ex situ collection such as a nursery or arboretum.***

7 For these extremely rare taxa, it is critical to ensure that these plants are maintained in off-site
8 locations to protect them from extinction should these in situ populations or their critical habitat
9 experience a catastrophic event. Using guidelines for collection described in an authorized
10 Endangered Species Permit, seeds of all listed plants will be collected and sent to seed banks
11 such as the Lyon Arboretum and National Tropical Botanical Garden.

12
13 ***Activity TES-7.2: Increase numbers and locations of *Amaranthus brownii* and *Schiedea****
14 ***verticillata on Nihoa by 2018.***

15 Existing colonies will be augmented via outplanting, and factors restricting colony expansion
16 (e.g., competition from alien species) will be eliminated. Attempts will be made to establish new
17 colonies within the historic range of these species by identifying key environmental factors
18 associated with plant growth and reproduction, preparing the sites, propagation, outplanting, and
19 postplanting maintenance.

20
21 ***Activity TES-7.3: Establish a self-sustaining *Pritchardia remota* population on Laysan Island***
22 ***by 2012.***

23 In accordance with the Draft Laysan Island Restoration Plan (Morin and Conant 1998), sites will
24 continue to be prepared for planting and elimination of immediate threats, such as alien plants.
25 Purity of seed stocks will be ensured by using standard operating procedures for maintaining
26 the plants in the field. Frequent monitoring will be conducted to improve outplanting methods
27 and protect the site from alien species invasion, and plant vigor data will be collected to guide
28 future outplanting strategies and techniques.

29
30 ***Activity TES-7.4: Continue greenhouse operations on Laysan Island to propagate and***
31 ***outplant rare plant taxa.***

32 The plant propagation facility at Laysan Island is described in the Draft Laysan Island
33 Restoration Plan (Morin and Conant 1998). *Pritchardia remota* seeds are collected at Nihoa and
34 *Mariscus pennatiformis* seeds are collected following collection guidelines, including taking no
35 more than 15 percent of seeds from any source plant. For *Pritchardia remota*, the surface of the
36 seeds is sterilized before transporting them to Laysan Island to ensure that they are free of pests,
37 diseases, and pathogens. The plants are germinated in shade houses and outplanted after they
38 reach the optimal size for subsequent survival in the wild. A plant restoration database for
39 Laysan is maintained to document variations in handling and treatment protocols and success
40 after outplanting. All monitoring, collection, propagation, and outplanting follow guidelines
41 from the Hawai‘i Rare Plant Restoration Group, including Instructions and Methods, Collecting
42 and Handling Protocols, and General Reintroduction/Outplanting Guidelines.

1 ***Activity TES-7.5: Evaluate the potential to establish one to three colonies of *Amaranthus****
 2 ***brownii*, *Schiedea verticillata*, and *Pritchardia remota* outside of their historic ranges.**

3 To protect the taxa from catastrophic events and achieve recovery objectives, it may be
 4 necessary to establish colonies of each taxa on other islands outside their historic range. Impacts
 5 on native flora and fauna at transplant sites will need to be assessed, and the potential for
 6 hybridization with closely related species will also have to be considered. Factors to consider
 7 include avoiding impacts to native species at establishment sites, finding suitable habitat, and
 8 choosing areas accessible enough to allow for planting and monitoring of introduced
 9 populations. Mokumanamana, Laysan Island, Kure Atoll, and Eastern and Sand Islands at
 10 Midway Atoll should all be considered as potential sites.

11
 12 **Strategy TES-8: Ensure protection of threatened and endangered species by facilitating**
 13 **Endangered Species Act consultations for Monument activities throughout the life of the**
 14 **plan.**

15
 16 Since threatened and endangered species occur within the Monument, actions proposed by
 17 Federal agencies frequently require consultation with NOAA Fisheries or FWS. Section 7(a)(2)
 18 of the Endangered Species Act (ESA) requires Federal agencies to consult with NOAA Fisheries
 19 for marine species and FWS for terrestrial species on actions they take or authorize that may
 20 affect threatened or endangered species or designated critical habitat to ensure the action will not
 21 jeopardize listed species or destroy or adversely modify critical habitat.

22
 23 This strategy undertakes the activities required to increase the capacity of the consultation
 24 actions under the ESA, promote streamlining among the action agencies and consulting agencies,
 25 and produce current baseline assessments of key species and designated critical habitat. These
 26 activities will help to improve the consultation process for all involved and result in protection
 27 and recovery of listed species and habitat.

28
 29 ***Activity TES-8.1: Increase the capacity of NOAA Fisheries and FWS to address ESA***
 30 ***consultations for activities within the Monument.***

31 This activity will seek to build the capacity of the consulting agencies to conduct consultations
 32 and coordinate with the action agencies and Monument staff. This activity will implement
 33 programs to improve the consulting personnel's knowledge about the species, habitat, and
 34 agency consultation procedures and laws. Such a program will include, among other elements,
 35 appropriate education, training, and regular interaction with species and habitat experts that can
 36 provide valuable input and review.

37
 38 Additional staffing will most likely be needed by the agencies to carry out Federal consultation
 39 requirements; staff will have expertise in ESA regulatory requirements, work to complete
 40 consultations in a timely fashion, coordinate between agencies and the Monument staff,
 41 appropriately integrate relevant biological information on the subject listed species and/or critical
 42 habitat, and develop and/or deliver section 7 workshops for action agencies.

1 **Activity TES-8.2: Develop baseline assessments for listed species and critical habitat and**
2 **streamline the Monument consultation process to facilitate ESA consultations.**

3 This activity will assist Monument managers, consulting agencies, and action agencies by
4 producing ecological baselines of listed species and critical habitat, description of sensitive areas,
5 and other information that can be considered early in any planning process relevant to the
6 Monument. This information will be made available to action agencies to assist them in
7 determining whether their activities may affect listed species and, if so, improve their biological
8 assessments for consultations. It also will assist NOAA Fisheries and FWS staff in evaluating
9 proposed actions and developing their biological opinions. Also, ESA and other consultation
10 procedures will be reviewed and streamlined and benefit from the preparation of current
11 descriptions.

12
13 **Activity TES-8.3: Work with Federal agencies proposing activities in the Monument to**
14 **increase their knowledge about the ESA and listed species and critical habitat in the**
15 **Monument.**

16 An action agency must be knowledgeable about the species, habitat, and laws directing
17 consultation. When an action agency makes a determination regarding whether or not to consult
18 and how to consult, the determination should be based on sound science and according to the
19 criteria set forth in the regulatory regime implementing the ESA. To help action agencies
20 recognize when their activities may affect listed species or critical habitat and the character of
21 the effects, NOAA Fisheries and the FWS will coordinate with its partners to build capacity
22 within the action agencies.

23
24 Capacity building activities in this activity include the development and delivery by NOAA
25 Fisheries and FWS of targeted workshops that provide information on the requirements for ESA
26 consultations and on the Monument listed species and critical habitat and working with partners
27 to develop a cache of “best practices” and other operations protocols to avoid any impacts to
28 listed species and habitat. These workshops and other like information exchanges will help to
29 reduce and avoid any detrimental effects to listed species and critical habitat, improve the overall
30 relationship with action agencies, and streamline consultations.

1 **Table 3.2.1 Summary of Strategies, Activities, and Agency Leads for Threatened and**
 2 **Endangered Species**
 3

Strategies and Activities	Agency Lead
Strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.	
Activity TES-1.1: Support marine debris removal activities to promote recovery.	NOAA
Activity TES-1.2: Support and facilitate emergency response for monk seals.	NOAA
Activity TES-1.3: Conserve Hawaiian monk seal habitat.	NOAA
Activity TES-1.4: Reduce the likelihood and impact of human interactions on monk seals.	NOAA
Activity TES-1.5: Support outreach and education on Hawaiian monk seals.	NOAA
Strategy TES-2: Determine the status of cetacean populations and verify and manage potential threats over the life of the plan.	
Activity TES-2.1: Census cetacean populations.	NOAA
Activity TES-2.2: Conduct annual spinner dolphin mark and recapture photo identification surveys.	NOAA
Activity TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans in the Monument.	NOAA
Activity TES-2.4: Respond to any suspected disease and unusual mortality incidents affecting cetaceans.	NOAA
Activity TES-2.5 Prevent human interactions with cetaceans.	NOAA
Strategy TES-3: Ensure that nesting populations of green turtles at source beaches are stable or increasing over the life of the plan.	
Activity TES-3.1: Collect biological information on nesting turtle populations.	FWS
Activity TES-3.2: Protect and manage nesting habitat.	FWS
Activity TES-3.3: Protect and manage marine habitat, including foraging areas and migration routes.	NOAA
Strategy TES-4: Work with the international recovery team for short-tailed albatrosses to facilitate an increase in the total breeding population of this species to at least 25 breeding pairs occurring on sites other than Torishima and Senkaku islands.	
Activity TES-4.1: Work cooperatively with the Japanese government to establish one or more breeding populations on islands free from threats such as active volcanoes and introduced mammals.	FWS
Activity TES-4.2: Conduct studies to examine the correlation between reproductive success and contaminant loads.	FWS
Activity TES-4.3: Create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument.	NOAA
Strategy TES-5: Conduct activities to increase Laysan duck populations in the Monument over the life of the plan.	
Activity TES-5.1: Continue population monitoring on Laysan Island and Midway Atoll.	FWS
Activity TES-5.2: Carry out translocations to other sites in the Monument.	FWS

1

Strategies and Activities	Agency Lead
Strategy TES-6: Maintain stable populations of the Laysan finch, Nihoa finch, and Nihoa millerbird in the Monument over the life of this plan.	
Activity TES-6.1: Continue to conduct annual censuses of populations of each passerine species and monitor their food and habitat requirements.	FWS
Activity TES-6.2: Implement translocations of each species and site restoration as needed by developing appropriate techniques for capture, translocation, and release.	FWS
Strategy TES-7: Establish populations of each listed plant species on one to three additional Monument islands and ensure genetic material is also protected in approved repositories.	
Activity TES-7.1: Ensure all endangered plant species from Nihoa and Laysan Islands are fully represented in an ex situ collection such as a nursery or arboretum.	FWS
Activity TES-7.2: Increase numbers and locations of <i>Amaranthus brownii</i> and <i>Schiedea verticillata</i> on Nihoa by 2018.	FWS
Activity TES-7.3: Establish a self-sustaining <i>Pritchardia remota</i> population on Laysan Island by 2012.	FWS
Activity TES-7.4: Continue greenhouse operations on Laysan Island to propagate and outplant rare plant taxa.	FWS
Activity TES-7.5: Evaluate the potential to establish one to three colonies of <i>Amaranthus brownii</i> , <i>Schiedea verticillata</i> , and <i>Pritchardia remota</i> outside of their historic ranges.	FWS
Strategy TES-8: Ensure protection of threatened and endangered species by facilitating Endangered Species Act consultations for Monument activities throughout the life of the plan.	
Activity TES-8.1: Increase the capacity of NOAA Fisheries and FWS to address ESA consultations for activities within the Monument.	FWS NOAA
Activity TES-8.2: Develop baseline assessments for listed species and critical habitat and streamline the Monument consultation process to facilitate ESA consultations.	NOAA FWS
Activity TES-8.3: Work with Federal agencies proposing activities in the Monument to increase their knowledge about the ESA and listed species and critical habitat in the Monument.	NOAA

2

1 **3.2.2 Migratory Birds Action Plan**

3
5 **Desired Outcome**

7 Conserve migratory bird populations and habitats
9 within Papahānaumokuākea Marine National
11 Monument.

Links to other Action Plans	
3.2.3	Habitat Management and Conservation
3.3.2	Alien Species
3.3.4	Emergency Response
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

13
15 **Current Status and Background**

17 In 1903, President Theodore Roosevelt placed Midway under the jurisdiction
19 and control of the Navy to stop the “wanton destruction of birds that breed on
21 Midway.” In 1909, he ordered that “the following islets and reefs, namely:
23 Cure Island, Pearl and Hermes Reef, Laysianki or Pell Island, Laysan Island,
25 Mary Reef, Dowsetts Reef, Gardiner Island, Two Brothers Reef, French
27 Frigate Shoal, Necker Island, Frost Shoal and Bird Island ...are hereby
28 reserved and set apart, subject to valid existing rights, for the use of the Department of
29 Agriculture as a preserve and breeding ground for native birds.” Thus, native birds were the first
30 wildlife species for which the Monument area was managed for conservation purposes by the
31 U.S. Government. Early protection was important in ensuring the large, diverse seabird and
32 shorebird populations present today in the Monument. Seabird colonies in the NWHI constitute
33 one of the largest and most important assemblages of tropical seabirds in the world, with
34 approximately 14 million birds (6 million breeding annually), representing 21 species. Greater
35 than 95 percent of the world’s Laysan and black-footed albatrosses nest here. For several other
36 species, such as the Bonin petrel, Christmas shearwater, Tristram’s storm-petrel, and gray-
37 backed tern, the NWHI supports colonies of global significance. For the species of boreally
38 breeding shorebirds that overwinter in the tropical Central Pacific, the NWHI are an essential
39 stopover or wintering site. In particular, the bristle-thighed curlew relies on the mammal-free
40 islands of the Monument because it goes through a flightless period during molt and is very
41 vulnerable to predation.

Links to goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5

42
43 **Need for Action**

44 The majority of all tropical seabirds in Hawai‘i nest in the Monument, and those breeders plus an
45 equal number of species of nonbreeding seabirds transit through or forage in the waters of the
46 Monument. While the breeding colonies are secure from future development and disturbance, a
47 variety of threats still face seabirds in the Monument, including contaminants left from former
48 activities in the area and contaminants, including oil, arriving from the sea; habitat loss to sea
49 level rise; other ecosystem effects attributed to climate change; marine debris; invasive species;
50 fisheries interactions outside the Monument boundary; and wildlife diseases. Migratory
51 shorebirds rely on the terrestrial parts of the Monument for valuable wintering habitat free of
52 mammalian predators.

53
54 Statute and policy at several levels mandate the protection and management of migratory bird
55 populations in the Monument. These directives from international treaties, domestic legislation,
56 Executive orders, State law, and FWS policy require the protection, monitoring, and assessment
57 of migratory nongame birds; determination of the effects of environmental changes and human
58 activities on migratory birds; and active protection of colonies, roosts, loafing sites, and adjacent
59 waters for seabirds.

1
2 **Strategies to Achieve the Desired Outcome**

3 Four strategies have been identified for achieving the desired outcomes of protecting and
4 enhancing migratory bird populations in the Monument. The strategies and activities are coded
5 by the acronym for the action plan title, “Migratory Birds” (MB). A summary of strategies and
6 activities is provided in Table 3.2.2 at the end of this action plan.

- 7
8 • MB-1: Protect and enhance habitats for terrestrial and marine migratory birds throughout
9 the life of the plan.
10 • MB-2: Minimize the impact of threats to migratory birds such as habitat destruction by
11 invasive species, disease, contaminants (including oil), and fisheries interactions for the
12 life of the plan.
13 • MB-3: Monitor populations and habitats of migratory birds at a level sufficient to
14 ascertain natural variation and then to detect changes in excess of that variation that
15 might be attributed to human activities.
16 • MB-4: As threats are removed, restore seabird species at sites where they have been
17 extirpated.
18

19 **Strategy MB-1: Protect and enhance habitats for terrestrial and marine migratory birds**
20 **for the life of the plan.**

21
22 Safe habitats for breeding and foraging are essential for all of the migratory birds using the
23 Monument. While most seabirds and shorebirds exhibit some flexibility in their habitat
24 requirements, features of the plant community (species and structural characteristics) favor or
25 limit populations.
26

27 ***Activity MB-1.1: Control or eradicate nonnative species at all sites where they have a negative***
28 ***impact on the survivorship or reproductive performance of migratory birds.***

29 Invasive species affect survival and reproduction of migratory birds by causing direct mortality
30 due to predation or parasitism, or by modifying the habitat to make it less suitable for survival or
31 reproduction. Invasive species that have been shown to diminish the quality of migratory bird
32 habitat in the Monument include several plants such as sandbur (*Cenchrus echinatus*), ironwood
33 (*Casuarina equisetifolia*), and golden crownbeard (*Verbesina encelioides*), and introduced scale
34 insects and associated ants that damage vegetation providing appropriate habitat for migratory
35 birds. (See section 3.3.2, Alien Species Action Plan.)
36

37 ***Activity MB-1.2: Restore components of the native vegetation communities that are important***
38 ***to seabird nesting.***

39 Opportunities for restoring native habitats for seabirds exist wherever nonnative species have
40 been eradicated or controlled or human activities limiting migratory bird species have ceased.
41 Translocation, propagation, and outplanting of native plants (*Eragrostis variabilis*, *Sesbania*
42 *tomentosa*, *Sida fallax*, *Scaevola sericea*, etc.) to improve habitat for migratory bird nesting and
43 foraging is ongoing at Laysan Island and Midway and Kure Atolls and planned for other sites in
44 the Monument (Rehkemper et al. 2005).
45

1 **Strategy MB-2: Minimize the impact of threats to migratory birds such as habitat**
 2 **destruction by invasive species, disease, contaminants (including oil), and fisheries**
 3 **interactions for the life of the plan.**

4
 5 The original motivation for the protection of the area by the Federal Government was to
 6 eliminate illegal harvest of breeding seabirds. Minimizing threats to migratory bird populations
 7 remains a primary concern.

8
 9 ***Activity MB-2.1: Conduct surveillance for evidence of avian disease outbreaks, and follow***
 10 ***existing response plan if disease is detected.***

11 The MMB participates with other National Wildlife Refuges and agencies as partners in the
 12 Hawai'i–Pacific Islands Working Group on Avian Influenza Surveillance to guard against
 13 wildlife diseases such as Asian H5N1 Avian Influenza. Staff report all instances of unusual
 14 mortality and collects samples using approved safety protocols and protective gear. If avian
 15 influenza is detected, Monument staff will use the Highly Pathogenic Avian Influenza (HPAI)
 16 Disease Contingency Plans in place for the Midway Atoll National Wildlife Refuge and
 17 Hawaiian Islands National Wildlife Refuge.

18
 19 ***Activity MB-2.2: Monitor contaminant levels in birds and their habitats, and respond if the***
 20 ***potential exists to cause immediately lethal or sublethal effects.***

21 Bird health and contaminant levels in areas of contamination that have already been identified
 22 will be monitored, and unexplained health problems in other areas will be evaluated for possible
 23 links to contaminants.

24
 25 ***Activity MB-2.3: Ensure that all spill response plans have adequate coverage of actions***
 26 ***necessary to minimize mortality to migratory birds.***

27 Monument staff will coordinate with and provide technical contributions regarding migratory
 28 birds to multiagency spill prevention and prespill activities as well as actual response actions and
 29 Natural Resource Damage Assessments. (Also see section 3.3.4, Emergency Response Plan.)
 30 Staff will contribute to keeping seabird and shorebird information current for the Area
 31 Contingency Plan and maintain a list of restoration activities for the Co-Trustees.

32
 33 ***Activity MB-2.4: Maintain rigorous quarantine protocols to prevent the introduction of alien***
 34 ***species that may prove hazardous specifically to migratory birds.***

35 Alien species are one of the greatest threats to migratory birds, either directly in the case of
 36 pathogens or predators, or indirectly in the case of invasive plants or animals that damage
 37 habitat. Rigorous quarantine protocols must be maintained to ensure new alien species are not
 38 introduced or transmitted from one island to another. (See section 3.3.2, Alien Species Action
 39 Plan)

40
 41 ***Activity MB-2.5: Work with partners to reduce the impact of commercial and sport fisheries***
 42 ***outside the Monument on migratory bird populations.***

43 Sport and commercial fishing was eliminated, or is being phased out, within the Monument.
 44 However, such activities outside the Monument can adversely impact Monument resources.
 45 FWS established national policy in 2001 that identified the bycatch of migratory birds in
 46 fisheries as a serious conservation problem and a violation of the underlying tenets of the

1 Migratory Bird Treaty Act. FWS and the Department of State worked with NOAA Fisheries to
2 draft a National Plan of Action for addressing the problem of seabird bycatch to comply with the
3 Code of Conduct for Responsible Fisheries developed by the Food and Agriculture Organization
4 of the United Nations. This group of agencies and representatives of the Regional Fisheries
5 Management Councils work with industry and conservation organizations to guide
6 implementation of the National Plan of Action to reduce fishing impacts. Laysan albatrosses and
7 black-footed albatrosses, two of the species most affected by bycatch mortality in the northern
8 hemisphere, nest almost exclusively in the Monument, so the responsibility to provide data on
9 seabird population status and biological expertise regarding the problem falls to Monument staff.
10 Staff provide additional assistance by teaching seabird identification skills to fishers and fisheries
11 observers, and by assisting with the development of mitigation techniques. Implementation of
12 many of the actions identified in the FWS Migratory Bird Draft Conservation Action Plan for
13 Black-footed Albatross (*Phoebastria nigripes*) and Laysan Albatross (*P. immutabilis*) will
14 involve Monument staff.

15
16 ***Activity MB-2.6: Research mite impacts on black-footed albatross chicks on Kure Atoll.***

17 Investigate mites (including the native mite *Womersia midwayensis*) causing mortality and
18 morbidity on black-footed albatross (*P. nigripes*) chicks on Kure Atoll. This activity is necessary
19 to determine the preferred habitat of mites and assess the potential to alter habitat or discourage
20 albatross nesting.

21
22 **Strategy MB-3: Monitor populations and habitats of migratory birds to ascertain natural
23 variation and to detect changes in excess of that variation that might be attributed to
24 human activities.**

25
26 Monitoring migratory bird populations and habitats is necessary to detect changes in excess of
27 natural variation that might be attributed to human activities. Monitoring must include
28 statistically valid sample sizes and time spans for response to threats and evaluation of response
29 to management actions in a timely fashion.

30
31 ***Activity MB-3.1: Using standard methods devised for tropical seabirds, monitor a suite of
32 15 focal seabird species at specific sites in the Monument to track changes in population size
33 and understand underlying causes of that change.***

34 A coordinated program to assess the status and trends of seabird populations is essential to
35 provide scientific information necessary to make management decisions and to evaluate the
36 efficacy of management actions. The Regional Seabird Conservation Plan (FWS Pacific Region
37 2005) recommends inventories of all seabird colonies at long-term intervals, such as every
38 10 years, and intensive quantitative monitoring of specific parameters, such as survival or
39 population size of a select group of species at selected localities, on an annual basis. The
40 15 focal species were identified during a review of seabird monitoring in the NWHI by the
41 U.S. Geological Survey and FWS and were chosen because they are Birds of Conservation
42 Concern, stewardship species of the NWHI, or representative of specific foraging or breeding
43 guilds. A recently completed assessment of seabird monitoring for Hawai'i and the Pacific
44 (Citta, Reynolds, and Seavy 2006) will be used to develop a standardized seabird monitoring
45 plan for the Monument as well as other areas in the U.S. Central Tropical Pacific.

1 ***Activity MB-3.2: Monitor changes in habitat quality by measuring reproductive performance***
2 ***and diet composition in selected seabird species.***

3 Parameters such as hatching success, fledging success, and diet composition provide a more
4 immediate indication of ocean conditions and prey abundance and availability than does long-
5 term population monitoring. This is because seabirds take many years to mature to recruitment
6 into the breeding population, and actual fluctuations in the number of breeders may reflect
7 conditions that occurred 5 to 10 years previously. As a result, a variety of biological measures is
8 required to understand the status of these populations.

9
10 ***Activity MB-3.3: Develop and use standardized methods to accurately assess the population***
11 ***size and trends of over-wintering and migrating Pacific golden plovers, bristle-thighed***
12 ***curlews, wandering tattlers, and ruddy turnstones.***

13 Repeatable surveys at reference sites where we can predict continuity of measurement in the
14 future will allow us to evaluate long-term changes in transient and winter resident shorebirds in
15 the Monument and contribute to international monitoring of these wide-ranging species.

16
17 **Strategy MB-4: As threats are removed, restore seabird species at sites where they have**
18 **been extirpated.**

19
20 Many examples of extremely successful conservation programs are based on the principle that
21 populations can be restored to an area if a limiting threat is removed. Seabird and landbird
22 populations that formerly occurred at various sites in the Monument have the potential to be
23 restored by using behavioral manipulation techniques such as colony attraction through sound
24 and visual stimuli or the provision of artificial nest structures.

25
26 ***Activity MB-4.1: Use social attraction techniques to encourage recolonization at Midway and***
27 ***Kure Atolls by Bulwer's petrels and Tristram's storm-petrels.***

28 The introduction of Polynesian rats to Kure sometime before 1912 and black rats to Midway in
29 1943 resulted in the extirpation of these two small petrels. Both rat species have now been
30 eradicated. Petrel species are typically very conservative about dispersing and starting new
31 colonies, but successful restoration of petrels using social attractants such as the playing of
32 recorded calls has been documented in several studies (Podolsky and Kress 1987), and the
33 provision of nest boxes has been shown to enhance reproductive success and thus accelerate the
34 recolonization process (Bolton et al. 2004).

1 **Table 3.2.2 Summary of Strategies, Activities, and Agency Leads for Migratory Bird**
 2

Strategies and Activities	Agency Lead
Strategy MB-1: Protect and enhance habitats for terrestrial and marine migratory birds throughout the life of the plan.	
Activity MB-1.1: Control or eradicate nonnative species at all sites where they have a negative impact on the survivorship or reproductive performance of migratory birds.	FWS
Activity MB-1.2: Restore components of the native vegetation communities that are important to seabird nesting.	FWS
Strategy MB-2: Minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan.	
Activity MB-2.1: Conduct surveillance for evidence of avian disease outbreaks, and follow existing response plan if disease is detected.	FWS
Activity MB-2.2: Monitor contaminant levels in birds and their habitats, and respond if the potential exists to cause immediately lethal or sublethal effects.	FWS
Activity MB-2.3: Ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds.	FWS
Activity MB-2.4: Maintain rigorous quarantine protocols to prevent the introduction of alien species that may prove hazardous specifically to migratory birds.	FWS
Activity MB-2.5: Work with partners to reduce the impact of commercial and sport fisheries outside the Monument on migratory bird populations.	FWS
Activity MB-2.6: Research mite impacts on black-footed albatross chicks on Kure Atoll.	State of Hawai'i
Strategy MB-3: Monitor populations and habitats of migratory birds to ascertain natural variation.	
Activity MB-3.1: Using standard methods devised for tropical seabirds, monitor a suite of 15 focal seabird species at specific sites in the Monument to track changes in population size and understand underlying causes of that change.	FWS
Activity MB-3.2: Monitor changes in habitat quality by measuring reproductive performance and diet composition in selected seabird species.	FWS
Activity MB-3.3: Develop and use standardized methods to accurately assess the population size and trends of over-wintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones.	FWS
Strategy MB-4: As threats are removed, restore seabird species at sites where they have been extirpated.	
Activity MB-4.1: Use social attraction techniques to encourage recolonization at Midway and Kure Atolls by Bulwer's petrels and Tristram's storm-petrels.	FWS

3
 4

3.2.3 Habitat Management and Conservation Action Plan

Desired Outcome

Protect and maintain all the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.

Links to Other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.3.2	Alien Species
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Current Status and Background

Presidential Proclamation 8031 prescribes ecosystem-based management for the Northwestern Hawaiian Islands, and the National Wildlife Refuge System Administration Act of 1966, as amended, also requires such management for all National Wildlife Refuges. This requires protections of ecosystem structure and function; conservation of fish, wildlife, plants, and their habitats; and ensuring the biological integrity, diversity, and environmental health of the Monument. Section 1.1 of this Monument Management Plan describes habitats in the NWHI, ranging from abyssal benthic areas to the high cliff faces of Nihoa and Mokumanamana (Necker), and section 1.2 elaborates on the historic and current status of those habitats as well as describing resources of concern in the Monument. The Environmental and Anthropogenic Stressors section (1.3) describes known threats to biological integrity, diversity, and environmental health of the Monument. Habitat management activities included in this Action Plan include inventory of Monument resources, characterizing habitat health, investigating problems, manipulating vegetation communities to meet ecosystem goals, removing contaminants, preserving wilderness character, and engaging in ecological restoration of native habitats.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

Need for Action

While the Monument remains one of the most remote and undisturbed archipelagos in the world, it still requires active habitat management on the part of managers to fulfill the mandate of protecting, maintaining, and restoring its wide range of native habitats. Furthermore, FWS has a mandate to conserve and restore, where appropriate, wildlife and habitats on National Wildlife Refuges. In accordance with Refuge System laws and policies, management must “maintain existing levels of biological integrity, diversity, and environmental health at the Refuge scale. Following that, [managers] will restore lost or degraded elements of biological integrity, diversity, and environmental health at all landscape scales where it is feasible and supports fulfillment of refuge purposes” (601 FW 3). In accordance with FWS policy (6 Refuge Manual 8) in compliance with Department of the Interior regulation 43 CFR 19.6, management must also preserve wilderness character within the proposed Hawaiian Islands Wilderness area until such time as Congress takes action upon the wilderness proposal or the President amends the proposal. This action plan will provide guidance for management of Monument lands and waters, rationale for the activities listed, and a framework for continuity and consistency in habitat management decisions for the life of the plan.

Strategies to Achieve the Desired Outcome

Strategies for conservation and management in the varied habitats of the Monument have been identified to achieve the desired outcome of protecting native ecosystems and biological diversity. The strategies and activities are coded by the acronym for the action plan title, “Habitat

1 Management and Conservation” (HMC). A summary of strategies and activities is provided in
2 Table 3.2.3 at the end of this action plan.

- 3
- 4 • HMC-1: Within 15 years, develop and implement a strategy for restoring the health and
5 biological diversity of the shallow reefs and shoals where anthropogenic disturbances are
6 known to have changed the ecosystem.
- 7 • HMC-2: Within 10 years, investigate and inventory sources of known contamination
8 from historic human uses of the NWHI and, where appropriate, coordinate with
9 responsible parties to develop plans and complete cleanup actions.
- 10 • HMC-3: Protect and restore beach strand and crest habitats over the life of the plan.
- 11 • HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs on all
12 the coralline islands and atolls of the Monument using best available historical
13 information about the original indigenous ecosystem.
- 14 • HMC-5: Within 10 years, restore and maintain coastal mixed grasses and shrublands on
15 basalt islands in the Monument.
- 16 • HMC-6: Maintain and better understand the Monument’s wetland and mudflat habitats to
17 benefit migratory shorebirds and waterfowl for the life of the plan.
- 18 • HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps,
19 intermittent streams, and freshwater ponds as necessary for the benefit of native species
20 for the life of the plan.
- 21 • HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island,
22 Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.
- 23 • HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at Nihoa
24 Island and Mokumanamana for nesting seabirds for the life of the plan.
- 25 • HMC-10: Fulfill wilderness stewardship responsibilities in the Monument within 5 years.
- 26

27 **Strategy HMC-1: Within 15 years, develop and implement a strategy for restoring the**
28 **health and biological diversity of the shallow reefs and shoals where anthropogenic**
29 **disturbances are known to have changed the ecosystem.**

30
31 The shallow reef (0 – 100 feet, 0 – 30 meters) areas of the Monument have been affected by a
32 variety of human activities through the years including overharvesting of some species, dredging
33 and filling, and anchor damage from vessels stopping in the area. The extent and relative
34 severity of these impacts are poorly understood.

35
36 ***Activity HMC-1.1: Identify and prioritize restoration needs in shallow water reef habitats***
37 ***impacted by anthropogenic disturbances within 5 years.***

38 For more than 100 years, human activities in the NWHI have created disturbance in natural
39 systems. Many such actions affecting marine and terrestrial wildlife are known, but the impacts
40 of disturbance in the marine environment in particular, opportunities for restoration, and
41 priorities for undertaking restoration actions are not thoroughly analyzed. One example of
42 anthropogenic disturbance that is known is the black-lipped pearl oyster (*Pinctada*
43 *margaritifera*), which has not recovered since being intensely harvested in the 1920s (Galtsoff
44 1933; Keenan et al. 2006). Additional opportunities for restoring species will be identified and
45 prioritized.

1 ***Activity HMC-1.2: Analyze historic and present impacts on reef growth at Midway Atoll and***
 2 ***determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef***
 3 ***building.***

4 Midway Atoll has been the site of the most dramatic modification of reef circulation and the
 5 most prolific source of anthropogenic inputs to nearshore reefs in the NWHI. Evaluating these
 6 pressures and their effects on reefs will provide useful information for restoration projects there
 7 and at other sites with similar threats to nearshore reef habitats.

8
 9 ***Activity HMC-1.3: Where feasible, implement appropriate restoration activities.***

10 As follow-up to identifying restoration priorities (HMC-1.1), appropriate restoration activities
 11 will be assessed (HMC-1.2), actions developed, and where feasible implemented.

12
 13 **Strategy HMC-2: Within 10 years, investigate and inventory sources of known**
 14 **contamination from historic human uses of the NWHI and, where appropriate, coordinate**
 15 **with responsible parties to develop plans and complete cleanup actions.**

16
 17 Human occupation and activity in the NWHI has resulted in numerous impacts, some of which
 18 can be categorized as contaminants that disrupt native ecosystems in various ways. These
 19 contaminants are found in both terrestrial and marine environments of the Monument and
 20 include but are not limited to heavy metals, iron, PCBs, and other organochlorines. Other
 21 materials that have come into the Monument by way of the ocean include pesticides, oil from
 22 undocumented spills at sea, and plastic marine debris (see section 3.3.1, Marine Debris Action
 23 Plan). These contaminants occur both in known dumping sites and in areas less well
 24 characterized or not yet discovered.

25
 26 ***Activity HMC-2.1: Evaluate effects of contamination in terrestrial and nearshore areas from***
 27 ***shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls***
 28 ***and prioritize cleanup action based on risk assessments.***

29 Various dumps left behind from military activities during World War II and the Cold War are
 30 disintegrating quickly. Runoff, erosion, and seepage from all of these dumps have contaminated
 31 nearshore habitats. The extent of the effects of this contamination to birds nesting on the dumps
 32 and marine organisms in adjacent waters will be investigated.

33
 34 ***Activity HMC-2.2: Work with partners and responsible parties to verify the integrity of known***
 35 ***landfills and dumps and to conduct additional remediation if necessary.***

36 Landfills and dumping sites at Midway Atoll, such as the Old Bulky Waste Landfill, which was
 37 designated as a contaminated site during the Navy's Base Realignment and Closure (BRAC)
 38 program assessment at Midway, and "Rusty Bucket" on Sand Island at Midway, which was not
 39 designated contaminated in the BRAC assessment, need to be evaluated every 5 years for
 40 integrity, containment effectiveness, and hazard potential. Monument staff will work with the
 41 EPA and the Navy to ensure best practices for preventing the contained contaminants at these
 42 sites from migrating out of the dump areas at Midway. In collaboration with the Coast Guard,
 43 EPA, and Hawai'i Department of Health, the Co-Trustees will work to investigate washing and
 44 leaching of PCBs from known dumps at Kure Atoll and to finish the removal of the dump at
 45 Tern Island, French Frigate Shoals, to achieve agreed-upon levels of PCBs there.

1 ***Activity HMC-2.3: Locate historic disposal sites at Tern Island (French Frigate Shoals) and at***
 2 ***Kure, Midway, and Pearl and Hermes atolls, and investigate them for contamination.***

3 There is a need to search for documented but not yet located landfills at Tern and East Islands,
 4 French Frigate Shoals, and Southeast Island, Pearl and Hermes Atoll, and for underground
 5 storage tanks at Eastern Island, Midway Atoll. It is also important to investigate the 1993
 6 unlined landfill created by the Coast Guard on Green Island, Kure Atoll, during remediation of
 7 the LORAN (Long Range Aids to Navigation) station to confirm that the PCBs placed in the
 8 unlined landfill are not leaching to groundwater and that the documented surface hotspots have
 9 been removed. In addition, the 25 milligram/kilogram cleanup level for PCBs should be
 10 evaluated to ensure that it is adequately protective of wildlife.

11
 12 ***Activity HMC-2.4: Evaluate costs to ecosystem function and benefits of removing***
 13 ***anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs***
 14 ***throughout the Monument.***

15 Increasing the available iron in tropical oceanic waters often results in an overgrowth of certain
 16 cyanobacteria that are naturally rare in the iron-limited environments of the tropical Pacific away
 17 from volcanic islands. The MMB will develop a catalog of all anthropogenic iron sources and
 18 the factors associated with each site that would enable prioritization for removal and a cost-
 19 benefit analysis.

20
 21 ***Activity HMC-2.5: Continue collection and fingerprinting of oil found washed ashore and on***
 22 ***wildlife from mystery spills to determine its provenance, and build an oil sample archive for***
 23 ***possible use as evidence in liability assignment.***

24 The occurrence of oil on nesting seabirds and washed up on beaches in the Monument that
 25 cannot be attributed to a known spill is a regularly recorded event at all the staffed sites in the
 26 NWHI. Due to the enormous foraging range of tropical seabirds and to the large number of
 27 vessels transiting the North Pacific, these spills are rarely attributed to any responsible party.
 28 Samples collected in the Monument can be used to compare with banks of petroleum signatures
 29 and may help in understanding more about the primary sources of this pollution.

30
 31 ***Activity HMC-2.6: Continue monitoring the area at Laysan Island that was contaminated by***
 32 ***the insecticide carbofuran.***

33 In 1988, biologists first detected unexplained mortality of carrion flies and ghost crabs at a beach
 34 crest site on Laysan Island. These scavengers were coming in to feed on dead albatross chicks,
 35 commonly seen in summer months at Laysan. Upon entering the area later referred to as the
 36 “Dead Zone” they would abruptly die. The cause was finally identified by FWS as the pesticide
 37 Carbofuran, and the area was cleaned by removing and treating on-site contaminated sand in
 38 2002. Continued vigilance is needed to make sure that such effects do not flare up again in that
 39 area due to an overlooked hotspot.

40
 41 ***Activity HMC-2.7: Conduct ecological risk assessment to determine allowable lead levels in***
 42 ***soils at Midway and remove lead from buildings and soils to nonrisk levels.***

43 Lead in the soils around many of the buildings at Midway is adversely affecting the birds nesting
 44 and burrowing in these areas by causing droop-wing and other lethal and sublethal effects.
 45 Before the lead can be effectively removed from the soil, an ecological risk assessment will be
 46 performed to determine the cleanup level necessary to ensure the protection of human and

1 wildlife health. The lead-based paint flaking from the buildings at Midway will be removed to
2 eliminate this contamination.

3
4 **Strategy HMC-3: Protect and restore beach strand and crest habitats over the life of the**
5 **plan.**

6
7 Beach strand and beach crest habitats on French Frigate Shoals, Laysan Island, Lisianski Island,
8 Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll provide important habitat for a variety of
9 native organisms, several of them listed as threatened or endangered. Anthropogenic threats
10 including previous manipulation of shorelines and additions of structures and the suite of effects
11 to shoreline habitats associated with global climate change make it necessary to actively manage
12 these habitats in the Monument.

13
14 ***Activity HMC-3.1: Evaluate loss of beach strand and crest due to erosion and sea level rise to***
15 ***aid in formulating a restoration plan that will stop as much net loss of beach strand and beach***
16 ***crest habitat as is possible.***

17 Projected sea level rise, increased storm frequency, changes in current patterns, and large wave
18 events pose a particular danger to the low-lying terrestrial habitats of the Monument. In addition
19 to sea level rise, invasive species threaten the dune stability, particularly golden crownbeard
20 (*Verbesina enceliodes*) and ironwood (*Casurina equisetifolia*) on Kure and Midway atolls.
21 Monument staff will evaluate the loss of beach strand and crest in order to formulate a
22 restoration plan.

23
24 ***Activity HMC-3.2: Inventory manmade structures and changes in natural beach and reef state***
25 ***that may influence erosion and depositional processes at all of the beach strand units of the***
26 ***Monument.***

27 Human modification of shorelines and channels may be affecting ecosystem function in the
28 NWHI. These features will be evaluated, their effects analyzed, and their restoration considered.

29
30 **Strategy HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs**
31 **on all the coralline islands and atolls of the Monument using best available historical**
32 **information about the original indigenous ecosystem.**

33
34 Coastal mixed grass and shrub habitats cover the majority of the Monument's terrestrial area and
35 are important habitat for seabirds, shorebirds, land birds, and terrestrial invertebrates. Careful
36 review of historical botanical accounts and studies of pollen preserved in the anaerobic
37 sediments of Laysan Lake (Athens, et al. 2007) provide a template for restoration of the plant
38 communities of the coastal grass and shrublands.

39
40 ***Activity HMC-4.1: Propagate and outplant native species chosen on the basis of historical***
41 ***records at Midway and historical and pollen records from Laysan Island in 250 acres of***
42 ***vegetated area at Midway Atoll, focusing on the original footprint of the island and then***
43 ***moving to the dredge spoils section.***

44 Using seed sources deemed most appropriate by botanical experts, including bunchgrass
45 (*Eragrostis variabilis*), naupaka (*Scaevola sericea*), morning glory (*Ipomoea pes caprae*, *I.*
46 *indica*), *Solanum nelsonii*, *Capparus sandwichiana*, *Chenopodium oahuense*, and *Lepidium*

1 *bidentatum*, and treated to maintain quarantine standards, Monument staff will propagate seeds
2 in the greenhouse on Sand Island and outplant them in selected areas of the entire atoll.

3
4 ***Activity HMC-4.2: Implement the Draft Laysan Island Restoration Plan by removing invasive
5 plants, and propagating and outplanting all extant species identified in the pollen record or
6 historical documents as formerly having occurred at Laysan.***

7 The Draft Laysan Island Restoration Plan (Morin and Conant 1998) details the biological history
8 of the island's habitats and lays out a plan for ecological restoration of habitat structure and
9 function. This includes plans for restoration of plants, terrestrial arthropods, and avian
10 components of the biological community that occurred at Laysan Island prior to human contact
11 and the resultant loss of many of the island's species.

12
13 ***Activity HMC-4.3: At Laysan Island, replace 60 acres of the introduced shrub Indian pluchea
14 with native species.***

15 The need to provide appropriate nesting habitat and maintain elements of ecosystem function
16 while restoring native species requires management of the timing of vegetation replacement.
17 Reestablishment of the native shrub community (including *Sida fallax*, *Chenopodium oahuense*,
18 and *Capparis sandwicensis*) will precede the removal of the alien plant *Pluchea indica* in order
19 to maintain the ecosystem function of providing nesting substrate for red-footed boobies, great
20 frigatebirds, and black noddies.

21
22 ***Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using
23 guidelines established for neighboring Laysan Island.***

24 Our current and historical knowledge of the vegetation community at Lisianski Island is less well
25 developed than that of its neighbor Laysan Island. Lisianski may provide good opportunities for
26 ecological restoration following appropriate investigation of its botanical history. Sediments at
27 the lowest part of the island will be sampled for ancient pollen to aid in reconstructing the
28 composition and structure of the plant community prior to human visitation. Fossil pollen
29 scientists believe that the soil of Lisianski may have characteristics amenable to the preservation
30 of ancient pollen in the low-lying center of the island.

31
32 ***Activity HMC-4.5: Propagate and outplant native vegetation on 34-acre Southeast Island at
33 Pearl and Hermes Atoll to replace native plant community extirpated by invasion of the alien
34 plant golden crownbeard.***

35 As golden crownbeard (*Verbesina encelioides*) is removed, native habitats will be restored on
36 Southeast Island at Pearl and Hermes Atoll. This restoration is of great importance for the
37 survival of several native plant populations, especially *Eragrostis variabilis*, *Solanum nelsonii*,
38 *Tribulus cistoides*, *Lepidium bidentatum*, and *Boerhavia repens* at the northern end of the
39 archipelago, and for a small translocated population of the endangered Laysan finch (*Telespyza
40 cantans*). Propagules from the same species still extant on several of the other islets in the atoll
41 will be used.

42
43 ***Activity HMC- 4.6: Implement coordinated ecosystem restoration activities on Kure Atoll.***

44 In 2007, the State of Hawai'i began drafting a Management Plan for Kure Atoll. This plan
45 includes prioritizing and eliminating ecosystem threats caused by past anthropogenic
46 disturbances. Ongoing efforts to restore ecosystem function include removing invasive species
47 and increasing the range of and the reintroduction of native plant species. These activities are

1 designed to improve nesting, foraging, and loafing habitat for migratory birds. Kure has been
 2 identified as a site for potential translocation of the endangered Laysan finch and Laysan duck.
 3 Assessment regarding the feasibility of these activities has begun.

4
 5 ***Activity HMC-4.7: Monitor changes in the species composition and structure of mixed grass
 6 and shrub plant communities at each site.***

7 An understanding of the range of natural variability due to weather in these simple but dynamic
 8 vegetation communities allows managers to better evaluate the effectiveness of various
 9 management actions.

10
 11 **Strategy HMC-5: Within 10 years, restore and maintain coastal mixed grasses and
 12 shrublands on basalt islands in the Monument.**

13
 14 The coastal mixed grass and shrubland habitat of the basalt islands in the Monument (Nihoa and
 15 Mokumanamana islands, La Perouse Pinnacle, and Gardner Pinnacles) are remarkably intact
 16 with respect to their species composition and vegetation structure. They represent a window to
 17 the past in that they probably closely resemble the dryland coastal plant communities that have
 18 been lost in the main Hawaiian Islands.

19
 20 ***Activity HMC-5.1: Inventory and document life histories of endemic terrestrial invertebrates at
 21 Nihoa and Mokumanamana.***

22 The vegetation communities of Nihoa and Mokumananamana are the most intact native coastal
 23 plant assemblages in the State. They do suffer from the introduction of a number of alien insects
 24 species. Understanding the ecology of these new terrestrial arthropods will aid in identifying
 25 which species pose the greatest threat to the native coastal mixed grass and shrubland habitat,
 26 including the five endangered plant species there, and native terrestrial invertebrates of these
 27 basalt islands.

28
 29 ***Activity HMC-5.2: Monitor changes in species composition and structure of the coastal shrub
 30 and mixed grass communities on basalt islands throughout the life of the plan.***

31 Surveys and mapping of the plant community will help document losses of native species and
 32 provide a template for restoration of any that are lost due to invasive species competition,
 33 herbivory, or other means.

34
 35 **Strategy HMC-6: Maintain and better understand the Monument's wetland and mudflat
 36 habitats to benefit migratory shorebirds and waterfowl for the life of the plan.**

37
 38 The vast oceanic areas that many boreal shorebirds and waterfowl must cross during their annual
 39 migration provide few resting places other than these small natural wetlands at Midway Atoll,
 40 Kure Atoll, Pearl and Hermes Atoll, and most importantly Laysan Island. While they are a small
 41 part of the total Monument area, they may provide a temporary habitat for migrant birds that
 42 determines their survival.

43
 44 ***Activity HMC-6.1: Monitor water level, salinity, and other water quality parameters of Laysan
 45 Lake, and document any loss of lake area.***

46 The hypersaline lake and associated mudflats at Laysan Island, and to a lesser extent, the
 47 'ākulikuli (*Sesuvium portulacastrum*) flats at Southeast Island, Pearl and Hermes Atoll, and Spit

1 Island in Midway Atoll, serve as an important habitat for migratory waterfowl and shorebirds.
 2 Historically, during times of low vegetative cover due to overbrowsing by rabbits or long periods
 3 of drought, the dunes have drifted into the lake.

4
 5 ***Activity HMC-6.2: As needed, restore dune habitat on Laysan Island to stabilize movement if***
 6 ***lake loss starts to occur.***

7 Dune habitat can be effectively restored through vegetation protection or drift fences to minimize
 8 sand movement. Measures to slow sand movement may protect the wetland habitat at these sites.

9
 10 **Strategy HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps,**
 11 **intermittent streams, and freshwater ponds as necessary for the benefit of native species for**
 12 **the life of the plan.**

13
 14 The vast majority of all the species of animals in the Monument can survive without access to
 15 any fresh water, but a few invertebrates and land birds at certain life stages (particularly the
 16 Laysan Duck) require water with low salinity, and periodic access to these sources is essential.
 17 Freshwater sources are found at Nihoa, Mokumanamana, and Laysan islands, and Midway and
 18 Kure atolls.

19
 20 ***Activity HMC-7.1: Monitor salinity, parasites, contaminants, and native arthropods associated***
 21 ***with freshwater seeps, ponds, and streams.***

22 The endemic passerines (particularly Nihoa finch and Laysan finch), the Laysan duck, and
 23 certainly a number of the native invertebrates, freshwater algae, and terrestrial arthropods rely on
 24 fresh water, particularly during their reproductive seasons. Water quality and abundance are
 25 important factors in the reproduction of many of these species.

26
 27 ***Activity HMC-7.2: Evaluate potential for development and create as needed additional***
 28 ***freshwater sources at potential translocation sites of the Laysan duck, Nihoa finch, Laysan***
 29 ***finch, and Nihoa millerbird.***

30 Some potential translocation sites for endangered endemic birds in the NWHI may contain all
 31 important habitat features for survival except for fresh water. Evaluation of the potential for
 32 water development at these locations will allow evaluation of overall translocation site
 33 suitability.

34
 35 **Strategy HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island,**
 36 **Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.**

37
 38 The ironwood (*Casuarina*) forests at Sand Island provide nesting and roosting habitat for very
 39 large populations of white terns and the only breeding population of black noddies in the
 40 northern end of the Monument. While this is an invasive nonnative species, it does support these
 41 large seabird populations and will be replaced with adequate native alternatives before removing
 42 it completely.

1 **Activity HMC-8.1: Remove ironwood on Sand Island from 50 acres outside designated**
 2 **woodland and control young ironwood in areas managed for grass and shrubs.**

3 Ironwood is a fast-spreading species that will displace other vegetation types if not restrained.
 4 Forested infestations can be treated with heavy machinery or cutting and application of Garlon®.
 5 Young *Casuarina* can be controlled by hand-pulling and cutting and herbicide treatment.
 6

7 **Activity HMC-8.2: Devise and implement methods for monitoring population size and**
 8 **reproductive success in tree-nesting seabird species.**

9 Better census techniques for tree-nesting seabirds such as white terns and black noddies are
 10 needed to assist decisionmaking about vegetation management and ultimate replacement of
 11 introduced species with natives. These studies will enable evaluation of whether certain age
 12 classes or forest types are more productive than others for these seabirds.
 13

14 **Strategy HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at**
 15 **Nihoa Island and Mokumanamana for nesting seabirds for the life of the plan.**

16
 17 Throughout Hawai‘i, vertical cliff habitats provide a safe haven for native birds, insects, and
 18 plants that can survive in the exposed inaccessible sites. Nihoa and Mokumanamana support
 19 colonies of cliff-nesting seabirds (white terns, black noddies, brown boobies, and white-tailed
 20 and red-tailed tropicbirds) and an unknown suite of other species on their dramatic rocky faces.
 21

22 **Activity HMC-9.1: Educate other Federal and State agencies about overflight rules and**
 23 **promote compliance regarding overflights and close approaches.**

24 Overflight restrictions are indicated on flight sectional charts, and the Federal Aviation
 25 Administration encourages pilots to maintain a minimum altitude of 2,000 feet above national
 26 wildlife refuges and national monuments. The Department of Defense requires a minimum
 27 altitude of 3,000 feet over noise sensitive areas such as national monuments. In addition,
 28 50 CFR 27.34 prohibits the operation of aircraft at altitudes resulting in the harassment of
 29 wildlife. Aircraft approaches to the cliff habitats cause disturbance and possible loss of seabird
 30 eggs and chicks. Rapid turnover of personnel engaging in flights over the Monument has
 31 resulted in periodic overflights at too low an altitude. New staff (e.g., U.S. Coast Guard and
 32 Department of Defense) will be made aware of the implications for wildlife disturbance.
 33

34 **Activity HMC-9.2: Develop and implement techniques for monitoring plant and animal**
 35 **populations on cliff habitats in the Monument within 10 years.**

36 The cliff habitats of Nihoa and Mokumanamana are virtually inaccessible due to their height (up
 37 to 900 feet), windward location, and fragile rock type, which precludes safe climbing or
 38 rappelling. These cliffs provide habitat for significant proportions of seabirds including white
 39 terns, black noddies, gray-backed terns, brown boobies, and red-tailed tropicbirds that nest on
 40 these islands. Monument staff will investigate culturally appropriate and innovative remote and
 41 direct methods as possible options for monitoring cliff habitats.
 42

43 **Strategy HMC-10: Fulfill wilderness stewardship responsibilities in the Monument within**
 44 **5 years.**

45
 46 The Wilderness Act of 1964 recognized the importance of wild places to the human spirit and
 47 directed that certain lands be set aside for their wilderness character and values. A major quality

1 of wilderness character is naturalness, which means exhibiting the native species composition,
2 structures, and functions of ecological systems without the planned intervention or the
3 unintended effects of modern civilization. A total of 1,742 acres of the Hawaiian Islands NWR
4 was proposed for designation as wilderness in 1974 (June 13, 1974, transmittal from the
5 President to Congress), and will be managed to maintain its wilderness character in accordance
6 with FWS policy (6 RM 8) in compliance with 43 CFR 19.6 until such time as Congress takes
7 action upon the wilderness proposal or the President amends the proposal.

8
9 FWS policy (602 FW 3.4(1)(c)) is to conduct a full three-phase wilderness review in conjunction
10 with its Comprehensive Conservation Planning process. The FWS Director temporarily deferred
11 this requirement for this Monument Management Plan, but required the FWS Regional Office to
12 conduct a wilderness review of at least the Hawaiian Islands and Midway Atoll NWRs in no
13 more than 5 years. The wilderness review will consider the existing proposed Hawaiian Islands
14 Wilderness and make a recommendation to the FWS Director and Secretary of the Interior
15 whether other portions of the Hawaiian Islands NWR or Midway Atoll NWR contain sufficient
16 wilderness character to justify their designation as wilderness. The current proposal could be
17 modified during this process. Refuge areas identified with wilderness values are designated by
18 the agency as a Wilderness Study Area. Once the agency completes its recommendations, a
19 wilderness proposal may be submitted from the FWS Director, through the Interior Secretary to
20 the President. Such a proposal must include detailed analysis of alternatives, be accompanied by
21 the appropriate NEPA document, and include public involvement. Any Refuge areas
22 recommended for designation as wilderness will then be managed so as to maintain their
23 wilderness character until such time as Congress takes action on a proposal to designate
24 wilderness.

25
26 ***Activity HMC-10.1: Conduct a wilderness review of the Hawaiian Islands and Midway Atoll***
27 ***NWRs within 5 years.***

28
29 A wilderness review is the process that Federal agencies are required to use to determine if
30 Refuge areas should be recommended to Congress for wilderness designation. This process
31 consists of three phases: inventory, study, and recommendation. The inventory is a broad look at
32 the refuges to identify areas that meet the minimum criteria for wilderness. The study evaluates
33 all values (ecological, recreational, cultural), resources (e.g., wildlife, water, vegetation,
34 minerals, soils), and uses (management and public) within the wilderness study area. The
35 findings of the study determine whether the area will be recommended for designation as
36 wilderness. (From 602 FW 1.6X.) The FWS, in consultation with the Co-Trustees and in
37 accordance with policy and regulation, will lead and complete a wilderness review of the
38 Hawaiian Islands and Midway Atoll NWRs within 5 years.

1 **Table 3.2.3 Summary of Strategies, Activities, and Agency Leads for Habitat Management and**
 2 **Conservation**
 3

Strategies and Activities	Agency Lead
Strategy HMC-1: Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem.	
Activity HMC-1.1: Identify and prioritize restoration needs in shallow water reef habitats impacted by anthropogenic disturbances within 5 years.	NOAA
Activity HMC-1.2: Analyze historic and present impacts on reef growth at Midway Atoll and determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef building.	NOAA
Activity HMC-1.3: Where feasible, implement appropriate restoration activities.	FWS
Strategy HMC-2: Within 10 years, investigate and inventory sources of known contamination from historic human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.	
Activity HMC-2.1: Evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls and prioritize cleanup action based on risk assessments.	FWS
Activity HMC-2.2: Work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary.	FWS
Activity HMC-2.3: Locate historic disposal sites at Tern Island (French Frigate Shoals) and at Kure, Midway, and Pearl and Hermes atolls, and investigate them for contamination.	FWS
Activity HMC-2.4: Evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument.	FWS
Activity HMC-2-5: Continue collection and fingerprinting of oil found washed ashore and on wildlife from mystery spills to determine its provenance, and build an oil sample archive for possible use as evidence in liability assignment.	FWS
Activity HMC-2-6: Continue monitoring the area at Laysan Island that was contaminated by the insecticide carbofuran.	FWS
Activity HMC-2.7: Conduct ecological risk assessment to determine allowable lead levels in soils at Midway and remove lead from buildings and soils to nonrisk levels.	FWS
Strategy HMC-3: Protect and restore beach strand and crest habitats over the life of the plan.	
Activity HMC-3.1: Evaluate loss of beach strand and crest due to erosion and sea level rise to aid in formulating a restoration plan that will stop as much net loss of beach strand and beach crest habitat as is possible.	FWS
Activity HMC-3.2: Inventory manmade structures and changes in natural beach and reef state that may influence erosion and depositional processes at all of the beach strand units of the Monument.	FWS

1

Strategies and Activities	Agency Lead
Strategy HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument using best available historical information about the original indigenous ecosystem.	
Activity HMC-4.1: Propagate and outplant native species chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island in 250 acres of vegetated area at Midway Atoll, focusing on the original footprint of the island and then moving to the dredge spoils section.	FWS
Activity HMC-4.2: Implement the Draft Laysan Island Restoration Plan by removing invasive plants, and propagating and outplanting all extant species identified in the pollen record or historical documents as formerly having occurred at Laysan.	FWS
Activity HMC-4.3: At Laysan Island, replace 60 acres of the introduced shrub Indian pluchea with native species.	FWS
Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island.	FWS
Activity HMC-4.5: Propagate and outplant native vegetation on 34-acre Southeast Island at Pearl and Hermes Atoll to replace native plant community extirpated by invasion of the alien plant golden crownbeard.	FWS
Activity HMC- 4.6: Implement coordinated ecosystem restoration activities on Kure Atoll.	State of Hawai'i
Activity HMC-4.7: Monitor changes in the species composition and structure of mixed grass and shrub plant communities at each site.	FWS
Strategy HMC-5: Within 10 years, restore and maintain coastal mixed grasses and shrublands on basalt islands in the Monument.	
Activity HMC-5.1: Inventory and document life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana.	FWS
Activity HMC-5.2: Monitor changes in species composition and structure of the coastal shrub and mixed grass communities on basalt islands throughout the life of the plan.	FWS
Strategy HMC-6: Maintain and better understand the Monument's wetland and mudflat habitats to benefit migratory shorebirds and waterfowl for the life of the plan.	
Activity HMC-6.1: Monitor water level, salinity, and other water quality parameters of Laysan Lake, and document any loss of lake area.	FWS
Activity HMC-6.2: As needed, restore dune habitat on Laysan Island to stabilize movement if lake loss starts to occur.	FWS
Strategy HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps, intermittent streams, and freshwater ponds as necessary for the benefit of native species for the life of the plan.	
Activity HMC-7.1: Monitor salinity, parasites, contaminants, and native arthropods associated with freshwater seeps, ponds, and streams.	FWS
Activity HMC-7.2 Evaluate potential for development and create as needed additional freshwater sources at potential translocation sites of the Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird.	FWS

1

Strategies and Activities	Agency Lead
Strategy HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island, Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.	
Activity HMC-8.1: Remove ironwood on Sand Island from 50 acres outside designated woodland and control young ironwood in areas managed for grass and shrubs.	FWS
Activity HMC-8.2: Devise and implement methods for monitoring population size and reproductive success in tree-nesting seabird species.	FWS
Strategy HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at Nihoa Island and Mokumanamana for nesting seabirds for the life of the plan.	
Activity HMC-9.1: Educate other Federal and State agencies about overflight rules and promote compliance regarding overflights and close approaches.	FWS
Activity HMC-9.2: Develop and implement techniques for monitoring plant and animal populations on cliff habitats in the Monument within 10 years.	FWS
Strategy HMC-10: Fulfill wilderness stewardship responsibilities in the Monument within 5 years.	
Activity HMC-10.1: Conduct a wilderness review of the Hawaiian Islands and Midway Atoll NWRs within 5 years.	FWS

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3.3 Reducing Threats to Monument Resources

3.3.1 Marine Debris Action Plan

3.3.2 Alien Species Action Plan

3.3.3 Maritime Transportation and Aviation Action Plan

**3.3.4 Emergency Response and Natural Resource Damage
Assessment Action Plan**

1 3.3 Reducing Threats to Monument Resources

2 Situated in the middle of the Pacific Ocean, at the fulcrum of the North Pacific gyre and the mid-
3 point between the economic giants of the east and west, the NWHI are subject to the full range of
4 environmental and anthropogenic stressors despite their remote location and the absence of
5 human population. Many threats originate far outside the NWHI. Marine debris, largely
6 consisting of discarded or lost fishing nets from distant fleets and plastic trash, threatens and
7 damages coral reef and coastal habitats, entangles and chokes marine life, and aids in the
8 transport of contaminants.

9 The introduction of alien species to the islands has led to the establishment of invasive species
10 that crowd out native species, altering habitat and food webs. Alien species may arrive on
11 vessels or debris of any kind from ports around the world. Discharges from vessels operating in
12 or transiting the NWHI can introduce pathogens that contribute to coral disease and could
13 threaten marine mammal populations.

14
15 Vessel groundings and cargo spills occur somewhat infrequently in this remote archipelago, and
16 response to such emergencies has required exceptional collaborative interagency effort and
17 resources to minimize effects to the fragile coral reef and terrestrial ecosystems.

18 Through an ecosystem-based approach to management, of which interagency coordination and
19 cooperation is central, reducing threats to the ecosystem is achieved through an effective
20 regulatory framework, education and outreach, preventative measures to minimize risk,
21 emergency response, and natural resource damage assessment and restoration when unforeseen
22 events cause injury to natural resources.

23 Action plans to reduce threats and prevent impacts to the ecosystem focus on developing and
24 implementing risk reduction assessment and protocols, emergency response plans, and alien
25 species prevention and eradication, where feasible. Each action plan consists of a set of
26 strategies to address a desired outcome. The desired outcomes of these action plans over the
27 15-year planning horizon are:

- 28 • **Marine Debris:** Reduce the adverse effects of marine debris to Papahānaumokuākea
29 Marine National Monument resources and reduce the amount of debris entering the North
30 Pacific Ocean.
- 31 • **Alien Species:** Detect, control, eradicate where possible, and prevent the introduction of
32 alien species into Papahānaumokuākea Marine National Monument.
- 33 • **Maritime Transportation and Aviation:** Investigate, identify, and reduce potential
34 threats to Papahānaumokuākea Marine National Monument from maritime and aviation
35 traffic.
- 36 • **Emergency Response and Natural Resource Damage Assessment:** Minimize damage
37 to Papahānaumokuākea Marine National Monument resources through coordinated
emergency response and assessment.

36 Action plans described in this section will be implemented in close coordination with
37 jurisdictional agency partners and in conjunction with other priority management needs.

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3.3.1 Marine Debris Action Plan

Desired Outcome

Reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and reduce the amount of debris entering the North Pacific Ocean.

Current Status and Background

A multiagency effort launched in 1996 by the University of Hawai‘i’s Sea Grant College Program began to address the problem of marine debris, a problem that was much larger than any agency alone might resolve. An estimated 750 to 1,000 tons of marine debris were on reefs and beaches in the NWHI. NOAA, in collaboration with 14 other partners including the Coast Guard, Schnitzer Steel Hawai‘i Corporation (formerly Hawai‘i Metals Recycling Company), the Sea Grant College Program, U.S. Navy, FWS, the City and County of Honolulu, the State of Hawai‘i, The Ocean Conservancy, Hawai‘i Wildlife Fund, Matson Navigation Company, and others removed 66 tons of marine debris and derelict fishing gear from 1996 to 2000.

In 2001, the multiagency cleanup effort was extended, and yields grew from approximately 25 tons per year in 1999 and 2000 to 68 tons in 2001, 107 tons in 2002, 118 tons in 2003, 126 tons in 2004, 57 tons in 2005, 21 tons in 2006, and 19 tons in 2007. The total amount of marine debris removed from 1996 to 2007 was 582 tons. The 2006 field season marked the first year of the maintenance mode effort, in which specific study areas called “High Entanglement Risk Zones” for Hawaiian monk seals are cleaned and designated accumulation rate zones are studied. Based on a recent study, the accumulation of new debris in the NWHI is now estimated to be 57 tons (or 52 metric tons) annually (Dameron et al. 2007). Even if all new input of debris were stopped, existing debris in the ocean would continue to accumulate in the NWHI for years to come.

In 2005, with guidance from Congress, a Marine Debris Program was established under NOAA’s Office of Response and Restoration. This program is undertaking a national and international effort focused on identifying, removing, reducing, and preventing debris in the marine environment. This is a significant step toward addressing the marine debris issue and providing much-needed support to projects that address the issue. As one example, a project funded in

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.3	Habitat Management and Conservation
3.3.2	Alien Species
3.3.4	Emergency Response
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Links to Goals
Goal 1
Goal 2
Goal 3



Pacific Island Fisheries Science Center, Coral Reef Ecosystem Division's marine debris removal team at work in the NWHI. Photo: Jake Asher

1 2005 established a port reception facility and derelict net recycling program in Honolulu for
2 proper disposal of derelict fishing gear. Also in 2005, the Marine Debris Program joined the
3 multiagency cleanup effort through funding for debris removal field operations.
4

5 On December 22, 2006, the Marine Debris Research, Prevention, and Reduction Act was signed
6 into law. The Act makes the Marine Debris Program permanent and directs NOAA to work in
7 conjunction with Federal agencies such as EPA and the Coast Guard to identify the origin,
8 location, and projected movement of marine debris within navigable waters of the United States
9 and the U.S. exclusive economic zone. The Act specifically targets fishing gear as a threat to the
10 marine environment and navigation safety, authorizes the research and development of
11 alternative types of fishing gear, and allows the use of voluntary incentives to promote recovery
12 of lost or discarded gear. The Act also authorizes NOAA to offer grants to academia, nonprofit
13 organizations, commercial organizations, and state, local, or tribal governments to identify,
14 assess, reduce, and prevent marine debris.
15

16 In recognition of the magnitude of the marine debris problem, NOAA has contributed to
17 mitigating the effects of marine debris by providing funding for debris removal efforts and
18 participating in the NWHI multiagency partnership. This work will now continue through the
19 establishment of the Monument, and the MMB is already working to increase awareness of this
20 very serious threat to coral reef ecosystems through national and international documentaries and
21 publications, public outreach displays at Mokupāpapa Discovery Center, development of lesson
22 plans about marine debris in the Navigating Change Teacher’s Guide, and community
23 presentations.
24

25 **Need for Action**

26 Marine debris, especially derelict fishing gear, is a severe chronic threat to the shallow-water
27 ecosystems of the NWHI and hinders the recovery of the critically endangered Hawaiian monk
28 seal and threatened sea turtles through ingestion of debris and entanglement, which can lead to
29 drowning and suffocation (see section 3.2.1, the Threatened and Endangered Species Action
30 Plan). Ocean currents carry marine debris, including derelict fishing nets and other gear from
31 North Pacific fisheries, plastics, hazardous materials and hazardous waste lost or discarded from
32 ships during transit, authorized and unauthorized fish aggregation devices (Donohue 2005), and
33 other shore-based debris from Pacific Rim countries, across the greater Pacific Ocean. The
34 North Pacific Subtropical Convergence Zone, located just north of the Hawaiian Archipelago,
35 concentrates some of these materials. Under certain conditions, such as during an El Niño event,
36 this convergence zone dips southward and straddles the Hawaiian Archipelago, depositing much
37 higher volumes of debris on the island chain than in years when these conditions are not in effect
38 (Harrison and Craig 1993, Matsumura and Nasu 1997, Ingraham and Ebbersmeyer 2001,
39 Donohue and Foley 2007, Morishige et al. 2007).
40

41 Large conglomerations of derelict fishing nets that are carried into shallow waters degrade reef
42 health by shading, abrading, smothering, and dislodging fragile corals and other benthic
43 organisms and by preventing recruitment on reef surfaces (Donahue and Brainard 2001). Nets
44 and line pose deadly entanglement hazards for all marine life. Smaller marine debris, such as
45 disposable lighters and plastic bottle caps, are ingested by albatrosses while foraging for food
46 and affect survival rates of these birds. Marine debris washes ashore in the NWHI, degrading

1 habitat and the health of the Monument’s ecosystems. Debris in the form of hazardous materials,
 2 unknown substances, and unexploded ordnance endanger wildlife as well as Monument field
 3 staff. Marine debris also acts as a vector for the accelerated introduction of alien species into the
 4 region, and poses a navigational hazard to maritime vessels (see sections 3.3.2 and 3.3.4, the
 5 Alien Species and Emergency Response and Natural Resource Damage Assessment action
 6 plans). This action plan presents strategies and activities for addressing marine debris issues in
 7 the Monument as well as the North Pacific region.

8 9 **Strategies to Achieve the Desired Outcome**

10 Ultimately, the Monument’s desired outcome is the elimination of marine debris including
 11 derelict fishing gear from the NWHI. Complete elimination of marine debris in the near future is
 12 virtually impossible due to the financial cost, the size of the area, and the continual influx of new
 13 debris. However, removal of existing debris, detection and prevention of incoming debris, and
 14 education to prevent future generations of debris are the achievable strategies to reduce the
 15 overall impact of debris. Three strategies have been developed to achieve the desired outcome.
 16 The strategies and activities are coded by the acronym for the action plan title, “Marine Debris”
 17 (MD). A summary of strategies and activities is provided in Table 3.3.1 at the end of this action
 18 plan.

- 19
- 20 • MD-1: Remove and prevent marine debris throughout the life of the plan.
- 21 • MD-2: Investigate the sources, types, and accumulation rates of marine debris within
- 22 5 years.
- 23 • MD-3: Develop outreach materials regarding marine debris within 2 years.
- 24

25 **Strategy MD-1: Remove and prevent marine debris throughout the life of the plan.**

26
 27 Continued support of existing debris removal programs, including the Marine Debris Program, is
 28 essential. Existing debris, particularly large fishing nets, poses an acute entanglement threat to
 29 endangered and threatened species. The only way to decrease entanglement rates from existing
 30 debris is to remove the nets from beaches and the nearshore areas, including those around French
 31 Frigate Shoals, Maro Reef, Lisianski Island, Laysan Island, Pearl and Hermes Atoll, Midway
 32 Atoll, and Kure Atoll. Nets and other debris also combine into large masses that are moved
 33 around by wave energy. These masses scour the bottom, abrading and breaking coral colonies,
 34 preventing colonization, and damaging other benthic resources. Removal of debris, particularly
 35 large nets that have come into shallow waters, is quite expensive and dangerous. Programs to
 36 identify, track, and remove nets both within and outside the Monument, combined with incentive
 37 programs for fishermen to pick up these nets and bring them back to shore for disposal, may be
 38 more cost effective and would prevent damage to fragile reef ecosystems. The MMB will work
 39 in partnership with the Coast Guard and other marine debris partners to provide incentives for
 40 fishing vessels to participate in disposal programs and still comply with Coast Guard policies
 41 regarding the transport of debris as “cargo-for-hire.”

42 43 ***Activity MD-1.1: Continue working with partners to remove marine debris in the Monument*** 44 ***and reduce additional debris entering the Monument.***

45 The MMB will continue to support and participate in the multiagency cleanup effort that has
 46 been highly effective in removing marine debris from shallow-water areas and beaches. With

1 existing infrastructure, protocols, and experience in executing this demanding and logistically
 2 intensive task, it is beneficial to all parties to continue participating in the existing effort. Data
 3 collected and analyzed as part of the multiagency effort will be entered into the
 4 Papahānaumokuākea Information Management System (PIMS), once it is developed.

5 Although cleanup efforts have removed the majority of accumulated large nets in NWHI waters
 6 less than 30 feet (9 meters) deep, additional debris keeps coming in. NOAA estimates that each
 7 year, 57 tons (52 metric tons) of derelict fishing gear accumulates on coral reefs and beaches in
 8 the NWHI (Dameron et al. 2007). Two ways to prevent debris from entering the shallow-water
 9 reef ecosystem are to retrieve the existing debris at sea and to change existing fishing gear
 10 disposal practices. Potential changes include designing gear modifications, implementing gear
 11 loss reporting requirements, requiring permanent identification of fishing gear, requiring
 12 dockside gear accountability inspections of vessels prior to their departure on fishing trips and
 13 upon their return, working with the fishery management councils in the United States and similar
 14 agencies in foreign countries to reduce illegal fishing and destructive fishing practices, and
 15 pursuing technological means to detect and retrieve gear lost at sea.

16
 17 ***Activity MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash***
 18 ***ashore in the NWHI.***

19 Unidentified chemical containers, unexploded ordnance, oceanographic instruments, loose fish
 20 aggregating devices, and other unidentified objects regularly wash up on beaches in the
 21 Monument. The items will be documented, identified, and then secured until appropriate
 22 removal and disposal by approved contractors can occur.

23
 24 ***Activity MD-1.3: Develop and implement a 5-year marine debris removal and prevention***
 25 ***strategy for the Monument.***

26 Using recommendations from national and international marine debris conferences and data from
 27 ongoing marine debris removal efforts, and in coordination with partner agencies and organizations,
 28 a coordinated strategy for marine debris removal and prevention will be developed for the NWHI.
 29 Data and information on the types, sources, locations, and impacts of debris obtained from ongoing
 30 removal efforts and additional studies will be used to develop focused, short-term and long-term
 31 initiatives geared to achieve the greatest return on investment in terms of ecological protection. The
 32 MMB will continue to pursue activities that identify, track, and collect large debris at sea, along
 33 with development of incentive programs for fishing vessels to collect debris at sea and bring it to
 34 dockside collection facilities. A dockside collection program has been implemented on O‘ahu for
 35 fishermen to offload derelict fishing gear retrieved at sea. This program illustrates the type of
 36 coordination among multiple government agencies, community groups, and the private sector
 37 needed to address this issue. The marine debris removal and prevention strategy will investigate
 38 this mechanism to provide additional incentive for debris prevention.

39
 40 ***Activity MD-1.4: Work with the U.S. Department of State to gain international cooperation***
 41 ***and involvement for marine debris issues.***

42 The MMB will work through the Interagency Marine Debris Coordinating Committee, the U.S.
 43 Department of State, and other appropriate U.S. agencies to call international attention to marine
 44 debris problems in the NWHI and to identify approaches to reducing foreign debris sources.
 45 Approaches may include, but are not limited to, permanent identification of fishing gear,

1 incentive programs for recovered debris, and dockside gear accountability inspections of vessels
2 prior to their departure on fishing trips and upon their return.

3
4 ***Activity MD-1.5: Work with the fishery management councils to address marine debris***
5 ***prevention with U.S. fishing fleets.***

6 The MMB will work with the Western Pacific and North Pacific Fishery Management Councils
7 to assess and address fishing practices or domestic fishing gear that contribute to the marine
8 debris problem. The MMB will coordinate with the Councils to initiate an accountability
9 requirement for all vessels that utilize the type of gear that is contributing to marine debris in the
10 NWHI. This could include permanent identification of fishing gear, incentive programs for
11 recovered debris, disposal and recycling programs, dockside gear accountability inspections of
12 vessels prior to their departure on fishing trips and upon their return, and other approaches.

13
14 **Strategy MD-2: Investigate the sources, types, and accumulation rates of marine debris**
15 **within 5 years.**

16
17 The MMB, in partnership with other governmental and nongovernmental entities, will conduct
18 research into mechanisms to locate, track, and remove debris at sea before it reaches fragile
19 Monument ecosystems. This program will attempt to use unmanned aircraft systems to locate
20 the debris at sea and may also take advantage of remote sensing systems being researched for
21 Monument enforcement purposes to detect large debris conglomerates. Once an area of high
22 concentration of debris is located, unmanned aircraft can be launched from vessels to find
23 individual conglomerations of debris and target removal efforts. These initiatives will help direct
24 the cleanup effort to where it will have the greatest effect, with limited resources. Using satellite
25 imagery, NOAA Fisheries is also working with partners to design a statistical survey to census
26 marine debris in the north Pacific. This information will provide us with an estimate of the
27 magnitude of the marine debris problem in the Pacific. In addition, NOAA Fisheries and its
28 partners are working to track debris movement in the Pacific Ocean, including areas within the
29 Monument, through the use of satellite-tracked drifter buoys.

30
31 Another project is to address the small plastic debris being fed to young albatrosses. Much of the
32 debris being fed to young albatross is picked up at sea by the adults. Monitoring the debris that
33 washes up onto the beaches at Midway Atoll will provide a snapshot of what is in the waters
34 surrounding the Monument islands, the most economical approach to such identification. This
35 study will also allow us to begin to identify sources of the debris and then to develop a strategy
36 for use of this information for prevention through education and outreach targeting key
37 stakeholders and user-groups that are associated with the behaviors that produce these forms of
38 marine debris.

39
40 ***Activity MD-2.1: Work with partners on marine debris studies.***

41 The MMB will work with the Marine Debris Program to support studies on the marine debris
42 issue, including research to quantify resource impacts and to determine marine debris
43 accumulation rates, biological and ecological impacts, efforts to track sources and types of
44 debris, and documentation of the cost estimates of damage. One such study currently under
45 design will assess net-scar impacts and recovery over time at Midway Atoll reefs.

46

1 ***Activity MD-2.2: Develop and standardize monitoring protocols for marine and terrestrial***
2 ***habitats.***

3 Currently marine debris data is collected by numerous entities using a variety of data collection
4 methods. Synthesizing, quantifying and interpreting marine debris data is therefore difficult.
5 The MMB will work with all Federal and State partners to standardize protocols to maximize the
6 use and utility of data collected by the various programs. Development of a statistically sound
7 and biologically relevant marine debris monitoring protocol for Midway Atoll has begun. This
8 protocol may serve as the basis for a long-term monitoring program within the Monument. Since
9 1984, 22 international marine debris conferences have recommended standardization of data
10 collection as one of their top two priorities. This unique project at Midway Atoll, in partnership
11 with The Dow Chemical Company, and with additional funding from a National Fish and
12 Wildlife Foundation grant, hopes to lay the foundation for a greater understanding of debris
13 sources.

14
15 **Strategy MD-3: Develop outreach materials regarding marine debris within 2 years.**

16
17 To better explain the scope and impacts of marine debris in the NWHI, an outreach strategy will
18 be developed with the multiagency partnership, to reach both local and international audiences
19 and specific fishing communities.

20
21 ***Activity MD-3.1: Work with partners to continue to develop and implement an outreach***
22 ***strategy for marine debris.***

23 To better explain the scope and impacts of marine debris in the NWHI, an outreach strategy will
24 be developed with the multiagency partnership to reach a broad audience and specific fishing
25 communities. Such outreach will be coordinated with other efforts as described in the
26 Constituency Building and Outreach Action Plan (section 3.5.2) as well as with broader efforts
27 of the Marine Debris Program.

28
29 Awareness of the impact of marine debris must be increased. Most people are not aware that
30 much of the shore-based marine debris comes from the careless disposal of garbage, such as
31 cigarette lighters and other plastics, and that much of the derelict fishing gear comes from losses
32 at sea due to bad weather, gear failure, and improper disposal. Educating the public about the
33 impacts of this debris in the ocean environment aims to change behaviors and ultimately reduce
34 the volume of debris in the ocean. Documentaries and feature stories regarding this issue already
35 have led to significant actions by several nations aimed at reducing marine debris. Such
36 educational activities will be encouraged by the MMB. In addition, outreach products will be
37 developed to reach specific fishing communities and industries. These materials will target
38 recreational fishermen and commercial fishing sectors on proper disposal and reporting of gear
39 lost at sea. The outreach materials will highlight lost gear to better explain the scope and impacts
40 of this type of marine debris.

1 **Table 3.3.1 Summary of Strategies, Activities, and Agency Leads for Marine Debris**

2

Strategies and Activities	Agency Lead
Strategy MD-1: Remove and prevent marine debris throughout the life of the plan.	
Activity MD-1.1: Continue working with partners to remove marine debris in the Monument and reduce additional debris entering the Monument.	NOAA
Activity MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI.	FWS
Activity MD-1.3: Develop and implement a 5-year marine debris removal and prevention strategy for the Monument.	NOAA
Activity MD-1.4: Work with the U.S. Department of State to gain international cooperation and involvement for marine debris issues.	NOAA
Activity MD-1.5: Work with the fishery management councils to address marine debris prevention with U.S. fishing fleets.	NOAA
Strategy MD-2: Investigate the sources, types, and accumulation rates of marine debris within 5 years.	
Activity MD-2.1: Work with partners on marine debris studies.	NOAA
Activity MD-2.2: Develop and standardize monitoring protocols for marine and terrestrial habitats.	NOAA
Strategy MD-3: Develop outreach materials regarding marine debris within 2 years.	
Activity MD-3.1: Work with partners to continue to develop and implement an outreach strategy for marine debris.	NOAA

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3.3.2 Alien Species Action Plan

Desired Outcome

Detect, control, eradicate where possible, and prevent the introduction of alien species into Papahānaumokuākea Marine National Monument.

Current Status and Background

Despite the extreme remoteness of the Monument, the relatively low rate of visitation, and the high amount of administrative control over the conditions of any visits, alien species have left their mark on natural communities in the Monument. Insular ecosystems are often more vulnerable to the effects of introduced species than continental areas due to smaller total population sizes, higher endemism, and species that have evolved longer in the absence of predators and thus are less likely to have developed defenses against them (Blackburn et al. 2004). An invasive species is defined as a species (1) that is nonnative (or alien) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive species can affect native species by competitive exclusion, niche displacement, hybridization, introgression, predation, and ultimately extinction (Mooney and Cleland 2001). The known incidence and distribution of alien species in the NWHI is described in section 1.4, Environmental and Anthropogenic Stressors.

The ecosystems of Hawai‘i have changed profoundly and at an accelerating pace since humans arrived, accompanied by an array of alien species. The NWHI now have terrestrial invaders in most taxa, some of which have caused great disruption to the native ecosystems. In the main Hawaiian Islands, alien algae have altered native habitat, and in some areas have overgrown and completely smothered extensive areas of coral reef (DLNR 2003a). Other alien species have caused serious economic effects. Each year, Maui County spends thousands of dollars to remove over a million pounds of the alien algae *Hypnea* from its beaches (Coloma-Agaran 2003). Snowflake coral (*Carijoa riisei*) has covered significant portions of black coral beds in the main Hawaiian Islands in depths greater than 250 feet (75 meters) and is now considered one of the most invasive invertebrates on deep-water coral reefs (DLNR 2003a). Hawai‘i’s harbors and bays are the most common sites for alien species introductions (Godwin et al. 2006).

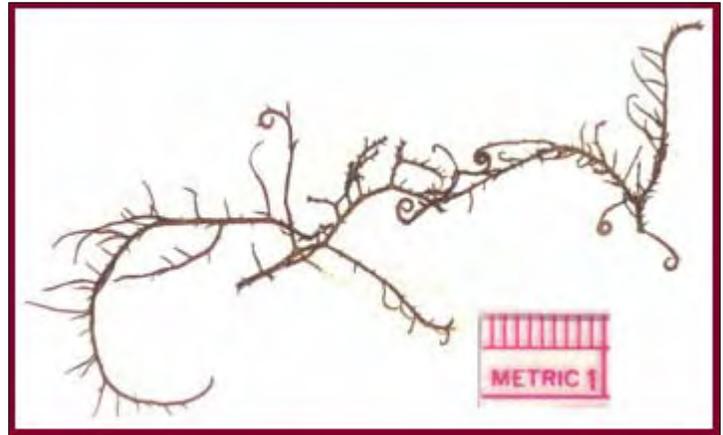
In 2003, the State of Hawai‘i Department of Land and Natural Resources (DLNR) and various Federal, State, industry, and nonprofit organizations released the State of Hawai‘i Aquatic Invasive Species Management Plan (DLNR 2003a). Many of the strategies outlined in that plan complement those outlined in this action plan but are much broader in scope as they concern the entire archipelago, including the complexities of the highly populated and commercially active main Hawaiian Islands. An assessment of the potential threats of nonindigenous marine species in the NWHI was completed by Eldredge (2005). A 2006 report by the Hawai‘i Institute of Marine Biology addresses issues specific to reducing the potential impacts of invasive marine species in the NWHI (Godwin et al. 2006).

Links to other Action Plans	
3.1.1	Marine Conservation Science
3.2.1	Threatened and Endangered Species
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.3	Maritime Transportation and Aviation
3.4.1	Permitting
3.4.2	Enforcement
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management
3.6.3	Coordinated Field Operations

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5

1 Early attempts to establish human settlements in the NWHI in the late 1800s and early 1900s,
 2 especially at Laysan Island and Midway Atoll, resulted in the introduction of many alien
 3 terrestrial species including plants, insects, and mammals. The number of alien land plants in the
 4 NWHI varies from only 3 introduced at Nihoa to 249 introduced at Midway Atoll. The level of
 5 threat from introduced plants also varies between species. For example, the invasive plant
 6 golden crownbeard (*Verbesina encelioides*) displaces all native vegetation in nesting areas,
 7 causing entanglement and heat prostration and killing hundreds of albatrosses each year. The
 8 invasive gray bird locust (*Schistocerca nitens*) was first detected at Nihoa Island in 1984 and by
 9 2000 was periodically reaching population levels large enough to cause damage to the native
 10 plant community, including three endemic species listed as endangered. This grasshopper
 11 species has now also spread to Mokumanamana, French Frigate Shoals, and Lisianski Island. To
 12 prevent further importation of invasive plants, animals, or insects, mandatory quarantine
 13 protocols are enforced for any visitors to all the islands in the NWHI (with the exception of
 14 Midway Atoll and Tern Island at French Frigate Shoals). These protocols require the use of
 15 brand new or island-specific gear at each site and treatments such as cleaning, using insecticide,
 16 and freezing to minimize the transport of potentially invasive species to the island.

18
 20 A total of 11 alien marine invertebrate, fish,
 22 and algal species have been recorded in the
 24 NWHI (see Table 1.1), with the highest
 26 concentrations occurring at Midway Atoll.
 28 Although the remoteness and relative
 30 inaccessibility of the NWHI has helped to
 32 prevent the introduction of some alien
 34 species to the area, these islands are
 36 vulnerable to introductions through a variety
 38 of human activities. Maritime vessels are
 40 recognized as the primary vector for
 42 transporting marine alien species through
 44 contaminated vessel equipment, hull fouling,
 46 ballast water, and ballast sediment.
 48 Additional vectors include deliberate and
 50 accidental release, and transport by artificial
 51 substrates such as fish attractant devices and marine debris. (See section 3.3.1, the Marine Debris
 52 Action Plan, and also Godwin et al. 2006.)



Hypnea musciformis, an alien algae species which is invasive in the main Hawaiian Islands, has been documented in the waters surrounding Necker Island. Photo W.H. Magruder (Bishop Museum)

54 **Existing Laws, Regulations, and Protocols**

55 Vessel hull fouling and ballast water discharge have been identified as two major vectors for
 56 transporting alien species in marine environments (International Maritime Organization 1997,
 57 2001). Therefore, Monument regulations and permit requirements specifically target these
 58 pathways. Best management practices for Monument access will continue to use the latest
 59 information to address both marine and terrestrial alien species introductions, and support the
 60 requirements developed by FWS to prevent alien species introductions to the Hawaiian Islands
 61 National Wildlife Refuge (see section 3.4.1, the Permitting Action Plan, and Appendix A).

62

1 In 2000, the State of Hawai‘i Legislature designated DLNR as the lead agency for preventing the
2 introduction of alien aquatic organisms through ballast water and hull fouling. DLNR
3 reestablished an interagency task force to discuss and make recommendations to address
4 concerns about alien aquatic organism issues related to ballast water and hull fouling, including
5 adopting administrative rules and penalties. DLNR has hired a Project Coordinator to address
6 issues relating to aquatic invasive species through hull fouling and ballast water. The State of
7 Hawai‘i has also been working on developing a comprehensive ballast water and hull fouling
8 program since September 2002, with NOAA funds administered by the State Office of Planning,
9 Coastal Zone Management Program.

10
11 Federal laws that apply in addressing alien species and invasive species in the NWHI include the
12 Lacey Act of 1900, as amended (18 U.S.C. 42, 16 U.S.C. 3371), the Endangered Species Act of
13 1973, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C.
14 4701), the National Invasive Species Act of 1996 (Public Law 104-332), and Executive Order
15 13112 on Invasive Species (1999). Executive Order 13112 established the National Invasive
16 Species Council and requires the development of a National Management Plan for Invasive
17 Species. Under the Nonindigenous Aquatic Nuisance Prevention and Control Act, NOAA and
18 the FWS have responsibility for control and management of invasive aquatic species.

19
20 The U.S. Coast Guard has developed the Mandatory Ballast Water Management Program for
21 U.S. Waters. The Coast Guard published regulations on July 28, 2004, establishing a national
22 mandatory ballast water management program for all vessels equipped with ballast water tanks
23 that enter or operate within U.S. waters. These regulations also require each vessel to maintain
24 a ballast water management plan that is specific to that vessel and assigns responsibility to the
25 master or another appropriate official to understand and execute the ballast water management
26 strategy for that vessel. The International Maritime Organization (1997) has developed ballast
27 water exchange guidelines. In Hawai‘i, the Alien Aquatic Organisms Task Force is also
28 developing strategies to address the transport of alien species by vessels. The DLNR adopted
29 Title 13, chapter 76, Hawai‘i Administrative Rules (Non-indigenous species) on October 12,
30 2007, to manage ballast water discharge from vessels operating in Hawai‘i waters (Appendix
31 I). They are consistent with and complement the Federal regulations and coincide with the
32 national focus to protect U.S. water in which many states have adopted their own rules.

33
34 The MMB incorporated FWS policies aimed primarily at preventing the introduction of
35 terrestrial alien species to the islands in the Hawaiian Islands National Wildlife Refuge
36 (Appendix I). These include requiring personnel and other visitors to use new, island-specific
37 clothing, shoes, and other gear such as tents and bedding that have been frozen for at least 48
38 hours and carefully packed to prevent contamination at all islands except Sand and Eastern at
39 Midway Atoll and Tern Island at French Frigate Shoals. In addition, considerable resources and
40 staff time are devoted to controlling and eradicating invasive species on the islands. The
41 eradication of the introduced grass *Cenchrus echinatus* at Laysan Island is an example of the
42 success the FWS has had in its prevention and eradication programs (Rehkemper and Flint
43 2002). The MMB has also taken steps toward preventing marine alien species introductions
44 through the development of protocols for reducing the risk of transmission from vessel hulls,
45 discharge, and equipment used throughout the Monument (Appendix I).

1 **Monument Regulations and Permit Requirements**

2 Preventing alien species from entering the NWHI ecosystem is the most important action to take in
3 protecting the ecosystem from the impacts of invasive species. It is difficult, if not impossible, to
4 predict whether an alien species will become invasive in a given environment. The probability of a
5 successful eradication of an alien species in the marine environment is low. Therefore, efforts will
6 be made to prevent all alien species from entering NWHI ecosystems. Monument regulations and
7 permit requirements (based on best management practices) related to alien species target key
8 vectors known for transporting alien species. Monument regulations related to preventing alien
9 species introductions include a prohibition of the release or introduction of alien species into the
10 Monument, and the State regulates any kind of vessel discharge (see Appendix I: HAR Title 13
11 Chapter 76.2). Mandatory hull inspections and cleaning, if needed, is a Monument permit
12 requirement for all ships authorized to enter the Monument. In addition, aircraft landing within
13 the Monument are subject to inspection, as are all visitors and their luggage.
14

15 In addition to regulations and permit conditions, outreach programs offer tools for enlisting the
16 support of Monument permittees in protecting ecosystem integrity. (See also the action plans for
17 Permitting, section 3.4.1; Ocean Ecosystems Literacy, section 3.5.4; Constituency Building and
18 Outreach, section 3.5.2; and Marine Transportation and Aviation, section 3.3.3.)
19

20 **Need for Action**

21 Worldwide, invasive species are causing negative ecological and economic impacts. While not
22 all alien species will become invasive in a given environment, it is difficult, if not impossible, to
23 determine which will have harmful impacts. Therefore, a precautionary approach treats all alien
24 species as potentially invasive other than a select few that have been cleared for human
25 consumption. The need to prevent introductions of both marine and terrestrial alien species to
26 the NWHI was raised as an issue of concern during public scoping meetings in 2002 and
27 consistently during public scoping and comment periods since that time. Protecting the lands
28 and waters of the NWHI from the impacts of alien species is critical to achieving the
29 Monument's primary goal of resource protection.
30

31 While few alien species are established in the waters of the NWHI, global trends suggest that
32 others could be introduced to this relatively pristine ecosystem. For example, marine debris
33 serves as a vector for invasive species by providing a ride for sessile aliens and a microhabitat
34 for other species that may arrive unattached but associated with the debris. By causing
35 mechanical damage to reef structures, it may also create favorable habitat for the settling out and
36 recruitment of nonnative species. Once established, invasive species can be extremely costly to
37 control and would likely be impossible to eradicate. The remoteness of this area compounds the
38 challenge. If appropriate prevention and control measures are not taken, alien species could
39 continue to spread and may cause substantial damage to the health and integrity of marine
40 ecosystems across the Hawaiian Archipelago. This action plan presents strategies and activities
41 for addressing alien species needs in the Monument, as well as the NWHI region.
42

43 **Strategies to Achieve the Desired Outcome**

44 Strategies identified for achieving the desired outcomes range from preventing alien species
45 introductions to monitoring, controlling, and eradicating existing alien species in the Monument,
46 to detecting new invasive species threats. The strategies and activities are coded by the acronym

1 for the action plan title, “Alien Species” (AS). A summary of strategies and activities is provided
 2 in Table 3.3.2 at the end of this action plan.

- 3
- 4 • AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of
- 5 eradication or control all nonnative organisms in the Monument over the life of the
- 6 plan.
- 7 • AS-2: Engage in active surveillance to monitor existing infestations and to detect new
- 8 infestations of alien species over the life of the plan.
- 9 • AS-3: Establish and enforce quarantine procedures appropriate for each site and
- 10 habitat (terrestrial and aquatic) in the Monument to prevent the invasion or
- 11 reinfestation of nonindigenous species over the life of the plan.
- 12 • AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll, within
- 13 15 years.
- 14 • AS-5: Prioritize infestations of alien terrestrial arthropods by species and locations
- 15 and, within 5 years, develop and subsequently implement plans to control and if
- 16 possible eradicate the highest-priority species.
- 17 • AS-6: Control and eventually eradicate the highest-priority invasive plants in the
- 18 terrestrial parts of the Monument within 15 years.
- 19 • AS-7: Investigate methods to eventually eradicate aquatic invasive organisms already
- 20 known to be present in the Monument, and conduct regular surveillance for new
- 21 invasions.
- 22 • AS-8: Conduct and facilitate research designed to answer questions regarding
- 23 invasive species detection; effects on ecosystem; and alien species prevention,
- 24 control, and eradication over the life of the plan.
- 25 • AS-9: Engage Monument users and the public in preventing the introduction and
- 26 spread of alien species.
- 27 • AS-10: Participate in Statewide and Pacific regional alien species efforts.
- 28

29 **Strategy AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality**
 30 **of eradication or control all nonnative organisms in the Monument over the life of the plan.**

31
 32 The consolidation of efforts and information and the standardization of methods for approaching
 33 invasive species problems will enable managers to prioritize invasive species projects, maintain
 34 better readiness to respond to new invasions, and prevent or reduce the probability of additional
 35 invasions.

36
 37 ***Activity AS-1.1: Complete an Integrated Alien Species Management plan.***

38 An Integrated Alien Species Management Plan for the Monument will be developed based on
 39 review of the effectiveness of existing protocols, and a critical geospatial threat analysis of alien
 40 species found within the NWHI and risks associated with new introductions from maritime
 41 traffic from the main Hawaiian Islands and interisland travel by aircraft or vessel. The plan will
 42 enable prioritization of alien species management actions. All necessary pesticide use proposals
 43 and Section 7 consultations will address terrestrial alien species control, eradication, and
 44 response to outbreaks within 2 years. The plan will be updated every 5 years.

1 ***Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien***
 2 ***species.***

3 The integrated alien species management plan will include a definition of specific protocols and
 4 requirements for preventing, controlling the spread of, and eradicating alien species, such as hull
 5 inspections and island quarantine protocols, a description of each partner's role in alien species
 6 control, best management practices to prevent the spread of species within the NWHI, and
 7 priority areas. Species of concern will be identified. One concern the plan will address is the
 8 need to prevent the spread of alien species within the NWHI, especially from Midway Atoll.

9
 10 The plan will incorporate individual Co-Trustee guidelines, as appropriate, for the most effective
 11 and collaborative efforts possible. Memoranda of Agreement will be developed as necessary to
 12 adopt and implement agency guidelines. A rapid response plan that details complete areas of
 13 responsibilities for each managing partner upon the discovery of a new introduction needs to be a
 14 part of the plan.

15
 16 This plan will include strategies for a rapid risk assessment, possible methods for containment
 17 and eradication, and a provision for quickly accessing funding needed for the control or
 18 eradication attempt. Additionally, measures to reduce the chances that ships are transporting
 19 deleterious species should be encouraged even if no ballast water is intentionally discharged in
 20 the Monument. These measures may include exchange; pre-intake treatments such as filtration,
 21 ultraviolet treatment, or sonic treatment; postintake extermination of organisms; and regular
 22 cleaning of ballast tanks. Coordination with existing groups already working on some of these
 23 alien species issues will be a high priority to build upon the plans already drafted. Examples of
 24 these are the State of Hawai'i Aquatic Invasive Species Management Plan (DLNR 2003a), the
 25 report on Reducing Potential Impact of Invasive Marine Species in the NWHI CRER (Godwin et
 26 al. 2006), the Assessment of the Potential Threat of Marine Nonindigenous Species in the NWHI
 27 (Eldredge 2005), the Draft Pacific Islands Rat Spill Contingency Plan (FWS in prep.), and the
 28 Draft Laysan Island Restoration Plan (Morin and Conant 1998). This activity will be closely
 29 linked with the field protocols developed in the Coordinated Field Operation Action Plan
 30 (section 3.6.3) and in the Maritime Transportation and Aviation Action Plan (section 3.3.3).

31
 32 **Strategy AS-2: Engage in active surveillance to monitor existing infestations and to detect**
 33 **new infestations of alien species over the life of the plan.**

34
 35 The two pressing needs in managing areas affected by invasive species are to identify what new
 36 species have recently arrived and become established and which alien species exhibit invasive
 37 characteristics and are, therefore, the most dangerous. Maintaining careful records of the
 38 distribution of known alien species and actively searching for new arrivals are essential to
 39 correctly prioritize response and restoration activities.

40
 41 ***Activity AS-2.1: Survey distributions and populations of known alien species at regular***
 42 ***intervals.***

43 Closely monitoring existing invasions to determine their rate of spread and distribution relative
 44 to sensitive native species in the Monument will assist managers in prioritizing response actions.
 45 Monument staff will incorporate alien species data collection into existing annual ecosystem
 46 monitoring activities (see section 3.1.1, Marine Conservation Science Action Plan).

1
2 ***Activity AS-2.2: Maintain a GIS database of marine and terrestrial alien species.***

3 Data collected during alien species monitoring will be added to the Monument's GIS database
4 for tracking and analysis purposes (see section 3.6.2, Information Management Action Plan).
5 This data will help track the spread of invasive species and the success of control measures
6 instituted by Monument managers.
7

8 ***Activity AS-2.3: Develop and implement monitoring protocols for early detection and***
9 ***characterization of new infestations.***

10 In accordance with the Monument's integrated alien species management plan, protocols will be
11 developed and refined as necessary to monitor selected areas for possible alien species
12 introduction. Discoveries of new alien species will be immediately reported to managers for
13 appropriate response and incorporated into the Monument's GIS database.
14

15 **Strategy AS-3: Establish and enforce quarantine procedures appropriate for each site and**
16 **habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation**
17 **of nonindigenous species over the life of the plan.**

18
19 The benefits of preventing the introduction of a new species far outweigh its cost. Reducing the
20 probability of alien species being transported to the Monument by developing effective
21 quarantine protocols and enforcing them is tremendously important to maintain the biological
22 integrity, diversity, and environmental health of the system.
23

24 ***Activity AS-3.1: Enforce the use of existing quarantine protocols to prevent the introduction of***
25 ***invasive terrestrial species to the Monument.***

26 Strict enforcement of existing policies (see Appendix I) requiring the use of island-specific soft
27 gear that is brand new and has been frozen for 48 hours has resulted in a very low incidence of
28 new invasive species being reported in the NWHI since the inception of the current program in
29 1991 at all high quarantine sites (Nihoa Island, Mokumanamana, Gardner Pinnacles, Laysan
30 Island, Lisianski Island, and Pearl and Hermes Atoll).
31

32 ***Activity AS-3.2: Continue to require hull inspection and cleaning of all vessels, SCUBA gear,***
33 ***marine construction material, and instruments deployed in the Monument.***

34 A majority of recent marine invasive species to Hawai'i are directly attributed to sessile and
35 mobile biofouling organisms associated with hull fouling (Godwin et al. 2006). Therefore,
36 prevention efforts will focus on introductions by vessel dispersal. These modes of dispersal
37 include hulls and propellers, outboard motors, anchors and chains, fishing equipment, scientific
38 dive gear, research floating platforms, and drydocks (Godwin et al. 2005). Inspections are
39 mandatory for all permitted vessels prior to entering the Monument. A hull cleaning may be
40 required prior to access.
41

1 **Strategy AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll,**
 2 **within 15 years.**

3
 4 Subsequent to the eradication of the black rat (*Rattus rattus*) at Midway Atoll and the Polynesian
 5 rat (*Rattus exulans*) at Kure Atoll, the house mouse (*Mus musculus*) on Sand Island, Midway,
 6 remains the only nonnative mammal left in the NWHI. Mice can cause high mortality in
 7 seabirds as large as albatrosses (Wanless et al. 2007.) In addition, Midway now hosts a
 8 translocated population of endangered Laysan ducks that are likely to be negatively affected by
 9 high mouse populations. Mice are also a major threat to native plants and terrestrial
 10 invertebrates.

11
 12 ***Activity AS-4.1: Produce a house mouse eradication plan within 5 years and procure***
 13 ***appropriate permits for chosen eradication techniques.***

14 The eradication of introduced rodents from islands is routine, and the successful removal of
 15 black rats at Midway Atoll in recent years has provided a model for mouse eradication. Mice do
 16 present additional challenges, however, such as much smaller home range sizes and different
 17 foraging and reproductive ecology. A careful planning effort that emphasizes the minimization
 18 of effects to nontarget organisms at the site and the other biological differences that may affect
 19 the operation is necessary.

20
 21 ***Activity AS-4.2: Implement and complete house mouse eradication.***

22 All of Sand Island (1,128 acres) will be treated with rodenticide, with active management to
 23 prevent nontarget impacts to native wildlife. Surveys of the affected ecosystem components
 24 before and after the operation will provide a valuable demonstration of the effects of introduced
 25 mice on biological communities.

26
 27 **Strategy AS-5: Prioritize infestations of alien terrestrial arthropods by species and**
 28 **locations and, within 5 years, develop and subsequently implement plans to control and if**
 29 **possible eradicate the highest-priority species.**

30
 31 Introduced insects can have devastating effects on native plant and animal communities, but our
 32 state of knowledge of the ecology of native terrestrial invertebrates in the Monument and our
 33 understanding of technologies for controlling and eradicating introduced arthropod species are
 34 minimal. Planning and prioritization will improve our chances of successfully managing this
 35 group of invasive species while minimizing negative effects to native species.

36
 37 ***Activity AS-5.1: Within 5 years, formulate a priority list of locations and species and a***
 38 ***treatment plan to control and eventually eradicate all social Hymenopterans, such as ants and***
 39 ***wasps, at all islands in the Monument.***

40 Nineteen different species of ants have been recorded in the NWHI through the years (Nishida
 41 1998, 2000). All of these are alien, and some have the potential to be exceedingly invasive and
 42 damaging to native plants and animals. Some species are more dangerous to native species than
 43 others, and different species of ant may require different approaches to eradication or control in
 44 terms of toxicant delivery and effectiveness, seasonality, habitat choices, and differences in
 45 accessibility of the infested islands. Other Hymenopterans such as wasps also threaten
 46 indigenous species, particularly insects.

1
2 **Activity AS-5.2: Conduct toxicant trials to evaluate their efficacy and document ecological**
3 **effects at selected islands on highest-priority invasive species of ants and wasps.**

4 Specific toxicants for killing target species of ants and wasps and baits most palatable to the
5 target species will be tested for efficacy and attractiveness before full-scale eradication efforts
6 begin.

7
8 **Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at**
9 **Midway Atoll within 10 years using methods prescribed in the Integrated Alien Species**
10 **Management Plan.**

11 Reduction or elimination of mosquitoes (*Aedes albopictus* and *Culex quinquefasciatus*) at
12 Midway will benefit humans, nesting seabirds, and the endangered Laysan duck as well as other
13 endangered bird species that might be translocated to Midway in the future (see the Threatened
14 and Endangered Species Action Plan, section 3.2.1) by eliminating the vector for avian pox,
15 which already occurs there, and other arthropod-borne diseases that may arrive in the future.
16 Monument staff will continue to kill mosquito larvae in freshwater ponds and manage mosquito
17 reproduction while avoiding harm to endangered Laysan ducks and other species of migratory
18 waterbirds and shorebirds, using either mosquito fish (*Gambusia affinis*) or bacterial control
19 (*Bacillus thuringiensis israelensis*) depending on the wildlife species using each site. We will
20 also eliminate mosquito breeding habitat by getting rid of standing water sources, where possible
21 and appropriate, and by limiting access to standing water in pipes and cisterns.

22
23 **Activity AS-5.4: Develop and implement a plan to control and if possible eradicate the invasive**
24 **gray bird locust wherever it occurs.**

25 Gray bird locusts (*Schistocerca nitens*) have been found on Nihoa Island, Mokumanamana,
26 French Frigate Shoals, and Lisianski Island. To better respond to the threat posed by the
27 invasive grasshopper *Schistocerca nitens*, Monument staff will continue to collect climate data
28 along with grasshopper abundance measures to develop and continue improving a model for
29 predicting outbreaks. Locust outbreaks are triggered by specific combinations of rainfall and
30 drought, with egg laying favored by warm and dry conditions and survival of young
31 grasshoppers favored by a flush of vegetation caused by rains at the appropriate time. Looking
32 for correlations between grasshopper abundance and moisture and temperature conditions will
33 allow better predictions of high locust populations.

34
35 **Activity AS-5.5: Protect endangered plants threatened by gray bird locust outbreaks at Nihoa**
36 **Island by developing appropriate baits for localized application of toxicants to protect specific**
37 **high-priority plant sites.**

38 Control of grasshoppers on islands such as Nihoa, with its many endemic species of arthropods,
39 requires very careful choices of agents. Lower toxicity to nontarget organisms or specificity of
40 delivery to just grasshoppers will be ensured.

41
42 **Strategy AS-6: Control and eventually eradicate the highest-priority invasive plants in the**
43 **terrestrial parts of the Monument within 15 years.**

44
45 Invasive plants brought to the Northwestern Hawaiian Islands in the course of human activity
46 have caused extensive damage through the years by displacing native plants and by changing the

1 structure and composition of the vegetation community to make it less useful as habitat for other
2 native organisms.

3
4 **Activity AS-6.1: Control and eventually eradicate golden crownbeard and co-occurring weedy**
5 **shrubs in all areas where they occur.**

6 Golden crownbeard (*Verbesina encelioides*) is an invasive annual plant that is a prolific seed
7 producer and grows in extremely dense monotypic stands, in which most other plant species are
8 excluded. The species is currently found at Kure, Midway, and Pearl and Hermes atolls. Control
9 and eventual eradication will require breaking the cycle of the plant setting seed and then
10 depleting the soil seed bank. This task is made much more difficult because of the high density
11 of nesting seabirds, which precludes many mechanized forms of control. Areas to be treated by
12 hand-pulling, mowing when appropriate, and treatment with glyphosate to prevent plants from
13 setting seed and to exhaust the seed bank include 1,098 acres on Midway Atoll, 75 acres on Kure
14 Atoll, and 34 acres on Pearl and Hermes Atoll. Several other invasive weeds are associated with
15 *Verbesina* at Midway Atoll and will respond to the same treatments described above. These
16 include Spanish needle or beggartick (*Bidens alba* and *B. pilosa*), spiny pigweed (*Amaranthus*
17 *spinosus*), haole koa (*Leucaena leucocephala*), castor bean (*Ricinus communis*), and hairy
18 abutilon (*Abutilon grandifolium*).
19

20 **Activity AS 6.2: Control and eventually eradicate the invasive grass sandbur from all areas of**
21 **the Monument where it currently occurs.**

22 The invasive grass sandbur (*Cenchrus echinatus*) has been successfully eradicated at Laysan
23 Island but currently exists at Kure, Midway, and Pearl and Hermes atolls, Lisianski Island, and
24 French Frigate Shoals, so replicating the techniques described in Rehkemper and Flint (2002)
25 will prevent the habitat degradation and loss of native plants and breeding seabirds at other sites
26 in the NWHI where *Cenchrus echinatus* occurs. It can be eliminated by maintaining a year-
27 round program of hand-pulling and limited spraying of glyphosate, to be scheduled so that no
28 plant is ever allowed to go to seed and thus the seed bank is eventually depleted.
29

30 **Activity AS-6.3: Control and eventually eradicate Indian pluchea, *Sporobolus pyramidatus*,**
31 **and swine cress from Laysan Island.**

32 The introduced shrub *Pluchea indica* will be eradicated by cutting and painting stumps with
33 Garlon® in a gradual manner to make sure seabird nesting habitat provided now by *Pluchea* is
34 replaced with other shrubs being used in the ecological restoration at Laysan, such as ‘ilima
35 (*Sida fallax*). Replacing this invasive shrub with native plants providing the same structure used
36 by many nesting birds at Laysan is prescribed by the Draft Laysan Restoration Plan (Morin and
37 Conant 1998). Athens, Ward, and Blinn (2007) discovered the pollen of the native shrub *Sida*
38 *fallax*, previously unknown to Laysan, in the 7,000-year pollen core they studied from Laysan
39 Lake. ‘Ilima has a similar growth form to the *Pluchea* now favored by nesting red-footed
40 boobies and great frigatebirds at Laysan Island. The introduced grass *Sporobolus pyramidatus*
41 and the herbaceous plant swine cress (*Coronopus didymus*) are vulnerable to hand-pulling and
42 glyphosate treatments and also will be treated often enough to prevent any plant from setting
43 seed.

1 **Activity AS-6.4: Control and eventually eradicate prioritized alien plant species from Kure**
 2 **Atoll.**

3 A preliminary Draft Kure Atoll Management Plan (2007) prioritizes alien species that need to be
 4 eradicated. Ironwood (*Casuarina equisetifolia*) will be eradicated by cutting down trees and
 5 painting the stumps with Garlon 4®. Beach heliotrope (*Tournefortia argentea*) will be
 6 controlled in beach dune areas by selectively removing young trees that have not attained the
 7 size that seabirds utilize for nesting. Chemical (probably glyphosate) and mechanical methods
 8 will be used to control and in some cases eradicate *Flaveria trinervia*, *Setaria verticillata*,
 9 *Chenopodium murale*, *Cynodon dactylon*, *Portulaca oleracea*, and *Boerhavia coccinea*. Native
 10 plants propagated in Kure’s nursery will be used to replace the nonnative plants that are
 11 removed.

12
 13 **Strategy AS-7: Investigate methods to eventually eradicate aquatic invasive organisms**
 14 **already known to be present in the Monument, and conduct regular surveillance for new**
 15 **invasions.**

16
 17 Aquatic invasive species present difficulties to resource managers because the technology for
 18 detection and subsequent control and eradication is not well established in marine environments.
 19 The spread of these alien species is harder to contain than pests located on islands. These factors
 20 make locating, characterizing, and eliminating infestations of aquatic invasives a high priority.
 21

22 **Activity AS-7.1: Map, control, and eventually eradicate invasive red algae where it occurs.**

23 Monument staff will map current distributions by using SCUBA or remotely operated vehicles
 24 and concentrate searches in areas where lobster trapping (commercial or research) occurred.
 25 Searching for the extent of the infestation of *Hypnea musciformes* should start in areas in the
 26 NWHI where commercial and research trapping for lobsters has occurred, because it is thought
 27 that the original transport of the invasive algae may have been made by traps previously
 28 deployed in the main Hawaiian Islands.
 29

30 **Activity AS-7.2: Conduct surveillance at appropriate sites for snowflake coral and other**
 31 **incipient marine invasives.**

32 Based on preferred sites already infested by snowflake coral (*Carijoa riisei*) in other areas and
 33 on understanding of the species life history and dispersion methods, the MMB will devise a plan
 34 for surveying sites with the highest probability of invasion by this damaging species.
 35

36 **Strategy AS-8: Conduct and facilitate research designed to answer questions regarding**
 37 **invasive species detection, effects on ecosystem, and alien species prevention, control, and**
 38 **eradication over the life of the plan.**

39
 40 Some of the invasive species problems facing Monument managers are without precedent
 41 because of the kinds and sizes of habitats being managed, the species involved, and the logistical
 42 and technical difficulties of working there. Research designed to assist in adapting methods to
 43 the Monument situation is essential for managing this unique National Monument.
 44
 45
 46

1 ***Activity AS-8.1: Support and conduct research on alien species detection and the effects of***
 2 ***invasive species on native ecosystems.***

3 Monument staff, working with subject experts, will determine which methodologies for alien
 4 species detection and control will be appropriate for use in the NWHI. As appropriate, staff will
 5 initiate or support research on alien species detection and documentation of their ecological
 6 effects. Some of this work will be based on previous research done in other places and
 7 methodologies that have already been developed. Research priorities will be determined through
 8 updates to the Monument Research and Monitoring Plan (see the Marine Conservation Science
 9 Action Plan, section 3.1.1). Research results on ecosystem effects will aid in prioritization of
 10 control and eradication efforts.

11
 12 ***Activity AS-8.2: Support and conduct research on invasive species prevention, control***
 13 ***methods, and eradication techniques.***

14 The high level of protection afforded the Monument enables managers to exercise unprecedented
 15 levels of influence over practices that may prevent movement of invasive species into the area.
 16 Research to document the effectiveness of these measures will aid those managing other
 17 wildlands in choosing quarantine methods. Successful invasive species control and eradication
 18 programs require systematic investigations into the efficacy of techniques chosen and the
 19 ecological impacts of any methods used.

20
 21 **Strategy AS-9: Engage Monument users and the public in preventing the introduction and**
 22 **spread of alien species.**

23
 24 The organisms that have caused the greatest ecological disruption in the Monument all arrived as
 25 accidental introductions by humans. Educating all visitors to the area will go a long way toward
 26 preventing future harmful species from reaching Papahānaumokuākea and will be knowledge
 27 applicable wherever they go.

28
 29 ***Activity AS-9.1: Integrate alien species information into the overall outreach program for***
 30 ***Monument permittees.***

31 As part of the outreach to all Monument permittees, Monument staff will develop outreach
 32 materials that include information on regulations, permit requirements, and best management
 33 practices related to alien species. The outreach program will help people identify alien species
 34 and understand the importance of, and methods for, preventing alien species introductions. A
 35 guide to marine and terrestrial alien species with photographs, modes of transport, reporting
 36 protocols, and best management practices will be used as part of the outreach program. Outreach
 37 may consist of printed materials, as well as presentations that are part of the permit application
 38 process and as taxonomy training for staff and volunteers. Such a program could be developed
 39 in partnership with the University of Hawai‘i Institute of Marine Biology to develop staff,
 40 partners, and volunteers with expertise in field identification of various marine taxa. This
 41 program could include a certification program that demonstrates identification skill sets. (See
 42 the action plans for Permitting, section 3.4.1; Enforcement, section 3.4.2; Ocean Ecosystems
 43 Literacy, section 3.5.4; Constituency Building and Outreach, section 3.5.2), and the Midway
 44 Atoll Visitor Services Plan (Appendix C).
 45

1 ***Activity AS-9.2: Integrate alien species information into general Monument outreach***
2 ***materials.***

3 Monument staff will integrate messages on alien species into general education and outreach
4 materials when appropriate opportunities arise. For example, the “Navigating Change”
5 curriculum and video series developed in 2004 contained information on the threat of invasive
6 species to native ecosystems (see the Ocean Ecosystems Literacy Action Plan, section 3.5.4).
7

8 **Strategy AS-10: Participate in Statewide and Pacific regional alien species efforts.**
9

10 Invasive species management is a challenge shared by resource managers worldwide. Exchange
11 of technologies, strategies, and case histories of successes and failures are invaluable for all
12 ecosystem stewards.
13

14 ***Activity AS-10.1: Build relationships with other resource managers and invasive species***
15 ***experts in the State, Nation, and other countries based on shared challenges concerning***
16 ***invasive species.***

17 Information exchange will maximize the effectiveness of collective resources and keep the MMB
18 current on invasive species research, management, and outreach efforts throughout Hawai‘i and
19 the Pacific. Because most vessels bound for the NWHI come from the main Hawaiian Islands, it
20 is particularly important to support efforts there. Groups addressing invasive species in Hawai‘i
21 include the Hawai‘i Invasive Species Council, the Alien Aquatic Organism Task Force, and the
22 Coordinating Group on Alien Pest Species, among several others. The Pacific Invasives
23 Network is addressing invasive species issues in Pacific islands. The State of Hawai‘i has hired
24 an Aquatic Invasive Species Coordinator with funds from the National Aquatic Nuisance Task
25 Force and has obtained Hawai‘i Invasive Species Council funds to support the Aquatic Alien
26 Species Response Team. Communication with these groups will provide opportunities for
27 information and resource sharing, and the implementation of standardized protocols for alien
28 species reporting and monitoring species, including support for hull inspections, vessel
29 monitorings, and other joint MMB activities.
30

31 Monument staff will participate in public and professional conferences, working group meetings,
32 and activities focused on reducing the impacts of alien species Statewide and in the Pacific
33 region.

1 **Table 3.3.2 Summary of Strategies, Activities, and Agency Leads for Alien Species**

2

Strategies and Activities	Agency Lead
Strategy AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of eradication or control all nonnative organisms in the Monument over the life of the plan.	
Activity AS-1.1: Complete an Integrated Alien Species Management Plan.	FWS
Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.	NOAA FWS
Strategy AS-2: Engage in active surveillance to monitor existing infestations and to detect new infestations of alien species over the life of the plan.	
Activity AS-2.1: Survey distributions and populations of known alien species at regular intervals.	FWS
Activity AS-2.2: Maintain a GIS database of marine and terrestrial alien species.	NOAA
Activity AS-2.3: Develop and implement monitoring protocols for early detection and characterization of new infestations.	NOAA
Strategy AS-3: Establish and enforce quarantine procedures appropriate for each site and habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation of nonindigenous species over the life of the plan.	
Activity AS-3.1: Enforce the use of existing quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument.	FWS
Activity AS-3.2: Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument.	NOAA
Strategy AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll, within 15 years.	
Activity AS-4.1: Produce a house mouse eradication plan within 5 years and procure appropriate permits for chosen eradication techniques.	FWS
Activity AS-4.2: Implement and complete house mouse eradication.	FWS
Strategy AS-5: Prioritize infestations of alien terrestrial arthropods by species and locations and, within 5 years, develop and subsequently implement plans to control and if possible eradicate the highest-priority species.	
Activity AS-5.1: Within 5 years, formulate a priority list of locations and species and a treatment plan to control and eventually eradicate all social Hymenopterans, such as ants and wasps, at all islands in the Monument.	FWS
Activity AS-5.2: Conduct toxicant trials to evaluate their efficacy and document ecological effects at selected islands on highest-priority invasive species of ants and wasps.	FWS
Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at Midway Atoll within 10 years using methods prescribed in the Integrated Alien Species Management Plan.	FWS
Activity AS-5.4: Develop and implement a plan to control and if possible eradicate the invasive gray bird locust wherever it occurs.	FWS
Activity AS-5.5: Protect endangered plants threatened by gray bird locust outbreaks at Nihoa Island by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites.	FWS

1

Strategies and Activities	Agency Lead
Strategy AS-6: Control and eventually eradicate the highest-priority invasive plants in the terrestrial parts of the Monument within 15 years.	
Activity AS-6.1: Control and eventually eradicate golden crownbeard and co-occurring weedy shrubs in all areas where they occur.	FWS
Activity AS 6.2: Control and eventually eradicate the invasive grass sandbur from all areas of the Monument where it currently occurs.	FWS
Activity AS-6.3: Control and eventually eradicate Indian pluchea, Sporobolus pyramidatus, and swine cress from Laysan Island.	FWS
Activity AS-6.4: Control and eventually eradicate prioritized alien plant species from Kure Atoll.	State of Hawai‘i
Strategy AS-7: Investigate methods to eventually eradicate aquatic invasive organisms already known to be present in the Monument, and conduct regular surveillance for new invasions.	
Activity AS-7.1: Map, control, and eventually eradicate invasive red algae where it occurs.	NOAA
Activity AS-7.2: Conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives.	NOAA
Strategy AS-8: Conduct and facilitate research designed to answer questions regarding invasive species detection, effects on ecosystem, and alien species prevention, control, and eradication over the life of the plan.	
Activity AS-8.1: Support and conduct research on alien species detection and the effects of invasive species on native ecosystems.	NOAA State of Hawai‘i FWS
Activity AS-8.2: Support and conduct research on invasive species prevention, control methods, and eradication techniques.	NOAA State of Hawai‘i FWS
Strategy AS-9: Engage Monument users and the public in preventing the introduction and spread of alien species.	
Activity AS-9.1: Integrate alien species information into the overall outreach program for Monument permittees.	NOAA
Activity AS-9.2: Integrate alien species information into general Monument outreach materials.	NOAA FWS
Strategy AS-10: Participate in Statewide and Pacific regional alien species efforts.	
Activity AS-10.1: Build relationships with other resource managers and invasive species experts in the State, Nation, and other countries based on shared challenges concerning invasive species.	NOAA

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1 **3.3.3 Maritime Transportation and Aviation Action Plan**

3 **Desired Outcome**

5 Investigate, identify, and reduce potential threats to
7 Papahānaumokuākea Marine National Monument from
9 maritime and aviation traffic.

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.3.2	Alien Species
3.3.4	Emergency Response
3.4.1	Permitting
3.4.2	Enforcement
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

11 **Current Status and Background**

13 With the exception of a few small boats at Midway
15 Atoll, French Frigate Shoals, and Kure Atoll, no vessels
17 have home ports in the NWHI. Therefore, almost all marine traffic in the
19 waters surrounding the NWHI is from transiting merchant vessels, research
21 ships, and fishing vessels; with cruise ships, US Coast Guard ships, and
23 recreational vessels visiting less frequently. An estimated 50 vessels pass
25 through the U.S. Exclusive Economic Zone surrounding the NWHI each day
27 (Franklin 2008). Vessels in shallow waters are at higher risk of impacting
29 resources.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 8

31 A relatively small number of flights are conducted in the Monument. The MMB agencies
32 charter on average 27 flights to French Frigate Shoals and 45 flights to Midway Atoll each year
33 to transport supplies and personnel. The Coast Guard conducts regular enforcement overflights,
34 often landing at Midway Atoll for refueling. A few research and management activities
35 associated with remote sensing, mapping, wildlife survey, and marine debris detection may be
36 conducted by aircraft each year. The planning associated with ship, small boat, and aircraft
37 activities is discussed in the Coordinated Field Operations Action Plan, section 3.6.3.

40 **Need for Action**

42 All activities conducted in the Monument
44 must meet the requirements articulated in
46 Presidential Proclamation 8031, which
48 established the Monument. Consistent with
50 the spirit of the Proclamation, the MMB will
52 investigate, identify, and reduce threats to
54 the NWHI ecosystems. This includes
56 regularly evaluating the effects ships and
58 aircraft may have on the environment during
60 the course of normal operations and
62 identifying ways in which they can be
64 reduced. The MMB is committed to
66 minimizing the environmental footprint
68 generated through maritime and aviation traffic.



70 Ships and aircraft allow human access and make activities possible in the vast and remote NWHI.
71 However, they also bring with them the possibility of threats or environmental hazards. Some of
72 these are critical in nature and demand immediate response, such as groundings and fuel, chemical,
73 or oil spills (see the Emergency Response Action Plan, section 3.3.4). Others are biological in

1 nature, such as the threat of alien species introductions through vessel hull fouling or ballast water
 2 discharge (see the Alien Species Action Plan, section 3.3.2), or interactions with protected marine
 3 species (see the Threatened and Endangered Species Action Plan, section 3.2.1). This action plan
 4 establishes a framework to evaluate various activities conducted by ships and aircraft.

6 **Strategies to Achieve the Desired Outcome**

7
 8 Two strategies have been identified for achieving the desired outcome of preventing and
 9 reducing impacts of vessels and aircraft operating in and transiting the NWHI. Strategies and
 10 activities are coded by the acronym for the action plan title, “Maritime Transportation and
 11 Aviation” (MTA). A summary of strategies and activities is provided in Table 3.3.3 at the end of
 12 this action plan.

- 14 • MTA-1: Increase awareness of navigational hazards and ecological sensitivity of the
 15 Monument.
- 16 • MTA-2: Conduct studies to identify potential aircraft and vessel hazards and adopt
 17 measures to prevent adverse impacts.

19 **Strategy MTA-1: Increase awareness of navigational hazards and ecological sensitivity of 20 the Monument.**

21
 22 The banks, atolls, and other reefs of the NWHI support a diverse array of species assemblages
 23 forming a system that is unique in the world (Friedlander et al. 2005), for which catastrophic
 24 losses could occur from a major ship grounding or oil spill. The MMB continues to analyze
 25 threats to the ecosystem from vessel traffic (see activity MTA-2.1, below). The establishment
 26 of internationally recognized shipping designations will raise awareness about the sensitivity
 27 and dangers of operating in the Monument, as well as provide information about the incidence
 28 of unreported international vessels transiting the area.

30 ***Activity MTA-1.1: Coordinate implementation of domestic and international shipping 31 designations with appropriate entities.***

32 On April 2, 2008, the Monument was designated as a Particularly Sensitive Sea Area (PSSA)
 33 by the International Maritime Organization, a specialized agency of the United Nations. The
 34 U.S. proposal for PSSA designation was submitted in April 2007 for consideration by the
 35 International Maritime Organization's Marine Environment Protection Committee. PSSA
 36 designation has been granted to only 10 marine areas globally, including the marine areas
 37 around the Florida Keys, the Great Barrier Reef, and the Galapagos.

38
 39 Ship traffic has been identified as one of the primary anthropogenic threats to the vulnerable
 40 and valuable natural and cultural resources of the area. PSSA designation will augment
 41 domestic protective measures by alerting international mariners to exercise extreme caution
 42 when navigating through the area.

43
 44 As part of the PSSA designation process, in July 2007 the International Maritime
 45 Organization's Sub-Committee on Safety of Navigation approved U.S. proposals for associated
 46 protective measures, which consisted of (1) expanding and amending the six existing

1 recommendatory Areas to be Avoided in the NWHI, to enlarge the class of vessels to which
2 they apply and augment their geographic scope, as well as add new Areas to be Avoided
3 around Kure and Midway atolls; and (2) establishing a ship reporting system for vessels
4 transiting the Monument, which is mandatory for ships entering or departing a U.S. port or
5 place and recommendatory for other ships. The associated protective measures were adopted
6 by the International Maritime Organization's Maritime Safety Committee in October 2007 and
7 implemented in May 2008. The MMB will establish the infrastructure required to maintain an
8 international ship reporting system, and to ensure that information regarding the PSSA
9 designation will be incorporated into nautical charts and other information sources.

10
11 ***Activity MTA-1.2: Develop boundary and zoning informational tools.***

12 Information on the PSSA designation, zones, boundaries, and regulations will be made available
13 to Monument users to help them comply with all maritime transportation requirements. Global
14 positioning system coordinates will be provided along with nonnavigational reference maps in
15 the appropriate public documents. The MMB will work with NOAA's Office of Coast Survey to
16 update NOAA navigational charts as well as to provide appropriate information to mariners in
17 the United States Coast Pilot®, a series of nautical reference books.

18
19 ***Activity MTA-1.3: Provide necessary updates to nautical charts and the Notice to Mariners.***

20 The MMB will work with the appropriate NOAA and Coast Guard offices to update the
21 nautical charts and Notice to Mariners to reflect Monument boundaries, zones, and other
22 pertinent designations. The U.S. Notice to Mariners announces updates to National
23 Geospatial-Intelligence Agency and National Ocean Service charts using information collected
24 from many sources, among them the Coast Guard Local Notices. The U.S. Notice to Mariners
25 will contain only those chart corrections of interest to ocean-going vessels.

26
27 Bathymetric data collected as part of research and monitoring in the NWHI may be used to
28 update nautical charts. However, standards for data used for benthic habitat mapping are less
29 rigorous than those applied to hydrographic survey, so most of the data collected to date in the
30 NWHI is unlikely to be used for updating charts Monumentwide. Nautical charts can only be
31 updated using bathymetric surveys that meet the standards of the International Hydrographic
32 Organization. Therefore, when a survey is going to be conducted in an area where chart updates
33 would be useful, the survey planners will work with the Hydrographic Surveys division of the
34 Office of Coast Survey to determine whether the minimum requirements for International
35 Hydrographic Organization standards for chart updates are compatible with the mandated
36 research objectives. Often these standards are greater than the scientific survey needs, so if
37 collaborative dual-purpose surveying is undertaken cost-sharing agreements will be sought with
38 the Office of Coast Survey during survey planning. Nautical chart updates are made based on
39 national prioritized needs, and it could be many years after a survey is completed before updates
40 occur on all nautical charts in the NWHI.

41
42 ***Strategy MTA-2: Conduct studies to identify potential aircraft and vessel hazards and***
43 ***adopt measures to prevent adverse impacts.***

44
45 While many aircraft and vessel hazards are known and can be reduced through regulations and
46 permit requirements, more information needs to be gained about potential hazards to minimize

1 human impacts and maximize resource protection. Specific information gained through small-
 2 scale studies can strengthen or add specificity to regulations and permit requirements should they
 3 be needed.

4
 5 ***Activity MTA-2.1: Conduct studies on potential aircraft and vessel hazards and impacts.***

6 Various studies on potential aircraft and vessel hazards may be conducted based on priority
 7 threats identified in the comprehensive threat assessment discussed in the Enforcement Action
 8 Plan (section 3.4.2). This assessment will not only look at enforcement threats, but threats to
 9 Monument resources posed by aircraft and vessels. These studies may include, but are not
 10 limited to, the following: an anchoring/mooring location feasibility study; a long-term study on
 11 mandatory hull inspections and cleaning for all vessels accessing the Monument; studies on alien
 12 species introductions via aircraft; an assessment of permit reporting requirements for interactions
 13 with federally protected species and other wildlife; a light and noise study; and a discharge study.

14
 15 ***Activity MTA-2.2: Develop protocols and practices as needed and integrate with existing
 16 protocols for safe aircraft and vessel operations.***

17 The MMB will work with the ICC to convene a group of experienced aircraft and vessel
 18 operators to discuss safety for humans and wildlife during flight and boating operations.
 19 Existing protocols will be evaluated and other recommendations sought to reduce risks to
 20 personnel and the environment through pretrip training and standard procedures. New protocols
 21 and practices will be developed as needed.

22
 23 ***Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument
 24 website and in permit application instructions.***

25 The following information will be incorporated into pretrip training for Monument users and
 26 vessel operators: information on regulations and compliance, navigational hazards, zoning
 27 designations including waste discharge location and types, preventing the introduction of alien
 28 species, preventing and reporting interactions with protected species and other wildlife,
 29 preventing light and noise pollution, and preventing anchor damage to coral reefs and other
 30 benthic habitats and organisms. The information will be conveyed as appropriate to all vessel
 31 operators, captains, crews, and trip participants. The MMB will also incorporate this information
 32 into written materials to be distributed to potential visitors. (See the action plans for Permitting,
 33 section 3.4.1; Enforcement, section 3.4.2; Ocean Ecosystems Literacy, section 3.5.4; and
 34 Constituency Building and Outreach, section 3.5.2.)

35
 36 ***Activity MTA-2.4: Conduct activities to improve energy and water conservation measures on
 37 all vessels operating in the Monument.***

38 The NOAA ship *Hi'ialakai* sets an example for the fleet by increasing shipboard conservation
 39 measures each year. In 2006, the ship began a recycling program and began installing water-
 40 saving devices to reduce impacts to the Monument as well as other parts of the ocean in which
 41 the ship operates. In 2008, NOAA plans to test the use of biofuels and nonpetroleum-based
 42 hydraulic fluid on the *Hi'ialakai*. The MMB will continue to work with ship managers on these
 43 measures and encourage similar practices for all vessels that operate in the Monument.

Table 3.3.3 Summary of Strategies, Activities, and Agency Leads for Maritime Transportation and Aviation

Strategies and Activities	Agency Lead
Strategy MTA-1: Increase awareness of navigational hazards and ecological sensitivity of the Monument.	
Activity MTA-1.1: Coordinate implementation of domestic and international shipping designations with appropriate entities.	NOAA
Activity MTA-1.2: Develop boundary and zoning informational tools.	NOAA
Activity MTA-1.3: Provide necessary updates to nautical charts and the Notice to Mariners.	NOAA
Strategy MTA-2: Conduct studies to identify potential aircraft and vessel hazards and adopt measures to prevent adverse impacts.	
Activity MTA-2.1: Conduct studies on potential aircraft and vessel hazards and impacts.	NOAA
Activity MTA-2.2: Develop protocols and practices as needed and integrate with existing protocols for safe aircraft and vessel operations.	NOAA
Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument website and in permit application instructions.	NOAA
Activity MTA-2.4: Conduct activities to improve energy and water conservation measures on all vessels operating in the Monument.	NOAA

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1 **3.3.4 Emergency Response and Natural Resource Damage Assessment Action**
 2 **Plan**

4 **Desired Outcome**

6 Minimize damage to Papahānaumokuākea Marine
 8 National Monument resources through coordinated
 10 emergency response and assessment.

Links to other Action Plans	
3.3.2	Alien Species
3.3.3	Maritime Transportation and Aviation
3.4.1	Permitting
3.6.2	Information Management

12 **Current Status and Background**

14 The history of shipwrecks and groundings is as old as the history of ships in
 16 the NWHI. Many islands and atolls are named for ships that went aground.
 18 This history continues, with four recent vessel groundings. The *Paradise*
 20 *Queen* and *Grendel* went aground at Kure Atoll in 1998 and 2007,
 22 respectively, and the *Swordman II* and *Casitas* went aground at Pearl and
 24 Hermes Atoll in 2000 and 2005, respectively. Natural disasters such as
 26 tropical cyclones and tsunamis, while rare, also threaten Monument natural,
 27 cultural, and historic resources. The remote locations in the Monument have logistically and
 28 financially challenged effective response and remediation efforts to date and will continue to be a
 29 primary factor in future emergency response efforts.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

30 Emergency response in the NWHI will be
 31 coordinated under a series of plans and
 32 systems, including the National Response
 33 Plan and the National Incident
 34 Management System. The National
 35 Response Plan establishes a
 36 comprehensive all-hazards approach to
 37 enhance the ability of the United States to
 38 manage domestic incidents, including oil
 39 and hazardous chemical spills. This plan
 40 incorporates the National Contingency
 41 Plan and its regulations governing how
 42 oil pollution response is conducted by the
 43 Coast Guard, EPA, the affected state, and
 44 resource trustees, including NOAA and
 45 FWS. The NWHI are also covered by a
 47 more specific Area Contingency Plan for
 49 the Hawaiian Islands.



Houei Maru #5 bow section. Wrecked in 1976 at Kure Atoll. Photo: Dan Suthers

50 FWS and NOAA have designated representatives who are Federal members of the Regional
 51 Response Team, which makes response recommendations to the Federal On-Scene Coordinator.
 52 The Hawai'i Department of Land and Natural Resources and the Hawai'i Department of Health
 53 are the designated State representatives for all marine injury events. The Department of Health
 54 is the State On-Scene coordinator. These representatives work closely with all parts of FWS,
 55 NOAA, the State, and the MMB in making recommendations on the use of alternative response

1 technologies, such as dispersants. Unlike the State, NOAA and the Department of the Interior
2 can only make consultative recommendations; they do not have a formal vote in that process.

3
4 While the Monument and State regulations regulate access, they also provide a general
5 exemption for activities necessary to respond to emergencies. The general exemption for
6 emergencies allows for individuals responding to emergencies threatening life, property, or the
7 environment to conduct necessary activities without the need for a permit. The general
8 exemption only applies to the emergency response activity itself and does not apply to ancillary
9 activities such as training for emergency response, salvage operations, remediation, or
10 restoration. These ancillary actions also require timely response and would be covered under the
11 appropriate agency's conservation and management permit.

12
13 Monument staff have access to resources-at-risk information that is of interest during
14 contingency planning and spill response through the Sanctuaries Hazardous Incident Emergency
15 Logistics Database System, a web-based decision support tool commonly referred to as
16 "SHIELDS." This tool includes regulatory information, contact lists, Geographic Information
17 System (GIS) maps, environmental sensitivity indexes, information on resources at risk, and
18 significant terrestrial and submerged historic and cultural resource and hazards data.
19 Environmental Sensitivity Indices were last produced by NOAA for this area in 2001.
20 Environmental Sensitivity Indices identify resources at risk on a seasonal and location basis and
21 facilitate decisions about response options given threats to specific resources at risk.

22 In addition, the Monument's own GIS database of spatial resource data and the FWS Asset
23 Maintenance Management System will be used to document this information. As the Monument
24 continues to move toward a comprehensive biogeographic, cultural, and historic understanding
25 of the NWHI, prevention and emergency response methods will improve (see the Information
26 Management Action Plan, section 3.6.2).

27 28 **Need for Action**

29 In light of recent vessel grounding events in the NWHI and devastating natural disasters around
30 the world, a clear need exists for the Monument to participate in emergency response efforts to
31 address situations that threaten resources in and around the Monument. Grounded vessels and
32 their related debris and/or pollution must be removed from the reefs as soon as possible to
33 prevent damage to coral reef ecosystems and protected marine mammals, turtles, and seabirds.
34 Emergency response for events such as vessel groundings; oil, fuel, or chemical spills; or
35 releases of hazardous substances is addressed through the Area Contingency Plan for the
36 Hawaiian Islands, which is a local plan under the larger structure of the National Response Plan.
37 The Monument Co-Trustees and Interagency Coordinating Committee will seek to address
38 NWHI responses as part of the Area Contingency Plan.

39
40 Developing a response capacity for events that fall beyond the scope of the existing response
41 structure of the Area Contingency Plan is necessary to support the mission of the Monument and
42 the long-term protection of the resources of the NWHI. Events that may require an
43 MMB-directed response include vessel groundings that neither pose the threat of hazardous
44 release nor navigational hazard, as well as detrimental natural events such as disease outbreaks,
45 severe storms, alien species introductions, or coral bleaching events.

1 This action plan describes strategies and activities to plan for and respond to an emergency
 2 within the established Incident Command System (ICS) for the region, and other unanticipated
 3 events that fall outside the scope of the Area Contingency Plan for the Hawaiian Islands. The
 4 MMB will establish a Monument Emergency Response and Assessment Team that will
 5 determine what types of emergencies are likely within the Monument. For each identified
 6 possible emergency, the type and scope of necessary response will be determined.

7
 8 **Strategies to Achieve the Desired Outcome**

9 Within the context of the existing Area Contingency Plan and other informational tools,
 10 including SHIELDS, the MMB seeks to integrate its resources in a way that benefits both
 11 Monument resources and regional efforts. The MMB can contribute primarily through building
 12 an internal and interagency capacity to contribute to emergency response efforts and by
 13 providing relevant and current information regarding NWHI resources so that current data is
 14 readily available and accessible to the Regional Response Team and any unified command that
 15 may be established to address an incident.

16 To coordinate Monument response to emergencies in a manner that minimizes damage to
 17 resources and mechanisms to assess damage, the following strategies have been identified. The
 18 strategies and activities are coded by the acronym for the action plan title, “Emergency Response
 19 and Natural Resource Damage Assessment” (ERDA). A summary of strategies and activities is
 20 provided in Table 3.3.4 at the end of this action plan.

- 21
 22 • ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.
 23 • ERDA-2: Assess response needs for non-Incident Command System emergencies within
 24 2 years.
 25 • ERDA-3: Update and create, as necessary, Monument resource protection plans and
 26 protocols within 3 years.

27
 28 **Strategy ERDA-1: Create a Monument Emergency Response and Assessment Team within**
 29 **1 year.**

30
 31 An interagency team will be created and integrated with local responders from other Federal and
 32 State agencies to assess resource damage and respond to emergencies in the Monument. The
 33 Monument Emergency Response and Assessment Team (ERAT) will interface with the existing
 34 local area response team within the Incident Command. Whenever possible, the team will
 35 provide assistance and coordination in an actual response. Following an emergency, the ERAT
 36 will participate in an injury assessment with other Federal and State of Hawai‘i natural, cultural,
 37 and historic resource trustees. In the event of a response to and assessment of injury from a non-
 38 ICS event, such as severe storm damage or coral bleaching, the team will conduct this
 39 assessment and initiate appropriate monitoring.

40
 41 **Activity ERDA-1.1: Create a Monument Emergency Response and Assessment Team for ICS**
 42 **responses.**

40 An ERAT will be created to interface with the existing local area response team within the
 41 Incident Command, Regional Response Team, and the Scientific Support Team. The team
 42 members will include specific species experts, law enforcement, and experts by area and habitat

1 type, and may recruit or consult other such experts as needed. Because this is an interagency
2 effort, regular reports on the status of the ERAT will be made to the Interagency Coordinating
3 Committee. The team will also assist in identification of primary and compensatory restoration
4 options as well as implementation and oversight of restoration and monitoring. They will also
5 develop standard operating procedures for onsite incident investigations, resource injury
6 determination, asset conditions, emergency detection, assessment, and restoration.

7 ***Activity ERDA-1.2: Acquire and maintain training and certification to complement and***
8 ***support the Regional Response Team.***

9 Under the Area Contingency Plan, the Regional Response Team is charged with preparedness for
10 emergencies. This will necessitate training and certifications including ICS, Hazardous Waste
11 Operations and Emergency Response (HAZWOPR), boat safety, flight safety, first responder,
12 and first aid.

13 ***Activity ERDA-1.3: Participate in emergency response and preparedness drills and meetings***
14 ***throughout the life of the plan.***

15 The ERAT will attend Regional Response Team meetings, as appropriate, to keep abreast of
16 current communication and training and to build working relationships with agency staff that
17 make up both the Regional Response Team and the Coast Guard agency staff. Participation in
18 emergency response drills and other events will help with preparedness and better integration
19 into the response process. One of the main functions of the ERAT is to provide information and
20 data to minimize impact on Monument resources by the event or the response.

21 ***Activity ERDA-1.4: Participate in damage assessment programs and training throughout the***
22 ***life of the plan.***

23 Damage assessment is an important component of any emergency response. The ERAT is
24 expected to contribute in area and resource knowledge; therefore, training in natural resource
25 damage assessment is necessary. The ERAT will work closely with the FWS Environmental
26 Contaminants Program and Oil Spill Response Coordinator and the National Marine Sanctuaries
27 Program Resource Protection Team in Silver Spring, MD, State On-Scene Coordinator, and State
28 Department of Health Office of Hazard Evaluation and Emergency Response, as appropriate, to
29 ensure that appropriate response, injury assessment, and restoration activities take place for any
30 given case. This may include coordination with the Department of the Interior, FWS, NOAA
31 Natural Resource Damage Assessment and Restoration Programs, the Department of Justice,
32 Coast Guard, and other Federal and State of Hawai'i resource damage assessment programs to
33 assess the extent of injury from a particular emergency event (see section 3.3.2, Alien Species
34 Action Plan, activity AS-1.1).

35
36 **Strategy ERDA-2: Assess response needs for non-Incident Command System emergencies**
37 **within 2 years.**

38
39 ***Activity ERDA-2.1: In the second year, determine the non-ICS emergencies and the necessary***
40 ***type and scope of responses.***

41 The ERAT will be responsible for determining what types of non-ICS emergencies are likely
42 within the Monument. In the event of a needed response to natural events, such as disease
43 outbreaks, severe storms, alien species introductions, coral bleaching events, or vessel

1 groundings not releasing oil or hazardous substances, the ERAT will need specialized protocols
 2 for response. For each identified possible non-ICS emergency, the type and scope of necessary
 3 response will be determined.

4
 5 ***Activity ERDA-2.2: Designate appropriate Monument personnel for each non-ICS response***
 6 ***team.***

7 The team members will include specific species experts and experts by area and habitat type, and
 8 may recruit or consult other such experts as needed. Because this is an interagency effort,
 9 regular reports on the status of the response teams will be made to the Papahānaumokuākea
 10 Interagency Coordinating Committee. Each team member will also assist in the identification of
 11 primary and compensatory restoration options, if warranted, as well as implementation and
 12 oversight of restoration and monitoring. They will also develop standard operating procedures
 13 for injury determination, emergency detection, assessment, and restoration.

14
 15 ***Activity ERDA-2.3: Throughout the life of this plan, ensure that appointed personnel acquire***
 16 ***and maintain training and certifications.***

17 Designated response personnel will maintain preparedness for emergencies. This will necessitate
 18 training and certifications including HAZWOPR, boat safety, flight safety, and first aid.

19 Additional training considerations can include the Oil Pollution Act (OPA) and Natural Resource
 20 Damage Assessment (NRDA) process.

21
 22 **Strategy ERDA-3: Update and create, as necessary, Monument resource protection plans**
 23 **and protocols within 3 years.**

24
 25 Multiple agency and interagency emergency plans that apply to the Monument currently exist,
 26 such as continuity of operations plans, oil spill response plans, and aircraft incident plans. To
 27 ensure efficiency and effectiveness, the MMB agencies will coordinate and update these plans,
 28 as well as develop new plans or protocols as needed.

29
 30 ***Activity ERDA-3.1: Update and improve upon the Area Contingency Plan and the***
 31 ***Environmental Sensitivity Indices.***

32 In concert with partners, MMB staff will update and improve upon the Area Contingency Plan that
 33 describes a range of potential emergency response actions in the NWHI and defines how the
 34 ERAT will assess and respond to an emergency. This plan will be presented to the area committee
 35 for inclusion as appropriate in the Area Contingency Plan. In order to determine and develop
 36 appropriate response strategies to emergencies in the NWHI, a workshop will be held involving all
 37 partner agencies, parties that are typically involved in responses, and individuals, organizations,
 38 and researchers who are active in the region or have a particular specialty area that relates to the
 39 NWHI.

40
 41 ***Activity ERDA-3.2: Within 3 years, create damage assessment criteria and protocols.***

42 Following an emergency, the ERAT will participate in an injury assessment with other Federal
 43 and State of Hawai'i natural resource trustees. In the event of an MMB response to a non-ICS
 44 event, the team will conduct the assessment and initiate appropriate monitoring. Therefore, the
 45 ERAT will develop damage assessment criteria and protocols for the natural, cultural, and
 46 historic resources in the Monument.

1 **Table 3.3.4 Summary of Strategies, Activities, and Agency Leads for Emergency Response and**
 2 **Natural Resource Damage Assessment**

3

Strategies and Activities	Agency Lead
Strategy ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.	
Activity ERDA-1.1: Create a Monument Emergency Response and Assessment Team for ICS responses.	NOAA
Activity ERDA-1.2: Acquire and maintain training and certification to complement and support the Regional Response Team.	NOAA
Activity ERDA-1.3: Participate in emergency response and preparedness drills and meetings throughout the life of the plan.	NOAA
Activity ERDA-1.4: Participate in damage assessment programs and training throughout the life of the plan.	NOAA
Strategy ERDA-2: Assess response needs for non-Incident Command System emergencies within 2 years.	
Activity ERDA-2.1: In the second year, determine the non-ICS emergencies and the necessary type and scope of responses.	NOAA
Activity ERDA-2.2: Designate appropriate Monument personnel for each non-ICS response team.	NOAA
Activity ERDA-2.3: Throughout the life of this plan, ensure that appointed personnel acquire and maintain training and certifications.	NOAA
Strategy ERDA-3: Update and create, as necessary, Monument resource protection plans and protocols within 3 years.	
Activity ERDA-3.1: Update and improve upon the Area Contingency Plan and the Environmental Sensitivity Indices.	NOAA
Activity ERDA-3.2: Within 3 years, create damage assessment criteria and protocols.	NOAA

4

3.4 Managing Human Uses

3.4.1 Permitting Action Plan

3.4.2 Enforcement Action Plan

3.4.3 Midway Atoll Visitors Services Action Plan

1 **3.4 Managing Human Uses**

2 Globally, pollution, coastal development, resource extraction, climate change, natural hazards,
3 and alien species introductions threaten terrestrial and marine ecosystems. As many of these
4 threats are associated with human activities, a common element shared among most protected
5 areas is the need to regulate human activities to minimize impacts. Indeed, this is the reason
6 most protected areas are established. In certain sites, protection is achieved through prohibiting
7 all access to a given area. In other areas, education may be the sole tool used to lessen the
8 impacts people have on a given environment. Most protected areas utilize an assortment of
9 management strategies, including zoning, permit authorization, regulations, and conservation
10 plans to manage human activities and their potential impacts.

11 As a remote site without a significant resident or visitor population, the Monument has an
12 advantage over many other protected areas in that the number of people and overall activity
13 occurring is relatively low. Conversely, the Monument's remote location presents surveillance
14 and enforcement challenges for effective management.

15 The NWHI have a long history of human activity, including early discovery and use by Native
16 Hawaiians; exploitation of terrestrial and marine resources beginning in the late 1800s; commercial
17 fishing beginning in the mid-1900s; and military activity during World War II. More recent
18 activities in the NWHI include the U.S. Navy's use of Midway Atoll, the U.S. Coast Guard's
19 stations at Kure Atoll and Tern Island, an ecotourism operation at Midway Atoll, and a commercial
20 lobster fishery that closed in 2000. Current activities are limited primarily to management
21 activities by jurisdictional agencies, including habitat conservation and management, research,
22 education, Native Hawaiian practices, recreation and historic preservation at Midway Atoll, and
23 fishing by a small commercial bottomfish and pelagic trolling fleet.

24 Human activities in the Monument are managed through a framework of regulations, permitting,
25 zoning, and enforcement. The three action plans in this section focus on regulating activities
26 through permits and compliance, through enforcement surveillance of activities in the
27 Monument, and under a visitor services program at Midway Atoll. Zoning through Special
28 Preservation Areas, Ecological Reserves, and the Midway Atoll Special Management Area
29 establish spatial restrictions on human activities and are described in more detail in section 2.0.

30 The Monument regulations prohibit access except for: passage without interruption; activities
31 and exercises of the Armed Forces (including those of the United States Coast Guard); activities
32 necessary to respond to emergencies or necessary for law enforcement; and, until June 15, 2011,
33 bottomfish fishing conducted pursuant to a valid permit issued by NOAA. Monument permits
34 are required for activities conducted in the Monument. Prior to the establishment of the
35 Monument, each jurisdictional agency would have considered and issued separate permits for the
36 same activity. Development of the Monument permit application process and application
37 instructions was completed within a year of the Monument being designated. This process
38 produced a single permit application for all applicants and a general permit template used by Co-
39 Trustees when issuing permits throughout the Monument. Most of the Co-Trustee agency
40 mandates and policies are met by this general template. Those that are not met are addressed by

1 special conditions that are added in addition to the general terms and conditions listed on each
2 permit.

3
4 Compliance with regulations, laws, and permit requirements for all activities is enforced using
5 surveillance, Vessel Monitoring System tracking, relevant technology, operations plans, and
6 penalties. Co-Trustee and interagency cooperation on enforcement will become increasingly
7 integrated and coordinated, allowing for greater capacity, effectiveness, and efficiency over time.

8
9 With the establishment of the Monument, Midway Atoll takes on the additional role of providing
10 a “window” so that visitors can learn about and enjoy a small portion of the largest fully
11 protected marine managed area in the world. The Co-Trustees remain committed to offering a
12 high quality, small-scale visitor program at Midway Atoll. By physically experiencing the
13 Northwestern Hawaiian Islands, visitors will return home with a personal connection and
14 commitment to protecting and conserving the Monument’s unique resources.

15 Each action plan consists of a set of strategies to address a desired outcome. The desired
16 outcomes of these action plans over the 15-year planning horizon are:

- 17 • **Permitting:** Implement an effective and integrated permit program for
18 Papahānaumokuākea Marine National Monument that manages, minimizes, and
19 prevents negative human impacts by allowing access only for those activities
20 consistent with Presidential Proclamation 8031 and the implementing regulations of
21 Papahānaumokuākea Marine National Monument.
- 22 • **Enforcement:** Achieve compliance with all regulations within Papahānaumokuākea
23 Marine National Monument.
- 24 • **Midway Atoll Visitor Services:** Offer visitors opportunities to discover, enjoy,
25 appreciate, protect, and honor the unique natural, cultural, and historic resources of
26 Papahānaumokuākea Marine National Monument.

27
28 Action plans described in this section will be implemented in close coordination with Co-Trustee
29 partners and in conjunction with other priority management needs.

30

3.4.1 Permitting Action Plan

Desired Outcome

Implement an effective and integrated permit program for Papahānaumokuākea Marine National Monument that manages, minimizes, and prevents negative human impacts by allowing access only for those activities consistent with Presidential Proclamation 8031 and the implementing regulations of the Monument.

Links to other Action Plans	
3.1.1	Marine Conservation Science
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.2.3	Habitat Management and Conservation
3.4.2	Enforcement
3.4.3	Midway Atoll Visitors Services
3.5.1	Agency Coordination
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

Current Status and Background

The Monument permit program is an integral part of a management framework based on Monument regulations (see Appendix G), other Federal and State regulations, zoning, enforcement, goals, Native Hawaiian cultural values, and collaboration within the MMB. This permit program is designed to ensure long-term protection of the NWHI by providing the Co-Trustees with a management tool to regulate, monitor, and understand the impacts of permitted activities on the ecosystem.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 7
Goal 8

According to Monument regulations (50 CFR Part 404), access to the Monument for activities, with limited exceptions, requires a Monument permit. Prior to Monument designation, many of these activities would have required multiple access permits from different agencies. Permits authorized for activities conducted within the National Wildlife Refuges, the State’s Northwestern Hawaiian Islands Marine Refuge, the State Seabird Sanctuary at Kure Atoll, or the Reserve may have required one or more permits issued by FWS, the State of Hawai‘i, or the Reserve, respectively. However, with the advent of the Monument, all proposed activities are reviewed and considered jointly by all three Co-Trustees.

Development and implementation of a unified Monument permit application, application instructions, and Monument permit template occurred within the first year following Monument designation. All permitted activities are authorized under the issuance of a single Monument permit signed by designees of the three Co-Trustees. Most of the Co-Trustee agency mandates and policies are met by this unified permit. Those that are not met by the permit general terms and conditions are added as special conditions. The Co-Trustees issue Monument permits under the authority of the implementing regulations for the Monument, as described in 50 CFR 404.11 and consistent with all other applicable State and Federal laws.

Previously, the State of Hawai‘i Land Board was the primary public forum for notification of Monument permit applications under consideration by Co-Trustees. To ensure the general public has access to and is informed of all permit applications under review, a policy on public posting was developed and finalized in November 2007 (Appendix A). This policy was developed jointly by the MMB to guide public notification of permit applications for all proposed activities in the Monument.

1 **Monument Permit Types**

2 All activities in the Monument, with limited exceptions, require a permit (see Monument
3 regulations, Appendix G). Activities are either prohibited, excluded (no permit is needed), or
4 regulated (must be considered through permitting process). Prohibited activities include:

- 5 • exploring for, developing, or producing oil, gas, or minerals within the Monument;
- 6 • using or attempting to use poisons, electrical charges, or explosives in the collection or
7 harvest of a Monument resource;
- 8 • introducing or otherwise releasing an introduced species from within or into the
9 Monument; and
- 10 • anchoring on or having a vessel anchored on any living or dead coral with an anchor,
11 anchor chain, or anchor rope.

12 Exempted activities include:

- 13 • response to emergencies threatening life, property, or the environment;
- 14 • law enforcement purposes;
- 15 • activities and exercises of the Armed Forces; and
- 16 • passage without interruption.

17
18 Domestic vessels wishing to pass through the Monument must meet notification requirements,
19 including notification by phone or email at least 72 hours prior to entry and within 12 hours of
20 leaving the Monument (see Appendix G, Monument Regulations).

21
22 The Proclamation allows the Secretaries of the Interior and Commerce to issue permits for
23 sustenance fishing outside of any Special Preservation Area as a term or condition of any permit
24 issued, if the activity is conducted in a manner compatible with the Proclamation. Sustenance
25 fishing in the Midway Atoll Special Management Area can only be permitted if it is determined by
26 the Director of the U.S. Fish and Wildlife Service (or designee) to be compatible with the
27 purposes for which the Midway Atoll National Wildlife Refuge was established. In accordance
28 with these specifications, a draft FWS Appropriateness Finding and Compatibility Determination
29 for this proposed activity is included in Appendix D.

30
31 The pre-existing federally regulated commercial bottomfishing (permitted under the authority of
32 NOAA Fisheries) does not require a Monument permit. However, in addition to compliance
33 with the fisheries regulations, these permittees must also comply with the Proclamation and
34 Monument regulations. The Proclamation closes the remaining commercial bottomfish fishery
35 in June 2011.

36 Regulated activities must be considered in the permit process. Under Monument permit criteria,
37 access may be permitted for six types of activities. These are:

- 38 • research,
- 39 • education,
- 40 • conservation and management,
- 41 • Native Hawaiian practices,
- 42 • special ocean uses, and
- 43 • recreation.

1

Research

2 Research permits are required for activities designed to enhance understanding of Monument
3 resources and activities and improve resource management decisionmaking. Priority is given to
4 research proposals that help meet the management needs of the Monument and its Co-Trustees, as
5 identified in this Monument Management Plan or the Monument Natural Resources Science Plan
6 (see section 3.1.1, Marine Conservation Science Action Plan). The types of activities that can be
7 conducted under a research permit include but are not limited to biological inventories,
8 ecosystem-based research, benthic mapping, habitat characterization, restoration investigations,
9 cultural studies, and terrestrial and marine archaeological research.

10 In the event sampling is requested, research proposals will be evaluated to ensure proposed
11 sample sizes allow for the effective application of statistical techniques while minimizing harm
12 to the population or ecosystem under study. Collection of samples must be justified and meet
13 Proclamation Findings.

14

Education

15 Education permits are required for activities that further the educational value of the Monument.
16 Educational activities may enhance the understanding of the NWHI ecosystems, improve
17 resource management decisionmaking, promote Native Hawaiian knowledge and values, or aid
18 in enforcement and compliance efforts. Permits are considered for activities that have clear
19 educational or public outreach benefits to understand Monument resources or management, and
20 that promote “bringing the place to the people rather than the people to the place.” Some
21 examples of potentially eligible projects are teacher-at-sea programs, distance learning projects,
22 and university classes.

23

Conservation and Management

24 Conservation and Management permits are required for general management of the Monument.
25 This may include activities associated with resource management, such as field station
26 operations, marine debris removal, development and maintenance of infrastructure, species and
27 habitat restoration, and long-term resource monitoring programs such as monitoring of
28 endangered species and seabird populations, and terrestrial native plant communities (see section
29 3.2.3, the Habitat Management and Conservation, section 3.2.2, Migratory Bird, and section
30 3.2.1, Threatened and Endangered Species action plans). Conservation and Management permits
31 provide a mechanism to respond and follow-up to urgent events in the Monument that may not
32 have been anticipated, such as response to vessel groundings, coral bleaching episodes, and
33 invasive species detection.

34

Native Hawaiian Practices

35 Permits are required for Native Hawaiian cultural practices. The Native Hawaiian Cultural
36 Working Group, working closely with the Office of Hawaiian Affairs, is currently developing a
37 process whereby permit applications will be reviewed by select cultural practitioners or cultural
38 resource managers. The findings and criteria in Proclamation 8031 and regulations (see
39 Appendices F and G) state that Native Hawaiian Practice permits must be noncommercial, deemed
40 appropriate and necessary by traditional standards, benefit the NWHI and Native Hawaiian
41 community, perpetuate traditional knowledge, and restrict the consumption of harvested resources

42

1 from the Monument. Permit conditions and protocols will continue to be developed by the Co-
2 Trustees and the Office of Hawaiian Affairs through consultation with the Native Hawaiian
3 Cultural Working Group and the Native Hawaiian community, as appropriate. (See section 3.1.2,
4 the Native Hawaiian Culture and History and section 3.5.3, Native Hawaiian Community
5 Involvement Action Plans.)
6

7 ***Special Ocean Use***

8 Special Ocean Use permits are required for projects related to commercial ocean uses, including
9 ecotourism and documentary filmmaking that have a net benefit to the Monument. Special Ocean
10 Use is defined as any activity or use of the Monument that is engaged in to generate revenue or
11 profits for one or more of the persons associated with the activity or use. These permits are not
12 restricted to activities in the ocean.
13

14 Special Ocean Use permits must meet the additional findings stated in Monument regulations
15 (see Appendix G). These findings include the requirement to provide public notice for any
16 activity not previously identified as a Special Ocean Use and all activities being considered as
17 Special Ocean Use for locations outside of Midway. In addition, the Co-Trustees will authorize
18 the conduct of a Special Ocean Use permit activity only if that activity is compatible with the
19 purposes for which the Monument is designated and is consistent with the protection of
20 Monument resources. Special Ocean Use permits for activities being permitted for the first time
21 will be restricted to pilot projects. Pilot projects will be closely monitored and restricted in
22 duration. Only after a pilot project for that category has been determined by the Co-Trustees to
23 meet the criteria in Proclamation 8031, can subsequent Special Ocean Use permits be issued for
24 the category of activity. Activities that could potentially qualify as another permit type (e.g.,
25 research or education) but that directly generate revenue or profit for one of the persons involved
26 in the activity must be permitted as Special Ocean Use. Furthermore, Special Ocean Use
27 proposals involving activity outside of the Midway Atoll Special Management Area must be for
28 educational or research purposes that directly benefit the conservation and management of the
29 Monument. These activities may not involve the use of a commercial passenger vessel, defined
30 in the Monument regulations as “a vessel that carries individuals who have paid for such
31 carriage.”
32

33 ***Recreation***

34 Recreational permits are required for all recreational activities and are limited to the Midway
35 Atoll Special Management Area. In addition to the general findings, recreational activities may
36 not be associated with any for-hire operation or involve any extractive use. Examples of
37 activities that may be permitted under a recreational activity permit include snorkeling, SCUBA
38 diving, wildlife viewing, and kayaking.
39

40 FWS, in close consultation with the MMB, has updated the Interim Visitor Services Plan for the
41 Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the
42 Papahānaumokuākea Marine National Monument’s Midway Atoll Special Management Area
43 (see section 3.4.3, the Midway Atoll Visitor Services Action Plan, and Appendix C). This plan
44 details the types of recreational activities permitted within the Midway Atoll Special
45 Management Area. This plan also describes the permitting process for recreational activities, the

1 number of annual recreational visitors expected within the Midway Atoll Special Management
2 Area, and accommodations on Midway Atoll.

4 **Findings and Review Criteria**

5 Monument findings and review criteria must be met by all applicants to demonstrate that their
6 proposed activities are consistent with the Proclamation and the goals of the Monument (see
7 section 2, Management Framework). The MMB may require applicants to submit additional
8 information, apply special conditions, or undergo additional training. To issue a permit, the
9 Secretaries must determine the following:

- 10 • The activity can be conducted with adequate safeguards for the resources and ecological
11 integrity of the Monument.
- 12 • The activity will be conducted in a manner compatible with the management direction of
13 the Proclamation, considering the extent to which the conduct of the activity may
14 diminish or enhance Monument resources, qualities, and ecological integrity; any
15 indirect, secondary, or cumulative effects of the activity; and the duration of such effects.
- 16 • There is no practicable alternative to conducting the activity within the Monument.
- 17 • The end value of the activity outweighs its adverse impacts on Monument resources,
18 qualities, and ecological integrity.
- 19 • The duration of the activity is no longer than necessary to achieve its stated purpose.
- 20 • The applicant is qualified to conduct and complete the activity and mitigate any potential
21 impacts resulting from its conduct.
- 22 • The applicant has adequate financial resources available to conduct and complete the
23 proposed activity and mitigate any potential impacts resulting from its conduct.
- 24 • The methods and procedures proposed by the applicant are appropriate to achieve the
25 proposed activity's goals in relation to their impacts to Monument resources, qualities,
26 and ecological integrity.
- 27 • The applicant's vessel has been outfitted with a mobile transceiver unit approved by
28 NOAA Office of Law Enforcement and complies with the requirements of Proclamation
29 8031.
- 30 • There are no other factors that would make the issuance of a permit for the activity
31 inappropriate.

32
33 Additional findings are required for Native Hawaiian Practices, Special Ocean Use, and
34 Recreation applications. See Appendix G for additional findings from regulations.

35
36 Permit applications include requests for information that will assist the Co-Trustees in
37 determining how the proposed activities are compatible with conservation and management of all
38 of the resources of the Monument: natural, historic and cultural.

40 **Permit General Terms and Conditions**

41 Permitted activities are subject to general terms and conditions that satisfy Proclamation 8031 and
42 Monument regulations (see Appendices F and G) and comply with MMB agency mandates and
43 policies. All authorized permits must meet all applicable Federal and State regulations. As
44 previously mentioned, those mandates and policies that are not met within the general permit terms
45 and conditions are addressed by special conditions. General terms and conditions in Monument

1 permits address the following categories, as required by Monument regulations, Proclamation
2 8031, and other MMB agency mandates and policies:

- 3 • Monthly, annual, and summary reporting
- 4 • Submission of a copy of all data acquired under each respective Monument permit
- 5 • Adherence to all Federal, State, and local laws and regulations
- 6 • Coordination with Monument staff while in the field
- 7 • Prohibition of alcohol possession and consumption in Hawaiian Islands National Wildlife
8 Refuge
- 9 • Adherence to hazardous material storage and transport guidelines
- 10 • Requirement to demonstrate proof of insurance, or financial capability to cover
11 evacuation in the event of an emergency, medical evacuation, or weather
- 12 • Requirement for permittee(s) to attend a cultural briefing on the significance of
13 Monument resources to Native Hawaiians
- 14 • Prohibition against the disturbance of any cultural or historic property

15
16 Additional terms for entering the Monument via vessel:

- 17 • Maintenance of cruise log
- 18 • Notification of entry and exit
- 19 • Requirement to demonstrate proof of vessel hull, tender, gear, ballast water, and rat
20 inspections
- 21 • Vessel Monitoring System requirements

22 23 **Permit Special Terms and Conditions**

24 Each permit may contain special terms and conditions that place additional restrictions on the
25 permitted activity to minimize or eliminate impacts to Monument resources or qualities. Permits
26 may contain terms and conditions addressing sustenance and subsistence fishing reporting
27 requirements, permitted activity locations, scientific collection methods, maintenance and retrieval
28 of temporary structures in the Monument, or disinfection of gear and collecting equipment between
29 permitted activity locations. Special terms and conditions are placed in permits depending on the
30 nature of the permitted activity request and the location and duration of activities permitted to take
31 place in the Monument.

32 33 **Permit Tracking**

34 The MMB will track and monitor all permitted activities to evaluate potential impacts to
35 Monument resources. A multiagency-accessible database that records and tracks information on all
36 Monument permits is currently under development. Application and reporting data from all
37 permits will provide information on the nature, extent, and location of activities occurring in the
38 Monument. This information is essential for managers to make informed decisions about
39 evaluating types and locations of activities proposed in the Monument. It also provides
40 necessary information to conduct a geospatial assessment of impacts and to assess cumulative
41 impacts over time.

42 43 **Need for Action**

44 The Monument is a vast protected natural area, largely uninhabited by humans, and rich in
45 biodiversity, history, and culture. The NWHI have a history of Native Hawaiian cultural access
46 and practices, as well as protections interspersed with periods of commercial exploitation and

1 military use. With the advent of new technology and dedicated resources, there is increased
 2 awareness and interest in the region. Access to the Monument for all activities, with limited
 3 exceptions, requires a Monument permit.

4
 5 The Monument permit program allows for a comprehensive review of proposed activities and will
 6 be administered to ensure compliance with Presidential Proclamation 8031, as well as other
 7 applicable Federal and State laws and regulations. Efforts are ongoing to make the permitting
 8 process more efficient for applicants, the MMB, and the public while maintaining safeguards for
 9 the ecosystem. The following strategies and activities are designed to ensure that the permit
 10 program is refined in accordance with Monument requirements and policies within existing law
 11 and that permit data are effectively tracked and collected for management purposes.

12 13 **Strategies to Achieve the Desired Outcome**

14 Three strategies have been identified to achieve the desired outcome to implement an effective
 15 and integrated Monument permit program that manages, minimizes, and prevents negative
 16 human impacts by allowing access only for those activities consistent with the purpose of the
 17 Monument. The strategies and activities are coded with the letter “P,” for “Permitting.” A
 18 summary of strategies and activities is provided in Table 3.4.1 at the end of this action plan.

- 19
- 20 • P-1: Refine, implement, and improve the permit process to integrate all State and Federal
- 21 regulations into a single permitting process on an ongoing basis.
- 22 • P-2: Track and monitor permitted activities and their impacts.
- 23 • P-3: Coordinate information, outreach, and education regarding Monument permits and
- 24 regulations.
- 25

26 **Strategy P-1: Refine, implement, and improve the permit process to integrate all State and** 27 **Federal authorities into a single permitting process on an ongoing basis.**

28 The strategy of the Monument permitting program is to integrate the previous three
 29 jurisdictionally based permitting programs into one. A joint permit application, application
 30 instructions, and permit template were approved and implemented (see Appendix A). The
 31 permitting program for the Monument allows for a comprehensive review of proposed activities to
 32 ensure compliance with the regulatory provisions of the Proclamation as well as other applicable
 33 Federal and State laws and regulations. Efforts are ongoing to make the permitting process more
 34 efficient for both applicants and MMB while maintaining safeguards for the natural, cultural, and
 35 historic resources of the Monument.

36 37 ***Activity P-1.1: Effectively and promptly review permit applications to ensure informed permit-*** 38 ***related decisionmaking across Co-Trustee agencies.***

39 Monument staff serve as the central portal through which all permit inquiries and applications are
 40 received and processed. These staff will continue to work together to discuss and coordinate
 41 permit assessment and review efforts by each Trustee agency. Monument staff will bring all
 42 permits and permit-related issues before the MMB on a regular basis for discussion and
 43 decisionmaking.

1 ***Activity P-1.2: Refine and update the permit application, instructions, and permit template***
 2 ***through feedback from permittees and other users.***

3 The permit application was developed with extensive input from legal counsel and the MMB to
 4 meet agency requirements. Each year, the permit application, instructions, and template will be
 5 evaluated and updated based on lessons learned from the previous year. In addition, feedback
 6 from permittees and applicants will be gathered on an annual basis to maintain the most efficient
 7 and comprehensible permit program possible.

8
 9 ***Activity P-1.3: Coordinate appropriate environmental review for all permitted***
 10 ***activities.***

11 NEPA, the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), and
 12 Chapter 343, Hawai‘i Revised Statutes (“Environmental Impact Statements”), are planning tools
 13 used to integrate environmental concerns into Federal and State actions and programs, using
 14 environmental quality as the essential component. NEPA requires Federal agencies to consider
 15 the impacts of their actions on the natural and human environment prior to making final
 16 management decisions. Hawai‘i requires additional analysis on State agency actions’ potential
 17 impacts on the State’s resources and Native Hawaiian culture, and traditional and customary
 18 rights. The issuance of Monument permits requires environmental review compliance in the
 19 form of one of three documents; Environmental Impact Statements, Environmental Assessments,
 20 or Categorical Exclusions. When State agency actions are involved in a permit, a Cultural
 21 Impact Assessment is also required. Currently, the Federal Co-Trustees follow their individual
 22 agency procedures to ensure appropriate environmental review for all permitted activities.
 23 However, the Monument staff along with the MMB and other Co-Trustee experts will work to
 24 develop an efficient integrated process by which all Co-Trustee agencies can continue fulfilling
 25 their respective environmental review requirements and effectively document compliance for
 26 every Monument permit.

27
 28 ***Activity P-1.4: Engage outside experts in review of permit applications.***

29 External reviews of Monument permit applications can provide valuable and unbiased technical
 30 evaluations of proposed activities. The MMB utilizes technical experts to consult on permit
 31 applications. This practice will continue by identifying and engaging a pool of experts trained in
 32 Monument-related subject matter including policy, purpose, and Proclamation Findings.

33
 34 ***Activity P-1.5: Investigate individual and vessel insurance and other avenues to fund mitigation***
 35 ***of any damages associated with permitted activities.***

36 Activities conducted throughout the Monument pose varying degrees of risk to the resources of
 37 the Monument. Medical evacuations, vessel groundings, alien species introductions, and
 38 hazardous material spills are among the possible scenarios that might be mitigated by some form
 39 of insurance. The MMB will develop joint criteria for insurance that may be required before a
 40 permit authorizes activities in the Monument.

41
 42 **Strategy P-2: Track and monitor permitted activities and their impacts.**

43 Detailed tracking of all permitted activities assists the Monument Co-Trustees in making
 44 informed decisions about the types and locations of activities permitted in the Monument. It also

1 provides necessary information to conduct a geospatial assessment of impacts and to assess
2 cumulative impacts over time.

3
4 ***Activity P-2.1: Develop a Geographic Information System (GIS)-based permit tracking system.***

5 The Monument will develop a GIS-based system to track and monitor NWHI permit data to aid
6 enforcement and management decisions. This system and associated data will be established to
7 integrate into the Co-Trustee agencies' individual databases. Each agency will enter and
8 document permit data consistent with the individual agency's requirements. Through data-
9 sharing agreements which are consistent with applicable Federal and State laws and
10 confidentiality considerations, the GIS-based tracking system will include partner agency
11 information to ensure a comprehensive portrayal of activities in the region (see the Information
12 Management Action Plan, section 3.6.2). The MMB will also work together to provide input on
13 cruise dates and locations and shared resources to prevent redundancy (see the Coordinated Field
14 Operations Action Plan, section 3.6.3).

15
16 ***Activity P-2.2: Analyze permit data to inform management decisionmaking.***

17 The extent to which current and future levels of activity in the NWHI have the potential to cause
18 cumulative impacts on the ecosystem is an active area of investigation. To assist in ecosystem-
19 based management decisionmaking, a system will be developed to analyze data generated from
20 each permit application and reporting requirements to provide the insight needed to make
21 informed management choices about appropriate levels and locations of permitted activities.
22 This system will allow Monument Co-Trustees and partners to better understand uses and use
23 patterns in the Monument, and to develop methodology for assessing the cumulative impacts
24 caused by various activities. Analyses conducted with these data will also be used to modify
25 reporting requirements and make them more relevant, as well as aiding enforcement and other
26 program area planning efforts.

27
28 Special Ocean Use permits issued as pilot projects will require additional tracking to develop an
29 understanding of how often each category of Special Ocean Use activity occurs in the
30 Monument, as well as the location of these activities. This information will be used to conduct
31 ecological and socioeconomic evaluations to aid in management decisions on authorizing future
32 Special Ocean Use permits.

33
34 ***Activity P-2.3: Analyze permit data for patterns of compliance.***

35 The MMB will regularly review permit files for patterns of compliance, and compliance will be
36 evaluated every 2 years (see the Enforcement Action Plan, section 3.4.2). Specifically, the
37 MMB should undertake a technical analysis of the effectiveness and consistency of the permits
38 that were issued compared to the permitting criteria. Permit criteria, permits issued, applications
39 processed, and patterns of use which will be evaluated.

40
41 ***Activity P-2.4: Develop and implement a Monument reporting process.***

42 Permits are issued based on regulatory requirements as well as Proclamation findings and other
43 criteria established by the MMB to assist with permit reviews. One of those criteria is the
44 submission of reports. An integrated MMB review of the followup process is needed to ensure
45 that reports are complete and submitted on time. Additional followup includes logging data,
46 ensuring that the results of research are made available, ensuring the systematic reporting of

1 sustenance fishing, and ensuring adherence to regulations and laws. Followup may also require
2 compliance visits from enforcement agents.

3
4 **Strategy P-3: Coordinate information, outreach, and education regarding Monument**
5 **permits and regulations.**

6
7 Information, education, and outreach are important aspects of the Monument permitting
8 program. Strategies have been developed to ensure that the public is kept informed of
9 Monument regulations and permit requirements. These strategies are geared toward achieving
10 the highest degree of user compliance and assistance, while fostering a broader public
11 understanding of the NWHI ecosystem and cultural values. Coordination will be conducted
12 across partner agencies to ensure that the public is engaged and informed of the Monument
13 permitting program. In addition, the MMB has established and will maintain a policy to ensure
14 the public is informed of activities proposed to occur in the Monument.

15
16 ***Activity P-3.1: Develop and implement a permit and regulatory education program.***

17 Many of the action plans include educational or outreach activities related to permitting or
18 regulations, such as the Enforcement (section 3.4.2), Ocean Ecosystems Literacy (section 3.5.4),
19 Midway Atoll Visitor Services (section 3.4.3), Native Hawaiian Culture and History (section 3.1.2),
20 Alien Species (section 3.3.2), and Maritime Transportation and Aviation (section 3.3.3) action plans.
21 Monument staff will work together to ensure that the educational activities proposed in these action
22 plans are integrated to provide a consistent and effective message.

23
24 ***Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for permit***
25 ***applicants.***

26 The MMB will develop and implement an educational program that can be provided online from the
27 Monument web page, which will educate prospective applicants about the Native Hawaiian culture.
28 Those interested in applying for a Monument permit may complete the educational program before
29 submitting their application for review. This educational program will also provide avenues for
30 additional knowledge gathering should the applicant wish to delve deeper into the Hawaiian culture
31 and develop a greater understanding of the values of the Monument.

32
33 ***Activity P-3.3: Coordinate permitting outreach.***

34 Additional information and outreach will aid interagency permitting efforts and better inform the
35 public about Monument permitting. Information on the permitting process will be placed on
36 Monument websites, including application forms and instructions. This information will reduce
37 delay and confusion for applicants, the public, and agencies as they plan for activities in the
38 Monument. Outreach materials such as presentations, publications, and DVDs will be designed
39 to aid public understanding of agency regulatory and permitting responsibilities. In addition,
40 individual MMB agencies will further exchange information on their roles and responsibilities so
41 that each may better understand and explain permitting requirements.

42
43 ***Activity P-3.4: Develop a preaccess training and briefing program.***

44 Preaccess training is an important component of all permitted activities. Preaccess training is
45 required for all those planning to enter the Monument for the first time. Several MMB agencies
46 have formal and informal training mechanisms already in place. Many activities conducted in

1 the Monument will span multiple agencies; thus, the MMB will work with Monument staff to
2 develop a comprehensive preaccess training and briefing program that is appropriate for a variety
3 of activities and locations within the Monument. This training will include information on the
4 Proclamation regulations, permit terms and conditions, reporting requirements, the significance
5 of the NWHI to Native Hawaiians, and ways to best conduct activities to reduce human impacts
6 to the natural environment and cultural resources. The training program will build on protocols
7 and materials already in place by FWS, the State of Hawai‘i, and NOAA. For those users who
8 have already undergone a preaccess training, shorter update briefings will be developed to ensure
9 that all users have the most up-to-date information on the Monument rules and policies.

10
11 ***Activity P-3.5: Regularly update the public on proposed and permitted activities.***

12 The MMB is committed to keeping the public engaged and informed on a regular basis on all
13 proposed and permitted activities that will be conducted in the Monument. To ensure broad
14 dissemination to the public, Co-Trustees will share a single URL address that will be designated
15 as the Monument website. This site will be the location for the public to access information
16 regarding the Monument, including information on the Monument permit program. Information
17 such as lists of permitted activities along with associated permit reports, publications, and
18 productions will be made available or referenced on the Monument website. It will also serve as
19 a primary point of access to notify the public of proposed activities to be conducted in the
20 Monument, as both permit summaries and permit applications will be posted (see Appendix A).
21 As required by the Federal Privacy Act, the privacy of individual applicants will be protected and
22 all sensitive information will be removed from the permit application prior to public posting.
23 Additional opportunities for the public to be notified and comment on Monument permit
24 applications include:

- 25 • Special Ocean Use permit applications are posted for public notice and comment 30 days
26 prior to the issuance of a permit (Monument regulations, 50 CFR Part 404.11).
- 27 • Environmental reviews (e.g., environmental impact statements, environmental
28 assessments, and compatibility determinations) related to Monument permit applications
29 are posted for public comment.
- 30 • Monument permit applications that include proposed activities within the State’s
31 Northwestern Hawaiian Islands Marine Refuge are posted to the Board of Land and
32 Natural Resources (BLNR) website for 7 days prior to the scheduled BLNR meeting as
33 part of the overall Land Board submittal.

1 **Table 3.4.1 Summary of Strategies, Activities, and Agency Leads for Permitting**
 2

Strategies and Activities	Agency Lead
Strategy P-1: Refine, implement, and improve the permit process to integrate all State and Federal authorities into a single permitting process on an ongoing basis.	
Activity P-1.1: Effectively and promptly review permit applications to ensure informed permit-related decisionmaking across Co-Trustee agencies.	NOAA
Activity P-1.2: Refine and update the permit application, instructions, and permit template through feedback from permittees and other users.	NOAA
Activity P-1.3: Coordinate appropriate environmental review for all permitted activities.	NOAA
Activity P-1.4: Engage outside experts in review of permit applications.	NOAA
Activity P-1.5: Investigate individual and vessel insurance and other avenues to fund mitigation of any damages associated with permitted activities.	
Strategy P-2: Track and monitor permitted activities and their impacts.	
Activity P-2.1: Develop a Geographic Information System (GIS)-based permit tracking system.	NOAA
Activity P-2.2: Analyze permit data to inform management decisionmaking.	NOAA
Activity P-2.3: Analyze permit data for patterns of compliance.	NOAA
Activity P-2.4: Develop and implement a Monument reporting process.	NOAA
Strategy P-3: Coordinate information, outreach, and education regarding Monument permits and regulations.	
Activity P-3.1: Develop and implement a permit and regulatory education program.	NOAA
Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for permit applicants.	OHA
Activity P-3.3: Coordinate permitting outreach.	NOAA
Activity P-3.4: Develop a preaccess training and briefing program.	NOAA
Activity P-3.5: Regularly update the public on proposed and permitted activities.	NOAA

3

2 **3.4.2 Enforcement Action Plan**

4 **Desired Outcome**

6 Achieve compliance with all regulations within
8 Papahānaumokuākea Marine National Monument.

10
12 **Current Status and Background**

14 The three principal entities with responsibility for managing lands and waters
16 of the Monument—NOAA, FWS, and the State of Hawai‘i—are working
18 cooperatively to administer Monument policies and regulations. This role and
20 the relationships among the three Co-Trustees are further described in a revised
22 Memorandum of Agreement among the Co-Trustees that provides the general
23 terms and conditions under which they will cooperate. Particular to enforcement activities, the
24 Memorandum of Agreement directs the cooperating agencies to coordinate research and
25 monitoring efforts to better understand and address major threats to Monument resources; to
26 provide access and support for enforcement purposes; share enforcement resources and data, as
27 appropriate; and develop joint enforcement capabilities as needed to ensure compliance with
28 applicable State and Federal laws. It also gives the agencies the ability to develop additional
29 interagency agreements, grants, memoranda of understanding, or other appropriate instruments
30 that allow for ease in sharing resources, including funds as appropriate, and a sharing of in-kind
31 assistance and support—such as the sharing of vessel time, aircraft missions, or other logistical
32 support—as a means of facilitating cooperation.

Links to other Action Plans	
3.3.2	Alien Species
3.4.1	Permitting
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

Links to goals
Goal 1
Goal 2
Goal 3

33 In addition to the Federal and State laws in place prior to the establishment of the Monument, NOAA
34 and FWS promulgated joint regulations (50 CFR Part 404, see Appendix G) that implement the
35 provisions of the President’s Proclamation. These regulations were issued under NOAA and FWS
36 statutory authorities.

37 **Need for Action**

38 The size and remote location of the NWHI present challenges to enforcement. The Monument is
39 the largest conservation area under U.S. jurisdiction. An effective law enforcement program is
40 needed to protect and conserve Monument resources. The primary aim of the Monument
41 enforcement program is for the jurisdictional partners to achieve resource protection by gaining
42 compliance with all applicable laws and regulations. Increased law enforcement capacity will
43 move agency partners toward more effective enforcement of all Federal and State rules that
44 protect the Monument’s resources.

45 Managers and law enforcement personnel must work together to prioritize and initiate
46 appropriate activities that will have the greatest impact. Depending on the complexity and
47 breadth of a particular enforcement activity, a single agency may not have the manpower or other
48 resources to commit to the effort. Opportunities to efficiently and economically accomplish
49 priority enforcement activities in the Monument must be optimized.

50 All activities within the Monument, with the limited, specific exceptions discussed in the
51 Permitting Action Plan (section 3.4.1), require a permit. In addition, all activities within the
52 Monument, including the transit of vessels, present varying degrees of threat to Monument

1 resources and varying potential for noncompliance with Monument rules and regulations. To
2 increase voluntary compliance, outreach tailored to address these threats will be emphasized.
3 Informing the permitted and potential users, as well as the general public, about the Monument
4 resource threats and the regulations in place to protect them is important to ensure responsible
5 behavior before resources can be adversely impacted.

6 **Strategies to Achieve Desired Outcome**

7 Effective law enforcement is an essential component to fulfill the overall management vision to
8 protect Monument resources. The enforcement of regulations in the remote Monument can be
9 difficult and time consuming. Natural barriers to law enforcement, such as remoteness and
10 distance from operating bases, must be overcome.

11 Enforcement capabilities utilized to monitor activity and detect violations within the Monument
12 will include traditional strategies such as patrols by vessel and aircraft. However the application of
13 emerging technologies will also be necessary to assure the comprehensive coverage of this vast
14 area. Though VMS systems are currently being utilized, the potential use of other technological
15 capabilities such as satellite based surveillance, remote sensors, or use of unmanned aircraft
16 (drones) will need to be researched further to determine if and how they may be used.

17 Vessel Monitoring Systems (VMS) are prevalent in commercial fisheries, and are required to be
18 carried by all vessels permitted to operate in the Monument. VMS is useful to monitor the
19 locations and travel of vessels so equipped, however to assure viable deterrence and compliance,
20 it is important to establish the capacity to intercept and make at sea contact with vessels actively
21 engaged in activities that constitute a violation, particularly those not equipped with VMS that
22 cannot be tracked or monitored remotely.

23 Outreach is an essential part of any law enforcement program. Community Oriented Policing and
24 Problem Solving (COPPS), also referred to as “interpretive enforcement,” is a key component to
25 the Monument law enforcement strategy. The goal is to inform Monument users and the general
26 public about the regulations and allowed activities, as well as educate them about the detrimental
27 effects of illegal activities on Monument natural, cultural, and historic resources and the
28 surrounding environment. This can be accomplished through focused workgroups with regular
29 and potential permit applicants, public forums, printed materials, interpretive signs, displays, and
30 public service announcements.

31 This action plan contains three management strategies to achieve the desired outcome of
32 achieving compliance with all regulations within the Monument. The strategies and activities are
33 coded by the abbreviation for the action plan title, “Enforcement” (EN). A summary of strategies
34 and activities is provided in Table 3.4.2 at the end of this action plan.

35

- 36 • EN-1: Increase law enforcement capacity and integration over the life of the plan.
- 37 • EN-2: Implement a threat-based detection and monitoring program within 2 years.
- 38 • EN-3: Develop and implement a multiagency COPPS/interpretive enforcement program
- 39 within 2 years.

40

1 **Strategy EN-1: Increase law enforcement capacity and integration over the life of the plan.**

2
3 This strategy undertakes the activities required to increase the capacity (i.e., quantity and quality
4 of services) of the law enforcement agencies, promote cooperation among these agencies, and
5 build on existing resources to execute an integrated law enforcement program in the Monument.
6 Standard operating procedures will increase the efficiency of law enforcement activities and may
7 include monitoring responsibilities, coordinating response to intelligence handling of possible
8 violations, standardizing communications, and reporting of activities.

9
10 ***Activity EN-1.1: Charter a Monument law enforcement working group.***

11 A successful Monument law enforcement program must have active involvement and oversight
12 by each of the law enforcement agencies that have responsibilities in the NWHI. The primary
13 law enforcement agencies (NOAA Office of Law Enforcement, FWS Office of Law
14 Enforcement and National Wildlife Refuge System Law Enforcement, U.S. Coast Guard,
15 Hawai'i State Department of Land and Natural Resources-Division of Conservation and
16 Resource Enforcement). Numerous other agencies have enforcement authority and will be
17 consulted as appropriate. Staff from these agencies, primarily credentialed law enforcement
18 officers, will form the Monument law enforcement group. The group will meet regularly to
19 (1) coordinate enforcement-related tasks for each agency in support of this plan, (2) develop
20 operating protocols, and (3) assist in evaluating the overall effectiveness of law enforcement
21 efforts.

22
23 ***Activity EN-1.2: Develop necessary interagency agreements.***

24 Effective law enforcement in the Monument would be enhanced by the establishment of formal
25 agreements between law enforcement agencies. At the national level, NOAA and FWS share
26 agreements on enforcement. Cooperative agreements at a regional level would allow law
27 enforcement officers of partner agencies to enforce the variety of Federal and State statutes that
28 apply within the entire Monument. The MMB will discuss opportunities to formalize Coast
29 Guard support through a memorandum of agreement or other means. Officers of partner agencies
30 can be dedicated to Monument efforts with appropriate funding. For the most effective use of
31 scarce resources on the part of all agencies, law enforcement officers should seek ways to
32 maximize collaboration.

33
34 ***Activity EN-1.3: Develop an integrated law enforcement training program.***

35 Training courses will be conducted regularly to ensure that all law enforcement personnel have
36 the most up-to-date information, including environmental education and Native Hawaiian
37 cultural practices. Enforcement personnel must understand the environmental consequences that
38 could occur as a result of violations. In addition, environmental training will enhance the ability
39 of these officers to provide outreach.

40
41 ***Activity EN-1.4: Assess Monument law enforcement capacity and program effectiveness.***

42 The Monument law enforcement working group will assess the effectiveness of ongoing law
43 enforcement activities, including analyzing efforts to determine “hot spots” that require focus.
44 On an annual basis, the group will present a formal briefing to the MMB on ongoing and planned
45 activities, consider new technologies, and discuss potential opportunities for new personnel and
46 sharing law enforcement resources.

1
2 **Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within 2 years.**

3 As a predicted hub of activity for the Monument and site of the only authorized recreational
4 activities, Midway Atoll will be a major access point into the Monument. Presence of
5 credentialed officers at Midway Atoll is necessary to ensure visitor and staff safety, regulatory
6 compliance, and enforcement. Midway is unique in that it is located outside the State of Hawai‘i
7 and as such, regulations are in place to direct public civil obedience (50 CFR Part 38).
8

9 **Strategy EN-2: Implement a threat-based detection and monitoring program within**
10 **2 years.**

11
12 Before surveillance resources can be effectively deployed Monumentwide, law enforcement
13 agencies should accurately assess threats. Threats to be assessed include the potential for
14 regulatory violations as well as the potential for resource damage from otherwise “lawful”
15 activities. Once threats are well described, the law enforcement agencies can orient detection
16 and monitoring activities toward the highest priority areas. Traditional surveillance methods
17 (aircraft and vessel patrols), electronic sensors (land and satellite-based), and automated
18 monitoring (VMS) should be implemented immediately, where possible, to detect violations and
19 resource threats. Expanding the program to include high-tech and emerging remote surveillance
20 technologies (e.g., unmanned aerial vehicles) may bring long-term cost savings.
21

22 **Activity EN-2.1: Conduct a comprehensive threat assessment and draft an enforcement plan.**

23 It is important to analyze the level and types of activities occurring throughout the Monument,
24 then assess the potential for violations and threats to Monument resources. Multiple sources of
25 information should be accessed to analyze vessel and activity patterns. The MMB has already
26 initiated a threat assessment in late 2007 that will continue through 2008 and will include cost-
27 benefit analyses of applicable technologies and solutions. The Monument law enforcement
28 working group will collaborate on this threat assessment and subsequent enforcement plan. The
29 plan will identify effective means of coordination, opportunity for
30 further collaboration and efficient use of limited resources.
31

32 **Activity EN-2.2: Operate a Vessel Monitoring System for all permitted vessels.**

33 A mandatory monitoring system for all permitted vessels was identified as one of the most
34 critical components of a successful law enforcement program in the NWHI. NOAA OLE will
35 maintain and operate a VMS to monitor compliance with Monument regulations (50 CFR Part
36 404).
37

38 **Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting**
39 **systems for all vessels transiting the Monument.**

40 Existing automated monitoring / ship reporting systems will be utilized for vessels transiting the
41 monument and that are so equipped. Many "larger" vessels are required to carry and utilize
42 Automated Identification Systems (AIS). As mandated through the Maritime Transportation
43 Security Act (MTSA), the use of Automatic Identification Systems (AIS) is required on all
44 commercial vessels greater than 65-feet. As USCG and Naval researchers develop and expand
45 the systems to collect, manage (sort) and distribute this information through shore based and

1 satellite technologies, its use will be an effective tool to monitor ship traffic within and around
2 the monument.

3
4 ***Activity EN-2.4: Increase available platforms to support law enforcement.***

5 On-the-water presence will help to ensure that users of Monument resources are deterred from
6 willful or inadvertent violations and will place law enforcement personnel in a better position to
7 respond to violations and other resource emergencies. Due to the remoteness of this area,
8 increased aerial and ship-based resources, both for surveillance and for response, are needed.

9 The Monument law enforcement working group will identify existing platforms that could be
10 used to increase enforcement, surveillance, and response; as well as develop proposals to acquire
11 new assets.

12
13 **Strategy EN-3: Develop and implement a multiagency COPPS/interpretive enforcement
14 program within 2 years.**

15
16 COPPS and interpretive enforcement are approaches that seek voluntary compliance with
17 Monument regulations primarily through education of users about existing regulations, why and
18 how they apply, and how users can play a role in protecting Monument resources. The primary
19 objectives of interpretive law enforcement are to protect Monument resources by increasing the
20 public's understanding of the importance of Monument regulations and to inform the public
21 through educational messages and literature about responsible behavior. Onsite methods will be
22 used to reach the public with educational messages. For example, Monument enforcement
23 officers will deliver interpretive programs both onsite and in the main Hawaiian Islands,
24 targeting specific user groups. Reaching out to the community through educational messages
25 and literature is a cost-effective, prevention-oriented measure to reduce the number of violations
26 and foster a sense of stewardship among Monument users.

27
28 ***Activity EN-3.1: Integrate regulations briefings into preaccess training required for all
29 Monument users.***

30 As part of preaccess briefings for all users of the Monument, training programs will be
31 developed to inform users of regulations, permit requirements, and best management practices.
32 Working closely with partner agencies and in consultation with the NWHI enforcement team,
33 specific information on all applicable laws will be developed for these workshops. Workshop
34 materials will include videos, printed materials, and presentations (see the Permitting Action
35 Plan, section 3.4.1, and Alien Species Action Plan, section 3.3.2).

Table 3.4.2 Summary of Strategies, Activities, and Agency Leads for Enforcement

Strategies and Activities	Agency Lead
Strategy EN-1: Increase law enforcement capacity and integration over the life of the plan.	
Activity EN-1.1: Charter a Monument law enforcement working group.	NOAA
Activity EN-1.2: Develop necessary interagency agreements.	NOAA
Activity EN-1.3: Develop an integrated law enforcement training program.	NOAA
Activity EN-1.4: Assess Monument law enforcement capacity and program effectiveness.	NOAA
Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within 2 years.	FWS
Strategy EN-2: Implement a threat-based detection and monitoring program within 2 years.	
Activity EN-2.1: Conduct a comprehensive threat assessment and draft an enforcement plan.	NOAA
Activity EN-2.2: Operate a Vessel Monitoring System for all permitted vessels.	NOAA
Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument.	NOAA
Activity EN-2.4: Increase available platforms to support law enforcement.	NOAA
Strategy EN-3: Develop and implement a multiagency COPPS/interpretive enforcement program within 2 years.	
Activity EN-3.1: Integrate regulations briefings into preaccess training required for all Monument users.	NOAA

3.4.3 Midway Atoll Visitor Services Action Plan

Desired Outcome

Offer visitors opportunities to discover, enjoy, appreciate, protect, and honor the unique natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.4.1	Permitting
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Current Status and Background

Since 1995, FWS has been strongly committed to welcoming visitors to Midway Atoll. This is the first and only remote island National Wildlife Refuge in the Pacific to provide the general public with an opportunity to learn about and experience these unique ecosystems. With the establishment of the Monument, Midway Atoll takes on the additional role of providing a “window” so that visitors can learn about and enjoy a small portion of the largest fully protected marine managed area in the world.

Links to Goals
Goal 3
Goal 4
Goal 5
Goal 7
Goal 8

A regularly scheduled visitor program operated on Midway Atoll from 1995 until early in 2002 but ended when the FWS cooperater left the atoll. Since then, visitors have arrived almost exclusively by the occasional cruise ship or sailboat, or for a Battle of Midway commemorative event. In May 2007, the FWS approved an interim visitor services plan to guide a small-scale visitor program on Midway Atoll until the Monument Management Plan is completed. In January 2008, a regularly scheduled visitor program began, offering limited opportunities for people to experience Midway’s wildlife and historic treasury.

As part of the interim visitor services plan and in accordance with the National Wildlife Refuge System Administration Act of 1966, the following wildlife-dependent recreational uses were determined to be compatible at Midway Atoll Special Management Area and National Wildlife Refuge: wildlife observation and photography, environmental education and interpretation, and participatory research. Hunting and fishing, which normally are given priority on national wildlife refuges if they are determined to be compatible, will not take place at Midway Atoll. All animal species are protected by law or occur in numbers too low for harvest to allow hunting opportunities. Recreational fishing is precluded under the Presidential proclamation designating the Monument. Additional compatibility determinations allow for nonwildlife-dependent beach use activities such as swimming and volleyball, nonadministrative airport operations, limited outdoor sports such as bicycling and jogging, and amateur radio use.

Each compatibility determination includes stipulations necessary to ensure protection of Midway’s natural, cultural, and historic resources. These compatibility determinations are valid for 15 years for wildlife-dependent visitor activities and 10 years for nonwildlife-dependent activities and are incorporated into this Monument Management Plan in Appendix D.

1 Any additional activities that may be proposed
2 within Midway Atoll National Wildlife Refuge
3 would need to be evaluated through the
4 compatibility determination process with
5 formal public review. Activities that are
6 determined to be compatible are authorized
7 through the issuance of Monument permits,
8 which fall within six permit types:
9 conservation and management, research,
10 education, Native Hawaiian practices, special
11 ocean uses, and recreation. The permitting
12 process is discussed in section 3.4.1, the
13 Permitting Action Plan.

14
15 Some strategies and activities outlined in the
16 Midway Atoll Visitor Services Plan are
17 included within other action plans; see the
18 Ocean Ecosystems Literacy (section 3.5.4),
19 Constituency Building and Outreach (section
20 3.5.2), and Coordinated Field Operations
21 (section 3.6.3) action plans.

25 **Need for Action**

26 Since the Interim Visitor Services Plan was
27 designed to be in effect only until a Monument Management Plan was completed, this action
28 plan addresses a longer-term visitor services program for Midway Atoll. The interim program
29 was initiated in January 2008, so only minimal updates are included in the Midway Atoll Visitor
30 Services Plan (Appendix C).
31

32
33 The Co-Trustees remain committed to offering a high-quality, small-scale visitor program at
34 Midway Atoll as a “window” to the Monument. By physically experiencing the Northwestern
35 Hawaiian Islands, visitors will return home with a personal connection and commitment to
36 protecting and conserving the Monument’s unique resources.
37

38 **Strategies to Achieve the Desired Outcome**

39 The Midway Atoll Visitor Services Plan includes numerous detailed activities that constitute the
40 visitor program. Since the reinitiated program is only a few months old, the MMB will be
41 monitoring the program and adapting it as necessary to ensure protection of natural, cultural, and
42 historic resources and visitor safety and satisfaction. The strategies and activities are coded by
43 the acronym for the action plan title, “Visitor Services Action Plan” (VS). A summary of
44 strategies and activities is provided in Table 3.4.3 at the end of this action plan.
45

- 46 • VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities
47 for up to 50 overnight guests at any one time.



Visitors spend part of their time on Midway helping to restore wildlife habitat.

- VS-2: Assess the level of visitor satisfaction, financial stability of the program, staffing needs, and program structure, resulting in recommendations for improvement beginning in 2009 and biennially thereafter.

Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.

The Midway Atoll Visitor Services Plan extends the interim visitor program that was reinitiated on a regular schedule in January 2008. Most of the same restrictions and stipulations identified in the interim plan have been carried over into this longer-term plan. Due to infrastructure limitations and to ensure a quality program, the maximum number of overnight visitors will be limited to no more than 50 people at any one time; because of transportation availability, that number generally will be from 15-30 people. This number of visitors may be exceeded for short-duration prearranged visits (less than 1 day) by ocean vessels or aircraft.

Activity VS-1.1: Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources.

As outlined in the Midway Atoll Visitor Services Plan, visitors will be offered opportunities for guided interpretive tours, wildlife photography, snorkeling, diving, kayaking, and self-guided walks. At few other places in the world can visitors be so totally surrounded by wildlife. Midway's seabirds have little fear of humans, and visitors are offered opportunities to observe and photograph them from the time they arrive until they leave. More sensitive species, such as Hawaiian monk seals and green sea turtles, are observed from a distance to ensure they are not disturbed. Snorkeling and diving will allow visitors a glimpse of the Monument's magnificent coral reefs and their inhabitants. The focus of all activities will be educational in nature, and visitors will be encouraged to share their experiences and knowledge when they return to their homes to develop a broader constituency for the Monument.

Activity VS-1.2: Provide visitors with opportunities to learn about and appreciate the Monument's cultural and historic resources.

Visitors will be offered guided interpretive tours, self-guided walks, interpretive exhibits, and written materials that focus on Midway's and the Monument's distinguished human history. In establishing the Battle of Midway National Memorial, FWS was charged with helping others keep knowledge of this important battle alive for future generations. Numerous historic structures on Midway Atoll were present during World War II, and serve as reminders of the heroic courage of the men who risked their lives in the midst of the Pacific and turned the tide of the war.

Because it serves as the "window" to the Monument, it is important that interpretation at Midway be broadened to include information about the Northwestern Hawaiian Islands' importance in Native Hawaiian culture. Interpretive exhibits will be developed to reflect all of Midway's "eras," from prerecorded history to Polynesian and Western contact, to shipwrecks and the Commercial Pacific Cable Company days, the Pan American Flying Clipper period, the Battle of Midway, and on through the Cold War and Vietnam conflicts. Additional exhibits will focus on the cultural and historic sites throughout the NWHI, such as the archaeological remains at Nihoa Island and Mokumanamana and submerged resources throughout the NWHI.

1
2 To the extent possible, remnants of these eras will be interpreted as they exist on Midway. To
3 ensure all cultural and historic resources are included in the story, one of the historic buildings
4 on Sand Island will be restored to house a permanent museum/library that will be available to all
5 visitors.

6
7 ***Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and***
8 ***historic resources to ensure their protection.***

9 Monument staff will monitor the impacts of visitors and other users on wildlife and historic
10 resources to ensure continuing compatibility, as required by Monument and FWS policies.
11 Monitoring methodology to assess impacts on seabirds, Hawaiian monk seals, sea turtles, corals,
12 and fishes has been developed based on previous work on other refuges and protected areas and
13 is included in the Midway Atoll Visitor Services Plan. The visitor program supervisor, in
14 consultation with FWS and NOAA Cultural Resources Program staffs, monitors impacts on
15 historic resources.

16
17 Based on FWS experience from 1996 to 2002, when up to 100 overnight visitors were allowed
18 on Midway at any one time, few impacts are anticipated as long as visitors comply with Refuge
19 and Monument rules and regulations.

20
21 **Strategy VS-2: Assess the level of visitor satisfaction, financial stability of the program,**
22 **staffing needs, and program structure, resulting in recommendations for improvement**
23 **beginning in 2009 and biennially thereafter.**

24
25 A more regularly scheduled visitor program resumed operation on Midway Atoll in January
26 2008 during development of this Monument Management Plan. After gathering approximately
27 1 year of experience and data, Monument staff will be in a better position to make
28 recommendations to improve the program.

29
30 ***Activity VS-2.1: Monitor visitor satisfaction surveys completed by outgoing visitors, adjusting***
31 ***activities, facilities, and maintenance schedules as appropriate on a monthly basis.***

32 The FWS contractor has designed and implemented a visitor satisfaction survey to be completed
33 as visitors depart Midway Atoll. These questionnaires provide valuable insight into how the
34 visitor program could be improved, as well as providing practical information such as room
35 maintenance needed. The information is compiled on a monthly basis and provided to the refuge
36 manager for appropriate action.

37
38 ***Activity VS-2.2: Convene a team of visitor services specialists and Midway Atoll staff to review***
39 ***the visitor program on a biennial basis.***

40 Beginning in March 2009, the team will conduct a visitor services requirements evaluation to
41 assess whether the visitor program is meeting the standards outlined in the Visitor Services Plan,
42 as well as the purposes and goals of the Refuge and Monument, and provide recommendations to
43 management based on their evaluation. The team will also review the financial information
44 relevant to the visitor program to assess the need to adjust visitor fees and make
45 recommendations on the program's financial stability, including staffing and facility needs.

46

1 ***Activity VS-2.3: Based on the assessment above, seek funding, authority, or other needs to***
2 ***implement the recommendations for improvement.***

3 Depending upon the results of the visitor services evaluation, steps will be taken to implement
4 improvements to the visitor program. Possible improvements could include revisions to the
5 Midway Atoll Visitor Services Plan, facility improvements, additional staffing, changes in fee
6 structure, changes to visitor activities or stipulations associated with them, or new
7 implementation structures (such as working through a concessionaire).

1 **Table 3.4.3 Summary of Strategies, Activities, and Agency Leads for Midway Atoll Visitors**
 2 **Services**
 3

Strategies and Activities	Agency Lead
Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.	
Activity VS-1.1: Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument’s natural resources.	FWS
Activity VS-1.2: Provide visitors with opportunities to learn about and appreciate the Monument’s cultural and historic resources.	FWS
Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection.	FWS
Strategy VS-2: Assess the level of visitor satisfaction, financial stability of the program, staffing needs, and program structure, resulting in recommendations for improvement beginning in 2009 and biennially thereafter.	
Activity VS-2.1: Monitor visitor satisfaction surveys completed by outgoing visitors, adjusting activities, facilities, and maintenance schedules as appropriate on a monthly basis.	FWS
Activity VS-2.2: Convene a team of visitor services specialists and Midway Atoll staff to review the visitor program on a biennial basis.	FWS
Activity VS-2.3: Based on the assessment above, seek funding, authority, or other needs to implement the recommendations for improvement.	FWS

4
5

3.5 Coordinating Conservation and Management Activities

3.5.1 Agency Coordination Action Plan

3.5.2 Constituency Building and Outreach Action Plan

3.5.3 Native Hawaiian Community Involvement Action Plan

3.5.4 Ocean Ecosystems Literacy Action Plan

3.5 Coordinating Conservation and Management Activities

Many government agencies and nongovernmental organizations work in close coordination with the MMB to achieve Monument goals. Implementation of action plans relies on resources and efforts from a variety of partners. The Co-Trustees and the MMB generally have a high level of involvement for most action plans, while other governmental agencies and nongovernmental organizations will contribute to action plans at varying levels. As Monument projects develop, more organizations will likely be involved. Section 2, Management Framework, and section 3.5.1, the Agency Coordination Action Plan, provide discussions on the importance of collaboration and partnerships in effectively achieving Monument goals.

Participation by a broad sector of the public is also essential to any successful system of governance (Creighton 1981). The NWHI face an array of complex issues and competing interests. Public input into the decisionmaking process can help ensure that those interested are fairly represented and a strong base of support is built. Without a forum for participation and collaboration, disputes can linger and resources degrade (Pew 2003).

Working together, the MMB will adopt a three-part approach to coordinate management of the Monument. Each part is integral to the success of the whole: (1) agency coordination, which is essential to foster stewardship that takes ecosystem effects into account, (2) involvement of stakeholders, and (3) a strong program of education and outreach to build community support for ecosystem conservation.

Responsibility for management of the Monument is shared by the Co-Trustees. Stakeholders include Native Hawaiians, researchers, educators, conservation groups, fishers, and others. Collaborative management mechanisms are needed to facilitate effective interagency coordination for management and to provide opportunities for active stakeholder participation and input from community forums and various partnerships, and specifically from the Native Hawaiian community.

Action plans to facilitate collaboration and partnerships in the management of the NWHI focus on providing the operational framework to enhance interagency coordination and to provide broad stakeholder involvement in managing the NWHI. Each action plan consists of a set of strategies to address a desired outcome. The desired outcomes of these action plans are as follows:

- **Agency Coordination:** Successfully collaborate with government partners to achieve publicly supported, coordinated management in Papahānaumokuākea Marine National Monument.
- **Constituency Building and Outreach:** Cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of the Papahānaumokuākea Marine National Monument
- **Native Hawaiian Community Involvement:** Engage the Native Hawaiian community in active and meaningful involvement in Papahānaumokuākea Marine National Monument management.

- 1 • **Ocean Ecosystems Literacy:** Cultivate an ocean ecosystems stewardship ethic,
2 contribute to the Nation’s science and cultural literacy, and create a new generation of
3 conservation leaders through formal environmental education.

4
5 Action plans described in this section will be implemented in close coordination with
6 jurisdictional agency partners and in conjunction with other priority management needs.

3.5.1 Agency Coordination Action Plan

Desired Outcome

Successfully collaborate with government partners to achieve publicly supported, coordinated management in Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.3.1	Permitting
3.3.2	Enforcement
3.5.3	Coordinated Field Operations

Current Status and Background

The NWHI has had a long history of multiagency coordination due to divided responsibilities among several management agencies over the past 100 years (Shallenberger 1984). The Navy assumed jurisdiction over Midway Atoll in 1903. In 1909, President Teddy Roosevelt signed Executive Order 1019 to create the Hawaiian Islands Reservation, and management responsibility was given to the Department of Agriculture; the reservation was later renamed the Hawaiian Islands National Wildlife Refuge and managed under the authority of the FWS. The Hawai‘i Organic Act and Hawai‘i Admission Act gave the Territory of Hawai‘i responsibility for nearshore waters of the NWHI, excluding Midway. In 1988, Midway Atoll was designated a National Wildlife Refuge. Under Federal law, NOAA Fisheries is responsible for the management of monk seals, as well as for sea turtles when they are in marine waters; FWS is responsible for the management of sea turtles when they are on land. The State of Hawai‘i also has jurisdiction over these species under State wildlife and endangered species laws. NOAA’s National Ocean Service, through the National Marine Sanctuary Program, joined the jurisdictional players in December 2000, when Executive Order 13178 (as amended by 13196) created the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (adapted from Shallenberger 2004).

Links to Goals
Goal 1
Goal 2
Goal 4

Several innovative programs involving Federal, State, and private entities have resulted in cooperative efforts to protect and restore natural, cultural, and historic resources in the NWHI. Notable examples include the following:

- The creation of a State Marine Refuge in the NWHI in 2005.
- Several multiagency collaborative research efforts under the Northwestern Hawaiian Islands Research and Monitoring Program, conducted since 2000.
- Collaborative educational partnerships, including Navigating Change, Hawai‘i’s Living Reef program, and outreach for the 2002 and 2004 Northwestern Hawaiian Islands Research and Monitoring Program efforts.
- A multiagency collaborative process to establish a regional research forum and to identify regional research and science priorities.
- The NWHI Third Scientific Symposium (2004).
- A regional collaboration that led to the identification of several maritime archaeology and history sites.
- A process to identify opportunities for collaborative permitting and enforcement efforts.
- Development of a unified permitting system for the Monument.
- Critically needed multiagency marine debris removal efforts, ongoing since 1996.
- Collaborative support of Hawaiian monk seal and green turtle recovery and field camps.

1 Coordination of Monument resource management is overseen by the Co-Trustee agencies, while
 2 day-to-day management is implemented by the MMB as described in Section 2. However,
 3 several other Federal agencies including the U.S. Coast Guard, U.S. Geological Survey, the
 4 Environmental Protection Agency, and Department of Defence and various State agencies have a
 5 role to play and could be part of the larger Interagency Coordinating Committee (ICC).
 6 Coordination among all parties with regulatory and management responsibilities is crucial to
 7 successful Monument operations. The ICC is further described in section 2.2.

8
 9 **Need for Action**

10 The creation of the Papahānaumokuākea Marine National Monument in 2006 offers a unique
 11 opportunity to carry out coordinated management across multiple Federal and State agencies to
 12 achieve strong, long-term protection of the NWHI. While management of the Monument is the
 13 responsibility of the three Co-Trustees, as described in Proclamation 8031, many important
 14 government partners also have missions that are affected by and may affect Monument
 15 management strategies. Therefore, collaboration with all government stakeholders is essential.
 16 The unique biological, cultural, scientific, educational, historic, and recreational values of the
 17 NWHI require that the region be carefully managed to ensure these values are not diminished for
 18 future generations. This action plan presents strategies and activities for facilitating interagency
 19 coordination to successfully collaborate with government partners in the NWHI.

20 **Strategies to Achieve the Desired Outcome**

21 Agency coordination in the remote Monument ecosystems is essential to the lasting protection of
 22 ecosystems and resources. To achieve the desired outcome of publicly supported coordinated
 23 management, three strategies have been developed. The strategies and activities are coded by the
 24 acronym for the action plan title, “Agency Coordination” (AC). A summary of strategies and
 25 activities is provided in Table 3.5.1 at the end of this action plan.

- 26 .
- 27 • AC-1: Ensure effective communications and procedural operations of the MMB.
 - 28 • AC- 2: Establish and support cooperative management agreements with agency
 29 partners.
 - 30 • AC-3: Promote international, national, and local agency collaborations to increase
 31 capacity building and foster networks that will improve management effectiveness.

32
 33 **Strategy AC-1: Ensure effective communications and procedural operations of the MMB.**

34
 35 The MMB was established by the Co-Trustee MOA in 2006 (see section 2, Management
 36 Framework). The MMB is charged with promoting coordinated management of the Monument
 37 at the field level and implementing day-to-day management activities necessary to achieve
 38 strong, long-term protection of the NWHI for current and future generations. Working across
 39 multiple agencies can present a challenge to management if clear and effective procedures are
 40 not established.

41
 42 ***Activity AC-1.1: Establish standard operating procedures, as needed, to provide direction and
 43 improve communication within the MMB.***

44 Standard operating procedures are often necessary to facilitate consistent implementation and
 45 ensure that processes are continued and completed on a prescribed schedule. They also serve as

1 a historical record of steps taken and a basis for revising the steps when changes to the process
2 are proposed. In order to ensure that unwritten knowledge and skills do not disappear when
3 positions are filled with new staff, standard operating procedures for the MMB will be written
4 and properly maintained.

5
6 **Strategy AC-2: Establish and support cooperative management agreements with agency**
7 **partners.**

8 The MOA signed by the State of Hawai‘i, the Department of the Interior, and the Department of
9 Commerce promotes coordinated management of the Monument and establishes the functional
10 relationships to effectively coordinate on all management actions. This agreement serves as the
11 foundation for entering into other agreements among the Co-Trustees and with agencies and
12 other entities, as appropriate. Formal partnerships and agreements will be developed with
13 essential agency partners who can help provide comprehensive protection for the ecosystems and
14 resources of the NWHI.

15 ***Activity AC-2.1: Establish agreements for coordinated management and conduct cooperative***
16 ***management operations.***

17 Building on the MOA signed in 2006, new agreements will be developed among the MMB to
18 support collaborations that facilitate coordinated management. Such agreements will specify
19 roles, responsibilities, and periodic reviews. Opportunities for interagency collaboration may
20 include personnel agreements and crosscutting budget initiatives to promote coordinated
21 management and effective implementation of strategies identified in the action plans. The MMB
22 will work together to establish priorities and initiate joint activities.

23
24 ***Activity AC-2.2: Develop interagency agreements, grants, and memoranda of agreement as***
25 ***needed to carry out specific program priorities.***

26 Cooperative projects will be pursued with agencies outside of the MMB that allow for ease in
27 sharing resources and in-kind assistance and support, as appropriate. Efforts will continue to
28 coordinate with and support the Interagency Coordinating Committee. Formal agreements
29 required for specific program areas will be developed as needed. Collaborative agency efforts
30 that may benefit from formal and other informal agreements are described in the following action
31 plans: Alien Species (section 3.3.2), Coordinated Field Operations (section 3.6.3), Emergency
32 Response and Natural Resource Damage Assessment (section 3.3.4), Enforcement (section
33 3.4.2), Threatened and Endangered Species (section 3.2.1), Information Management (section
34 3.6.2), Maritime Heritage (section 3.1.4), Marine Debris (section 3.3.1), Permitting (section
35 3.4.1), and Habitat Management and Conservation (section 3.2.3).

36 ***Activity AC-2.3: Conduct annual interagency planning workshop.***

37 An annual interagency strategic planning workshop will be conducted with the ICC to discuss
38 previous year activities and align planned activities and priorities. Gaps and additional needs
39 will be identified along with strategies to address them. (See the Evaluation Action Plan, section
40 3.6.4)

1 **Strategy AC-3: Promote international, national, and local agency collaborations to increase**
2 **capacity building and foster networks that will improve management effectiveness.**

3
4 Collaborations at the international, national, and local levels are needed to promote information
5 sharing, relationship building, and adaptive use of management tools for conservation and
6 resource management. These partnerships can provide a regional and global context to better
7 understand the significance of traditional knowledge in resource management, the need for
8 scientific and cultural research, and the development of management models that could be
9 applied to the Pacific and beyond.

10 ***Activity AC-3.1: Enhance communication and cooperation with the Department of Defense***
11 ***and the U.S. Navy Pacific Fleet.***

12 Through the ICC and other forums, the MMB will maintain open communication with the DOD
13 and the U.S. Navy on potential areas of cooperation, including enforcement; minimizing military
14 activities in the Monument; support of zoning, permitting, and tracking programs; and regional
15 and local restoration and wildlife protection efforts.

16 ***Activity AC-3.2: Network with other marine protected areas in the Pacific.***

17 The MMB will foster and promote relationships with the marine protected area managers and
18 constituents in Hawai‘i and the Pacific that face enforcement, surveillance, and other challenges
19 common to coral reef ecosystem management. Through such regional collaboration,
20 participating organizations could share information on subjects such as enforcement,
21 incorporating traditional knowledge, research, and outreach about the importance of coral reef
22 ecosystems to the world.

23 ***Activity AC-3.3: Support the bid for World Heritage Site status.***

24 In 2007, the Monument was included on the new U.S. World Heritage Tentative List as a site
25 within the United States for outstanding universal value for both its natural and cultural heritage.
26 The U.S. Tentative List was submitted to the United Nations Educational, Scientific, and
27 Cultural Organization (UNESCO) World Heritage Center for consideration in February 2008.
28 The MMB will continue to support the bid for World Heritage designation across agencies to
29 ensure a high level of communication and coordination.

30

1 **Table 3.5.1 Summary of Strategies, Activities, and Agency Leads for Agency Coordination**

2

Strategies and Activities	Agency Lead
Strategy AC-1: Ensure effective communications and procedural operations of the MMB.	
Activity AC-1.1: Establish standard operating procedures, as needed, to provide direction and improve communication within the MMB.	NOAA OHA State of Hawai‘i FWS
Strategy AC-2: Establish and support cooperative management agreements with agency partners.	
Activity AC-2.1: Establish agreements for coordinated management and conduct cooperative management operations.	NOAA OHA State of Hawai‘i FWS
Activity AC-2.2: Develop interagency agreements, grants, and memoranda of agreement as needed to carry out specific program priorities.	NOAA OHA State of Hawai‘i FWS
Activity AC-2.3: Conduct annual interagency planning workshop.	NOAA
Strategy AC-3: Promote international, national, and local agency collaborations to increase capacity building and foster networks that will improve management effectiveness.	
Activity AC-3.1: Enhance communication and cooperation with the Department of Defense and the U.S. Navy Pacific Fleet.	NOAA OHA State of Hawaii FWS
Activity AC-3.2: Network with other marine protected areas in the Pacific.	NOAA OHA State of Hawai‘i FWS
Activity AC-3.3: Support the bid for World Heritage Site status.	State of Hawai‘i

3

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3.5.2 Constituency Building and Outreach Action Plan

2 **Desired Outcome**

4 Cultivate an informed, involved constituency that supports and
6 enhances conservation of the natural, cultural, and historic
8 resources of Papahānaumokuākea Marine National Monument.

Links to other Action Plans
All Action Plans

10 **Current Status and Background**

12 The MMB currently conducts diverse constituency building and outreach
14 activities related to the Monument, such as:

- 16 • Operating discovery centers and visitor facilities, including
- 17 Mokupāpapa Discovery Center in Hilo and the Midway Atoll visitor center;
- 18 • Developing and disseminating informational materials such as fact sheets, brochures,
- 19 planning updates, and reports;
- 20 • Updating and maintaining Monument websites;
- 21 • Conducting informational meetings, workshops, and seminars to inform constituencies
- 22 and seek input on various aspects of Monument management;
- 23 • Issuing news releases, feature stories, and public service announcements;
- 24 • Working with partners in community fairs, photography exhibits, and documentaries;
- 25 • Partnering with support groups such as the Friends of Midway Atoll National Wildlife
- 26 Refuge and the National Marine Sanctuary Foundation;
- 27 • Involving volunteers in management and support activities;
- 28 • Seeking public review of Monument permit applications for activities proposed in State
- 29 waters at the State Board of Land and Natural Resources; and
- 30 • Seeking public review of draft plans and environmental analyses through National
- 31 Environmental Policy Act requirements.

Links to Goals
Goal 4 Goal 5 Goal 6 Goal 8

33 The Monument’s diverse constituencies in Hawai‘i and beyond include Federal and State
34 agencies with responsibilities for the region; industry and community stakeholders; and
35 prospective and permitted users. Key Monument constituencies that have been identified to date
36 include, but are not limited to, the following:

- 37 • Government agencies with responsibilities in the NWHI
- 38 • Native Hawaiian community
- 39 • Conservation groups
- 40 • Research/academia
- 41 • Commercial and recreational fishers
- 42 • Schools, organizations, and institutions that conduct marine education and outreach
- 43 programs throughout Hawai‘i
- 44 • Other states, territories, and Pacific nations managing coral reefs
- 45 • Business/industry
- 46 • Elected officials
- 47 • General public at large

48
49 Outreach to these diverse communities must be coordinated closely with the strategies and
50 activities identified in the individual action plans detailed in this management plan. A vigorous

1 public outreach and education effort that bridges community concerns and needs with measures
 2 applied to protect the resources of the Monument will galvanize broader support for ocean and
 3 island conservation and the MMB’s work. Such support will bolster the MMB’s ability to
 4 effectively protect NWHI marine resources.

5 A strong, sustained constituency-building effort is particularly important in the Monument’s early
 6 formative years to establish its role in the region and in local, national, and global resource
 7 management circles, and to set a proactive course into the future.

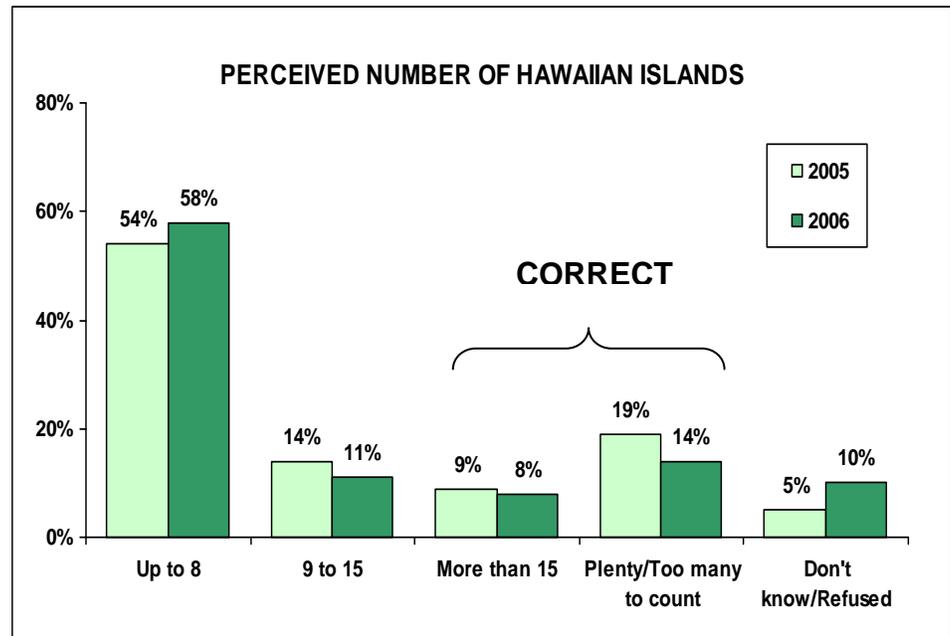
8

9 **Need for Action**

10 Stakeholder and community involvement is an integral component to creating an informed and
 11 engaged constituency that would further the successful protection of the ecosystems and
 12 resources of the NWHI, thus achieving the goals of the Monument (see section 2, Management
 13 Framework).

14

15 A study conducted by
 16 Ward Research in
 17 March 2006 for the
 18 National Marine
 19 Sanctuary Foundation
 20 found that the majority
 21 of residents of the State
 22 of Hawai‘i were
 23 unaware of the NWHI
 24 and its protected status.
 25 More than 50 percent of
 26 Hawai‘i’s residents
 27 believed that there are
 28 only eight Hawaiian
 29 Islands (Ward Research
 30 2006). For the question,
 31 “How many islands,
 32 atolls, and other land
 33 masses make up what



34 we know as the Hawaiian Islands?,” the proportion of residents who answered the correct, “more
 35 than 15” or “plenty/too many to count” decreased from the previous year (22 percent, compared
 36 to 28 percent in 2005).

37

38 The establishment of the Monument provides opportunities for the managing agencies to
 39 collaborate and share resources for effective constituency building and outreach activities.
 40 Currently, the agencies often implement public outreach activities separately, use a similar and
 41 limited range of strategies and activities, and target similar constituencies. As the Monument
 42 constituencies comprise a wide range of user groups and individuals, various methods will be
 43 needed to best engage them in Monument management. A range of strategies and activities are
 44 needed to develop, engage, and sustain the active involvement and support of constituencies in
 45 Hawai‘i as well as national and international publics. These strategies and activities will keep

1 the public informed as well as provide opportunities for input on management decisionmaking
 2 from various stakeholder groups. This action plan presents strategies and activities to develop an
 3 integrated constituency-building framework supported by collaborative activities of the Co-
 4 Trustees.

5 **Strategies to Achieve the Desired Outcome**

6 The following strategies have been identified to achieve the desired outcome of cultivating an
 7 informed, involved constituency that supports and enhances conservation of the natural, cultural,
 8 and historic resources of the Monument. These strategies provide both capacity building, which
 9 will ensure continuity and effectiveness of Monument communication efforts, and public
 10 interface, which will allow for various levels of support for and participation in activities related
 11 to the Monument. The strategies and activities are coded by the acronym for the action plan title,
 12 “Constituency Building and Outreach” (CBO). A summary of strategies and activities is
 13 provided in Table 3.5.2 at the end of this action plan.

- 14
- 15 • CBO- 1: Develop and implement an integrated communications strategy, based on an
 16 assessment of ongoing activities and future needs, to coordinate outreach and engage
 17 Monument constituencies within 5 years.
- 18 • CBO-2: Continue to develop and disseminate materials and improve and update tools that
 19 help inform Monument constituencies about the Monument over the life of the plan.
- 20 • CBO-3: Continue initiatives that allow Monument constituencies to be more involved in
 21 the Monument and enhance opportunities for long-term engagement over the life of the
 22 plan.
- 23 • CBO-4: Develop and implement an overarching Monument interpretive strategy,
 24 including site-specific planning documents for the Monument’s visitor facilities, within
 25 5 years.

26

27 **Strategy CBO-1: Develop and implement an integrated communications strategy, based on**
 28 **an assessment of ongoing activities and future needs, to coordinate outreach and engage**
 29 **Monument constituencies within 5 years.**

30

31 The integrated communications strategy will be made up of various components, including
 32 visitor site administration, capacity building, research and development, telecommunication
 33 tools, and assessment. The following activities will help to achieve the initiatives of these
 34 components and ensure the effectiveness of the integrated strategy.

35

36 ***Activity CBO-1.1: Develop an integrated communications strategy based on an assessment of***
 37 ***ongoing activities and future needs.***

38 A unified strategy for constituency building and outreach for the Monument will be developed.
 39 The integrated strategy will include a description of the different types of constituencies that need
 40 to be informed, engaged, and sustained in support of the Monument; specific strategies, messages,
 41 and activities related to each constituency; and indicators to evaluate effectiveness. In developing
 42 the document, the MMB will engage analogous entities, such as administrating agencies of
 43 Australia’s Great Barrier Reef, to learn lessons from their constituency building and outreach
 44 successes. Existing constituency building activities of all MMB agencies generally will be
 45 continued under the new Monument framework. This will ensure continued support for already

1 successful programs and the development of new activities that enhance existing support for the
 2 region. The Monument communications strategy will be reviewed and updated every 3 years, at
 3 a minimum.

4
 5 ***Activity CBO-1.2: Continue to refine and implement the Monument Media Communications***
 6 ***Protocol to engage news media in informing the public about the Monument’s resources and***
 7 ***activities.***

8 A key aspect of the communications strategy is media protocol. In February 2007, a Monument
 9 media communications protocol was developed to ensure media receive accurate, consistent, and
 10 timely information about the Monument; its natural, cultural, and historic resources; and ongoing
 11 activities related to the Monument. An interagency communications team implements the
 12 strategy, ensuring that all of the managers are included in the review process and presenting a
 13 unified position to the public. Contacts, standards, and procedures are clearly identified within
 14 the protocol. Unlike the communications strategy overall, the protocol will be reviewed anytime
 15 the need arises from any agency or is deemed necessary due to unforeseen external
 16 circumstances.

17
 18 ***Activity CBO-1.3: Develop a consistent Monument identity to be used in all communications***
 19 ***strategies that reflects its comanagement within 1 year.***

20 The Co-Trustees currently maintain their three separate identities and place all agency logos on
 21 most communications materials. The MMB will develop a new Monument “corporate identity,”
 22 reflecting its shared management on behalf of the American people.

23
 24 ***Activity CBO-1.4: Incorporate new perspectives for understanding the value of NWHI***
 25 ***ecosystems, including socioeconomic studies, to increase ocean ecosystems literacy and***
 26 ***conservation in the Monument within 5 years.***

27 The Monument will serve as a powerful focal point for increasing ocean ecosystems literacy. To
 28 engage a broad and diverse base of constituents, the Monument program must continuously
 29 expand the types of products, messages, and modes of communication used in education and
 30 outreach programs. The MMB will support and seek out traditional ecological knowledge as well
 31 as new perspectives that contribute different ways of valuing the ecosystems of the NWHI. New
 32 and innovative ways to look at the value of marine ecosystems, such as socioeconomic analysis
 33 of the nonmarket value of coral reefs, will also be supported.

34
 35 ***Activity CBO-1.5: Research and implement new technologies and tools to increase public***
 36 ***understanding of the NWHI ecosystems within 5 years.***

37 Telepresence (technologies that allow a person to feel as if they were present, to give the
 38 appearance that they were present, or to have an effect at a location other than their true location)
 39 is an important tool for helping to educate the larger community about the special region of the
 40 Monument. Since most people will not be able to visit the Monument due to its remoteness and
 41 fragility, it is important to bring the place to the people. Telepresence technologies such as
 42 underwater video cameras, real-time video transmission, virtual field trips, website interfaces,
 43 and exhibits in discovery centers that present this content will play an important role in educating
 44 the public about the NWHI. Obstacles to implementing these technologies do exist, such as cost,
 45 feasibility, and ecological sensitivities, but the Monument will continue to invest in and utilize
 46 new technologies for providing this virtual experience.

1
2 **Strategy CBO-2: Continue to develop and disseminate materials and improve and update**
3 **tools that help inform Monument constituencies about the Monument over the life of the**
4 **plan.**

5
6 Providing information about the Monument through products such as websites, brochures, and
7 other media is one of the first steps toward raising the overall awareness of the Monument with
8 the public (local, national, and international).

9
10 ***Activity CBO-2.1: Establish a new Monument website that will allow constituents to visit a***
11 ***single site for all Monument-related information within 1 year.***

12 Currently, the three Co-Trustee agencies all maintain separate websites that provide information
13 about the Monument. The MMB is developing a single interagency website
14 (<http://www.papahanaumokuakea.gov>) that will be jointly managed and regularly updated with
15 information about permit and management activities, planning updates, etc.

16
17 ***Activity CBO-2.2: Continue to develop and update printed materials to aid Monument***
18 ***constituencies in understanding key aspects of the Monument.***

19 Although an overall site brochure is the primary informational mechanism to help the public
20 understand the Monument, additional materials will be developed to aid in the understanding of
21 more specific aspects of the entire region and on the ways in which the public can participate.
22 Topics to be addressed will include, but not be limited to, Native Hawaiian culture; research;
23 management activities; permitting; Monument fish, wildlife, historic, and cultural resources; and
24 volunteer activities. These materials will be printed pieces but may also include multimedia
25 components or be developed as a suite of materials. The update letter that was provided to the
26 public on a regular basis during development of the Monument Management Plan also will be
27 continued on a quarterly basis.

28
29 ***Activity CBO-2.3: Support other entities' efforts to broaden knowledge of and appreciation for***
30 ***Monument resources and management priorities.***

31 Establishment of the Monument has created interest from documentary filmmakers, writers,
32 photographers, and other entities to help us "bring the place to the people." The MMB will
33 support those endeavors that provide benefit to Monument resources and management and our
34 constituents without impacting Monument resources.

35
36 **Strategy CBO-3: Continue initiatives that allow Monument constituencies to be more**
37 **involved in the Monument and enhance opportunities for long-term engagement over the**
38 **life of the plan.**

39
40 This strategy will continue efforts to create an interactive experience with constituents by
41 providing the support and activities necessary to develop a long-term commitment to the
42 Monument from a growing number of increasingly knowledgeable constituents. The Monument
43 is a vast region that will need a strong network of constituents who are connected to the NWHI
44 in order to ensure that the plans initiated today are carried out and implemented successfully over
45 time. However, this kind of success is realized only when the support is rooted in an engaged

1 community and when the relationship between the agency and its constituents has matured into
2 one of collaboration.

3
4 ***Activity CBO-3.1: Continue to seek out and participate in events that reach a broader audience
5 and provide constituents with knowledge of the Monument.***

6 The MMB agencies individually have a history of participating in various public outreach
7 activities. We will collaborate to enhance existing participation and find new venues. Examples
8 of such activities include but are not limited to events such as fairs, lecture series, and public
9 forums.

10
11 ***Activity CBO-3.2: As needed, hold focused forums on various Monument-related issues or
12 topics to inform and engage a broader range of constituents.***

13 The MMB will offer public forums on specific topics or issues both to exchange information
14 with our constituencies and to build awareness and support. These forums will be offered at
15 various locations to facilitate participation by a broad range of constituents.

16
17 ***Activity CBO-3.3: Continue to seek out and support partnership opportunities that focus on
18 Oceania-related issues.***

19 As the Hawaiian Archipelago is most closely related to other sites across Oceania, it is important
20 for the Monument to collaborate with a network of marine managed areas in this region. These
21 partnerships will allow for a greater exchange of knowledge and expertise. They will also
22 provide opportunities to build awareness about the important connection between cultural and
23 conservation practices.

24
25 ***Activity CBO-3.4: Continue to build and nurture volunteer programs that develop knowledge
26 of, involvement in, and support for Monument programs and resources.***

27 Volunteers offer an opportunity to build a new base of constituents who are closely connected to
28 and involved in efforts of the Monument. Volunteers are essential in carrying out our mission to
29 protect this valuable resource. We will work to enhance existing efforts and to build capacity to
30 support these important efforts.

31
32 Long-term volunteers help with outreach and education needs, especially at Mokupāpapa
33 Discovery Center and Midway Atoll, and with habitat restoration and wildlife monitoring,
34 especially at Tern Island, Laysan Island, Midway Atoll, and Kure Atoll. In addition, we will
35 incorporate Midway Atoll visitors into volunteer programs for habitat restoration, wildlife
36 population monitoring, and historic restoration projects, as outlined in the Midway Atoll Visitor
37 Services Plan. Overnight visitors will be encouraged to participate in volunteer activities,
38 including eradication of invasive plants, collection of marine debris, and restoration of native
39 plants and historic structures. Many visitors want to “give something back” to the environment
40 during their time on the atoll, and these activities will help restore acres of habitat.

41
42 ***Activity CBO-3.5: Establish and support a Papahānaumokuākea Marine National Monument
43 Alliance to engage a broad range of constituents, who will provide recommendations and
44 information on specific management issues on a regular basis.***

45 A Monument Alliance will be established as a community support group to exchange
46 information; provide community input and provide individual recommendations on Monument

1 policies, activities, and management; advocate for Monument conservation; enhance broader
 2 community understanding; and address specific issues. The Alliance will be composed of
 3 established groups and individuals who are directly interested in the Monument and the
 4 conservation of its resources. Before the Alliance is established, the MMB will conduct a
 5 reasoned analysis to identify and recommend specific purposes and roles of the Alliance. The
 6 assessment may include, but not be limited to, cumulative impacts and related issues that stem
 7 from human activity within the Monument. Meetings of the Monument Alliance will be
 8 convened on a regular basis, with specific topics identified for each meeting. The meetings will
 9 be well publicized and open to the public, and will be held at various locations to facilitate
 10 participation by a broad range of constituents.

11
 12 ***Activity CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through
 13 the Office of Hawaiian Affairs.***

14 This group comprises members of the Native Hawaiian community who provide guidance to the
 15 State of Hawai‘i through the Office of Hawaiian Affairs. This group has offered support on
 16 permit review and cultural protocols, and provided the Monument with its name. By better
 17 incorporating Hawaiian culture into Monument management, we gain long-term support and
 18 greater understanding from the community that represents the host culture of the entire Hawaiian
 19 Archipelago.

20
 21 ***Activity CBO-3.7: Continue working with the Friends of Midway Atoll National Wildlife
 22 Refuge through FWS and support the establishment of a Monument-related “friends” group.***

23 The Friends of Midway Atoll National Wildlife Refuge is a nonprofit group that was formed in
 24 1999 and currently has more than 200 members from across the Nation who contribute to the
 25 interpretation, recreation, and educational programs of the Refuge. In addition to continuing to
 26 work with the Friends of Midway Atoll National Wildlife Refuge, we will work with other
 27 Monumentwide “friends” groups if established.

28
 29 ***Activity CBO-3.8: Continue to convene the Northwestern Hawaiian Islands Coral Reef
 30 Ecosystem Reserve Advisory Council through NOAA’s National Marine Sanctuary Program
 31 until the Monument Alliance is established.***

32 The Reserve Advisory Council was formed in 2001 and has served as a mechanism for public
 33 input and a venue for public comment on management activities. The composition of the
 34 Reserve Advisory Council is designed to provide formal advice from a variety of stakeholder
 35 viewpoints and geographic representation. Continuing the RAC would provide a public forum
 36 for members of the community and constituencies to allow for input on the Reserve until such a
 37 mechanism is established for the Monument.

38
 39 **CBO- 4: Develop and implement an overarching Monument interpretive strategy,
 40 including site-specific planning documents for the Monument’s visitor facilities, within
 41 5 years.**

42
 43 As one of many means of communication, several facilities that interpret Monument resources
 44 and activities have been developed, most of them prior to designation of the Monument. The
 45 overarching Monument interpretive strategy will identify the Monument’s interpretive themes,
 46 audiences, messages, and media, and include information on project priorities, costs, staffing

1 needs, and schedules. It will also include evaluation strategies and maintenance schedules. By
2 unifying all Monument interpretation under a single strategy, the MMB can ensure targeted,
3 appropriate messages are delivered to our constituents in a consistent manner that leads to
4 achievement of Monument goals.

5
6 ***Activity CBO-4.1: Develop interagency Monument interpretive themes to guide all interpretive
7 products and activities.***

8 Although initial discussions of Monumentwide interpretive themes have been held among the
9 Co-Trustee agencies, a more focused study is needed. These interpretive themes will guide the
10 development and presentation of interpretive sites and products, linking tangible resources to
11 intangible meanings, creating emotional and intellectual connections to the meanings of the
12 resource, and making the Monument personally relevant to individuals.

13
14 ***Activity CBO-4.2: Review existing interpretive sites and activities to determine their current
15 relevance to the Monument and how they could better represent Monument themes.***

16 Two existing interpretive facilities—Mokupāpapa: Discovery Center for Hawai‘i’s Remote
17 Coral Reefs in Hilo, Hawai‘i, and the Midway Atoll National Wildlife Refuge visitor center on
18 Sand Island, Midway Atoll—and the proposed visitor facility at NOAA’s Pacific Regional
19 Center on Ford Island, O‘ahu, will be reviewed and updated so that they better reflect the
20 Monument as a whole.

21
22 ***Activity CBO-4.3: Seek additional opportunities to expand Monument interpretive efforts to
23 new sites and through new technologies, creating a network of coordinated interpretive sites.***

24 The MMB will identify new sites and technologies to better reach our audiences. In many cases,
25 we will work with private or other government entities to include Monument messages in
26 broader arenas. Possible partnership opportunities exist in aquaria, schools and universities,
27 parks, government buildings, hotels, and many other locations.

28
29 ***Activity CBO-4.4: Working with the National Park Service, U.S. Navy, and other key entities,
30 develop off-site exhibits on the Battle of Midway and the associated National Memorial to be
31 integrated into World War II memorial sites of the Pearl Harbor Historic District.***

32 In establishing the Battle of Midway National Memorial at Midway Atoll, FWS was charged
33 with ensuring that the heroic courage and sacrifice of those involved in the Battle will never be
34 forgotten. Although this will be an important interpretive theme at Midway Atoll, a relatively
35 small number of visitors will be reached. A much broader audience will be found within the
36 Pearl Harbor Historic District, where the USS Arizona Memorial, USS Missouri, USS Bowfin,
37 and sites on Ford Island receive at least 1.5 million visitors each year. The MMB working with
38 partner agencies and other key entities will develop exhibits about the Monument that can be
39 integrated with other existing interpretative facilities and sites.

1 **Table 3.5.2 Summary of Strategies, Activities, and Agency Leads for Constituency Building and**
 2 **Outreach**
 3

Strategies and Activities	Agency Lead
Strategy CBO-1: Develop and implement an integrated communications strategy, based on an assessment of ongoing activities and future needs, to coordinate outreach and engage Monument constituencies within 5 years.	
Activity CBO-1.1: Develop an integrated communications strategy based on an assessment of ongoing activities and future needs.	NOAA OHA State of Hawai‘i FWS
Activity CBO-1.2: Continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument’s resources and activities.	NOAA OHA State of Hawai‘i FWS
Activity CBO-1.3: Develop a consistent Monument identity to be used in all communications strategies that reflects its comanagement within 1 year.	NOAA OHA State of Hawai‘i FWS
Activity CBO-1.4: Incorporate new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystems literacy and conservation in the Monument within 5 years.	NOAA
Activity CBO-1.5: Research and implement new technologies and tools to increase public understanding of the NWHI ecosystems within 5 years.	NOAA
Strategy CBO-2: Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan.	
Activity CBO-2.1: Establish a new Monument website that will allow constituents to visit a single site for all Monument-related information within 1 year.	NOAA
Activity CBO-2.2: Continue to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument.	NOAA OHA State of Hawai‘i FWS
Activity CBO-2.3: Support other entities’ efforts to broaden knowledge of and appreciation for Monument resources and management priorities.	NOAA OHA State of Hawai‘i USFWS
Strategy CBO-3: Continue initiatives that allow Monument constituencies to be more involved in the Monument and enhance opportunities for long-term engagement over the life of the plan.	
Activity CBO-3.1: Continue to seek out and participate in events that reach a broader audience and provide constituents with knowledge of the Monument.	NOAA OHA State of Hawai‘i FWS
Activity CBO-3.2: As needed, hold focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents.	NOAA OHA State of Hawai‘i FWS

1

Activity CBO-3.3: Continue to seek out and support partnership opportunities that focus on Oceania-related issues.	NOAA
Activity CBO-3.4: Continue to build and nurture volunteer programs that develop knowledge of, involvement in, and support for Monument programs and resources.	FWS
Activity CBO-3.5: Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will provide recommendations and information on specific management issues on a regular basis.	NOAA
Activity CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through the Office of Hawaiian Affairs.	OHA
Activity CBO-3.7: Continue working with the Friends of Midway Atoll National Wildlife Refuge through FWS and support the establishment of a Monument-related “friends” group.	FWS
Activity CBO-3.8: Continue to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA’s National Marine Sanctuary Program until the Monument Alliance is established.	NOAA
Strategy CBO-4: Develop and implement an overarching Monument interpretive strategy, including site-specific planning documents for the Monument’s visitor facilities, within 5 years.	
Activity CBO-4.1: Develop interagency Monument interpretive themes to guide all interpretive products and activities.	FWS NOAA
Activity CBO-4.2: Review existing interpretive sites and activities to determine their current relevance to the Monument and how they could better represent Monument themes.	FWS
Activity CBO-4.3: Seek additional opportunities to expand Monument interpretive efforts to new sites and through new technologies, creating a network of coordinated interpretive sites.	NOAA FWS
Activity CBO-4.4: Working with the National Park Service, U.S. Navy, and other key entities, develop off-site exhibits on the Battle of Midway and the associated National Memorial to be integrated into World War II memorial sites of the Pearl Harbor Historic District.	FWS

2

1 3.5.3 Native Hawaiian Community Involvement Action Plan

3 Desired Outcome

5 Engage the Native Hawaiian community in active and
7 meaningful involvement in Papahānaumokuākea
9 Marine National Monument management.

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.5.1	Agency Coordination
3.5.2	Constituency Building and Outreach

11 Current Status and Background

13 The Executive order that designated the NWHI Coral Reef Ecosystem Reserve
15 (Reserve) in 2000 required that Native Hawaiians, among others, provide
17 advice regarding management of the Reserve and ensuring the continuance of
19 Native Hawaiian practices. It did so through provisions allowing for “culturally
21 significant, noncommercial subsistence, cultural, and subsistence uses” in the
23 Reserve by Native Hawaiians, and set aside three voting seats on the Reserve
25 Advisory Council for Native Hawaiians. During its first 5 years of operation,
27 the Advisory Council established a Native Hawaiian Cultural Working Group, which broadened
28 the inclusion of Native Hawaiians in the operations of the Reserve and in planning for a proposed
29 National Marine Sanctuary.

Links to Goals
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
Goal 7

30 In addition to Native Hawaiian representation on the Advisory Council and the establishment of
31 a Native Hawaiian Cultural Working Group, the Reserve began efforts to consult with the Native
32 Hawaiian community through a grant to the University of Hawai‘i’s Kamakakūokalani Center
33 for Hawaiian Studies. This grant provided an opportunity for Native Hawaiians to develop the
34 content of NOAA’s report on the cultural history of the NWHI from an indigenous point of view.
35 The grant also convened key Native Hawaiian community members for a 2-day planning session
36 to make recommendations about future research, educational, and cultural activities that should
37 be made available to Native Hawaiians and others to ensure a strong cultural link in the planning
38 and management of the Reserve and throughout the Sanctuary designation process.

39 These efforts provided a foundation for
40 Native Hawaiian involvement in the
41 Reserve, and this foundation has
42 continued and expanded in the
43 management of the Monument. Many
44 Native Hawaiians remain unaware of
45 efforts under way to protect the NWHI
46 through management of the Monument.
47 Although several prominent members
48 of the Native Hawaiian community
49 have been involved in the management
50 and implementation of the Reserve,
52 many others should be engaged, in part
54 by working more closely with Native
56 Hawaiian institutions.



Participants of the 2004 NWHI workshop on Native Hawaiian issues and concerns held at Kamakakūokalani Center for Hawaiian Studies at U.H. Mānoa. Photo: Dr. Kekuni Blaisdell

57 The Reserve set a standard for recognition and inclusion of Native Hawaiians in determining the
58 future management of the NWHI. Strategies will be developed to involve the Native Hawaiian

1 community in the management of the Monument not only because of strong public support, but
2 also because of the mandates of the National Marine Sanctuary Program to protect biological and
3 cultural resources in the areas it manages, of the FWS to preserve historic sites as well as
4 conserve and promote wildlife and their habitat, and of the State to protect ceded lands and the
5 rights of Native Hawaiians.

6 An increasing number of resource management and conservation partnerships are being formed
7 between indigenous groups and governmental bodies worldwide. In Hawai‘i, the Kaho‘olawe
8 Island Reserve Commission and Mo‘omomi, Moloka‘i partnerships are examples of how
9 traditional knowledge and values are integrated into resource management. An international
10 example is seen in New Zealand, where Maori involvement in government conservation
11 management projects ranges from consultation to full control over marine and terrestrial tribal
12 regions.

13 The Native Hawaiian community has expressed a strong interest in participating in management
14 decisions affecting the Reserve and Monument. Respecting Native Hawaiian traditions and
15 values and providing an effective degree of participation in the protection and stewardship of the
16 Monument will provide an opportunity for Native Hawaiians to maintain ancestral connections
17 to the NWHI. Such connections will continue to further ongoing reconciliation efforts between
18 Native Hawaiians and the United States, as directed by the Apology Bill (United States Public
19 Law 103-150) in 1993.

20 Efforts are needed to directly engage Native Hawaiians in a variety of ways. Specific and
21 meaningful inclusion of Native Hawaiians and Native Hawaiian perspectives in the
22 management of natural, cultural, and historic resources is increasingly being incorporated in
23 Western management practices used throughout the islands today. Historically, resource
24 management in Hawai‘i has largely excluded Native Hawaiians. Given this history, trust must
25 be built within the Native Hawaiian community before significant progress may be made. The
26 MMB is committed to working with the Native Hawaiian community to identify specific and
27 meaningful ways of engagement in managing the Monument. A variety of strategies to promote
28 this engagement have been identified in this action plan as well as those in section 3.1.2, the
29 Native Hawaiian Culture and History Action Plan.

30

31 **Need for Action**

32 Numerous public comments collected during the scoping process for the proposed National
33 Marine Sanctuary identified the need to include Native Hawaiians and Native Hawaiian
34 traditional resource management practices in the management of the NWHI. Communities also
35 expressed concern that Native Hawaiians must have access to continue cultural practices in the
36 region. The comments indicated the need for direct consultation with Native Hawaiians, or more
37 consultation over and beyond the representation of Native Hawaiians currently included in the
38 management of the Monument.

39 The inclusion of terrestrial areas (particularly Nihoa, Mokumanamana, and Kure Atoll) and waters
40 in the Monument creates a greater urgency to include Native Hawaiian perspectives in the
41 Monument’s management. All of the documented Native Hawaiian archaeological sites in the
42 NWHI are on Nihoa and Mokumanamana; they hold some of the densest scatters or concentrations
43 of prehistoric structural sites in Hawai‘i; and they represent a pure example of the culture

1 prevailing in Hawai‘i before the 13th century. Of further importance, the Constitution of the State
 2 of Hawai‘i requires the State to care for Hawai‘i’s trust resources and recognizes the State’s
 3 obligation to work for the perpetuation and enhancement of Native Hawaiians. Given the unique
 4 history and constitutional and statutory requirements of the State to protect the claims and rights of
 5 Native Hawaiians in their homeland, the Native Hawaiian community must be involved in the
 6 planning, management, and operations of the Monument.

7 **Strategies to Achieve the Desired Outcome**

8 Three strategies have been identified for achieving the desired outcome of engaging the Native
 9 Hawaiian community in active and meaningful involvement in Monument management. The
 10 strategies and activities are coded by the acronym for the action plan title, “Native Hawaiian
 11 Community Involvement” (NHCI). A summary of strategies and activities is provided in Table
 12 3.5.3 at the end of this action plan.

- 13 • NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan.
- 14 • NHCI-2: Develop and annually maintain partnerships with Native Hawaiian
 15 organizations and institutions.
- 16 • NHCI-3: Identify and integrate Native Hawaiian traditional ecological knowledge and
 17 management concepts into Monument management annually for the life of the plan.

18 **Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the** 19 **plan.**

20
 21
 22 The MMB includes representation by the Office of Hawaiian Affairs. Currently, OHA is the only
 23 State agency with a statutory mandate to advocate for Native Hawaiians and to assess the
 24 policies and practices of other agencies’ impacts on Native Hawaiians. OHA, on behalf of the
 25 MMB, will continue to convene the Native Hawaiian Cultural Working Group to obtain advice
 26 and guidance from Native Hawaiian cultural experts, including kūpuna (respected elders) and
 27 practitioners, on all Monument actions affecting Native Hawaiians and cultural resources in the
 28 Monument. Over time, the MMB may develop other mechanisms to bring together Native
 29 Hawaiians to participate in Monument activities and management.

30 ***Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working*** 31 ***Group.***

32 During year 1, the MMB, through OHA, will formally establish a cultural working group,
 33 expanding the previously established working group, to ensure a strong cultural link in the
 34 planning and management of the Monument. Like its predecessor, this body would consist of
 35 kūpuna, cultural practitioners, Native Hawaiian resource managers, and others (see section 3.5.2,
 36 the Constituency Building and Outreach Action Plan).

37 38 ***Activity NHCI-1.2: Engage the Native Hawaiian Cultural Working Group in the development*** 39 ***of a Monument Cultural Resources Program.***

40 The MMB will work with the Native Hawaiian Cultural Working Group and other Native
 41 Hawaiian organizations and institutions to develop a Monument Cultural Resources Program and
 42 corresponding cultural resource management activities. (See section 3.1.2, the Native Hawaiian
 43 Culture and History Action Plan.)

1
2 ***Activity NHCI-1.3: Establish an annual cultural resources exchange.***
3 The MMB will annually convene groups of Native Hawaiians who have visited the Monument to
4 provide a safe venue to discuss the knowledge, experiences, and new questions gained during the
5 past research season. The MMB will also update the Native Hawaiian community on its lessons
6 learned from the last research season, including synopses of nonproprietary cultural reflections
7 provided in various permittees' final reports. This conference will not only update the Native
8 Hawaiian community, but will also engage that community in determining the priorities and
9 proposed methodologies of forthcoming research queries, theories, and needs. (See section
10 3.1.2, the Native Hawaiian Culture and History Action Plan.)

11 **Strategy NHCI-2: Develop and annually maintain partnerships with Native Hawaiian**
12 **organizations and institutions.**

13 Memoranda of Understanding, grant programs, and cooperative agreements have been useful in
14 developing working relationships with partner agencies and organizations. Partnerships with
15 Native Hawaiian organizations could similarly help to strengthen that community's involvement
16 in Monument management and the development and implementation of programs involving
17 Native Hawaiians. Partnering will help the Monument to consult with the broader Native
18 Hawaiian community and aid in gathering information about cultural resources and practices.

19 ***Activity NHCI-2.1: Continue to expand and explore opportunities to partner with institutions***
20 ***servicing Native Hawaiians.***

21 In 2003, the Reserve established a partnership with the Kamakakūokalani Center for Hawaiian
22 Studies and the University of Hawai'i to conduct cultural research, consult with the Native
23 Hawaiian community, and produce educational materials related to the Northwestern Hawaiian
24 Islands. The MMB will seek other opportunities to formally consult with and engage other
25 Native Hawaiian groups and will develop outreach programs for the Native Hawaiian
26 community. (Interagency partnerships are also addressed in section 3.5.1, the Agency
27 Coordination Action Plan.) Additional partnerships, contracts, grants, or formal agreements with
28 Native Hawaiian organizations will be considered and established as opportunities arise.
29

30 **Strategy NHCI-3: Identify and integrate Native Hawaiian traditional ecological knowledge**
31 **and management concepts into Monument management annually for the life of the plan.**
32

33 Traditional resource management involved recognizing local variations, observing patterns,
34 periodically applying kapu (restrictions on resource extraction and other activities) by konohiki
35 (local managers), and maintaining a deep respect for, and intimate knowledge of, the
36 environment. Integrating traditional ecological knowledge will not only strengthen the
37 relationship between Monument managers and the Native Hawaiian community, it will also
38 provide additional tools and methods for improving management practices. This relationship
39 will also perpetuate the application of traditional ecological knowledge across the Hawaiian
40 Archipelago.
41
42
43

1 ***Activity NHCI-3.1: Engage the Native Hawaiian community to identify how traditional***
2 ***ecological knowledge will be integrated into Monument activities.***

3 The Monument’s cultural resources staff, to be developed pursuant to the Native Hawaiian
4 Culture and History Action Plan (section 3.1.2), will work with the Native Hawaiian community
5 and cultural experts to preserve and recover the knowledge of traditional Hawaiian resource
6 management strategies and to identify how traditional ecological knowledge and associated
7 practices may be woven into Monument management and research activities. This will include
8 developing recommendations for integrating these skills and knowledge into Monument
9 management, and preparing a report of the recommendations within 2 years.

10

11 ***Activity NHCI-3.2: Use and integrate Native Hawaiian traditional ecological knowledge in***
12 ***Monument management activities.***

13 Based on recommendations developed under Activity NHCI-3.1, the MMB will integrate
14 traditional perspectives, knowledge, and approaches in the management of Monument resources.

15

1
2
3
4

Table 3.5.3 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Community Involvement

Strategies and Activities	Agency Lead
Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan.	
Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group.	OHA
Activity NHCI-1.2: Engage the Native Hawaiian Cultural Working Group in the development of a Monument Cultural Resources Program.	OHA
Activity NHCI-1.3: Establish an annual cultural resources exchange.	OHA
Strategy NHCI-2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.	
Activity NHCI-2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians.	OHA NOAA
Strategy NHCI-3: Identify and integrate Native Hawaiian traditional ecological knowledge and management concepts into Monument management annually for the life of the plan.	
Activity NHCI-3.1: Engage the Native Hawaiian community to identify how traditional ecological knowledge will be integrated into Monument activities.	NOAA
Activity NHCI-3.2: Use and integrate Native Hawaiian traditional ecological knowledge in Monument management activities.	NOAA

5

3.5.4 Ocean Ecosystems Literacy Action Plan

Desired Outcome

Cultivate an ocean ecosystems stewardship ethic, contribute to the Nation’s science and cultural literacy, and create a new generation of conservation leaders through formal environmental education.

Links to other Action Plans	
All action plans in:	
3.1	Understanding and Interpreting the NWHI
3.2	Conserving Wildlife and their Habitats
3.3	Reducing Threats to Monument Resources
3.4	Managing Human Uses

Current Status and Background

Prior to the establishment of the Monument, the Co-Trustees took active steps to address the need for ocean ecosystems literacy. Adopting a cooperative approach has exponentially enhanced and extended the agencies’ educational efforts. Educational partnerships have enabled the implementation of programs far beyond the resources of any one agency, institution, or organization alone.

Links to Goals
Goal 5
Goal 6
Goal 8

The NWHI provide a model and rare benchmark of a healthy, intact ecosystem, conserved in its natural state, that may serve to inspire Hawai‘i residents, all Americans, and the global community to take part in ocean restoration efforts. This guiding premise led resource management agencies and partners to found the multiyear “Navigating Change” project, which focuses on raising awareness and motivating people to change their attitudes and behaviors to better care for Hawai‘i’s land and ocean resources. A five-part video, standards-based educational curriculum, and teleconferences with the traditional Polynesian voyaging canoe *Hōkūle‘a* during its 2004 expedition to the NWHI have been completed in partnership with several agencies and organizations. Teacher workshops on the “Navigating Change” program have been held since 2003 across Hawai‘i. The MMB also organized a number of education-at-sea initiatives.

The multiagency educational partnership remains active and fluid and continues to work well even in the absence of formal agreements because of the clear benefits to all parties. Shared objectives include information sharing, aligning education with management needs, setting regional priorities, reducing duplication of efforts, and sharing resources. Through partnering, organizations and agencies are better able to meet their educational mandates. Partnerships take advantage of existing expertise and experience, as well as preexisting markets for educational outreach. Cost and staff sharing of education and outreach programs help to alleviate limited funding and staffing issues for these programs.

Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs

The Reserve built a visitor/education center colocated with its Hilo office to



Students visit Mokupāpapa Discovery Center in Hilo.
Photo: James Watt

1 spur greater public awareness of the region and ocean conservation issues. Mokupāpapa:
2 Discovery Center for Hawai‘i’s Remote Coral Reefs was conceived and built in 2003 to interpret
3 the natural science, culture, and history of the NWHI and surrounding marine environment. The
4 4,000-square foot center brings the region to people by proxy, since most will never have the
5 opportunity to visit the area. At the time of this publication, over 200,000 people have been
6 exposed to the wonders of the NWHI through the center. The center has served as a physical hub
7 of learning, regularly hosting well-attended educational talks, summer programs, and activities,
8 while drawing a constant stream of field trips coorganized by Reserve staff, as well as school and
9 community groups from around the State and beyond.

11 **Need for Action**

12 The U.S. Commission on Ocean Policy (2004) stressed the need to strengthen the Nation’s ocean
13 awareness and to improve ocean-related education efforts as “critical to building an ocean
14 stewardship ethic, strengthening the nation’s science literacy, and creating a new generation of
15 ocean leaders.” The report concluded that an interested, engaged public is an essential
16 prerequisite “to successfully address complex ocean- and coastal-related issues, balance the use
17 and conservation of marine resources, and realize future benefits from the ocean.”

18
19 The President’s Ocean Action Plan places a major emphasis on ocean-related awareness and
20 education. This action plan addresses the need to build upon our environmental education efforts
21 to cultivate students as an informed, involved constituency that cares about restoring, protecting,
22 and conserving our precious ocean resources. Strengthening awareness of the importance of the
23 NWHI as a model of a wild marine ecosystem being maintained in its natural state requires a
24 heightened focus on stewardship values and resource management issues through both formal and
25 informal education efforts. School curricula, starting in kindergarten, will expose students to ocean
26 issues and prepare the next generation of scientists, managers, educators, and leaders through
27 diverse educational opportunities. Further, students’ increased understanding is anticipated to
28 naturally influence their families, extending the extracurricular reach of the Monument’s
29 educational activities.

31 **Strategies to Achieve the Desired Outcome**

32 Monument staff will work closely with existing and new partners to further their environmental
33 education goals. Two strategies have been identified to cultivate an ocean ecosystem ethic,
34 strengthen the Nation’s science literacy, and create a new generation of conservation leaders.
35 The strategies and activities are coded by the acronym for the action plan title, “Ocean
36 Ecosystems Literacy” (OEL). A summary of strategies and activities is provided in Table 3.5.4 at
37 the end of this action plan.

- 39 • OEL-1: Develop and implement educational programs in Hawai‘i to increase ocean
40 ecosystems literacy and promote stewardship values within 5 years.
- 41 • OEL-2: Develop and implement new tools to “bring the place to the students,” rather than
42 the students to the place, within 3 years.

1 **Strategy OEL-1: Develop and implement educational programs in Hawai‘i to increase**
 2 **ocean ecosystems literacy and promote stewardship values within 5 years.**

3
 4 A coordinated and long-term strategy for mainstreaming NWHI and ocean ecosystem
 5 stewardship values-based educational materials into Hawai‘i’s schools will be developed.
 6 Appropriate educational materials and curricula geared to increase ocean literacy and ocean
 7 stewardship will be developed in concert with the NWHI education partnership and the State of
 8 Hawai‘i Department of Education, Independent Schools of Hawai‘i, Nā Lei Na‘auao Native
 9 Hawaiian Charter School Alliance, and the Charter School Association of Hawai‘i. Materials
 10 developed through activities in other action plans will be used as resource and support materials
 11 for development of curricula. Programming will also be developed in the Hawaiian language for
 12 use in Hawaiian language immersion and culture-based charter schools. Ultimately, increased
 13 knowledge of ocean ecosystems issues, in particular of the NWHI, will allow Hawai‘i’s children,
 14 their families, and lifetime learners to be more active ocean stewards and to better understand the
 15 issues related to ocean management.

16
 17 ***Activity OEL-1.1: Expand and improve the NWHI educational partnership’s Navigating***
 18 ***Change curriculum for elementary and middle school students, with increased focus on ocean***
 19 ***ecosystems literacy, within 3 years.***

20 Building upon existing NWHI-based curricula developed under the Navigating Change partnership
 21 and the new Hawai‘i Marine Curriculum, the MMB will contract with curricula developers to
 22 improve and expand “A Teacher’s Guide to Navigating Change.” Additional study units will be
 23 added for the current guide targeted at 4th and 5th grade students, and units focusing on other grade
 24 levels will be developed. As the effects of climate change are further studied and potential
 25 mitigations are identified, a unit on this topic could be developed. External grants for curricula
 26 development will also be sought. Education partners will work with the Department of Education
 27 and private and charter schools as curricula are being developed to ensure that the Department’s
 28 and schools’ needs are incorporated into the work and to facilitate incorporation of the new
 29 curricula into existing educational programming. Whenever possible, families will be drawn into
 30 the lesson plans and activities. Planting the seed of awareness in young minds and those of their
 31 families concerning alien species, climate change and ocean acidification, and marine debris
 32 cleanup and prevention issues will effectively support long-range prevention efforts to deal with
 33 these threats.

34
 35 ***Activity OEL-1.2: As curricula are developed, work with Hawaiian-language immersion***
 36 ***schools and the Office of Hawaiian Affairs to ensure the curricula meet their needs, including***
 37 ***translation into the Hawaiian language.***

38 The Navigating Change partnership will work closely with the Native Hawaiian community to
 39 ensure appropriate cultural information is included within all curricula, and that the units meet the
 40 needs of Hawaiian-language immersion and culture-based charter schools.

41
 42 ***Activity OEL-1.3: Develop an ocean stewardship program for middle school and high school***
 43 ***students within 5 years.***

44 In concert with development of Navigating Change educational materials for primary schools, an
 45 ocean stewardship program will be developed with educational partners to give middle and high
 46 school students real-world, hands-on experience with the issues of ocean management. Real
 47 examples from the Monument will be used as the basis for the science- and culture-based

1 program, which will use educational activities such as interviews with people in the student's
2 communities, and collecting and analyzing research data to resolve management issues. Through
3 these activities, students will be encouraged to apply their newfound knowledge to help restore
4 the ecosystems closer to their homes.

5
6 ***Activity OEL-1.4: Conduct at least four teacher workshops in the main Hawaiian Islands per
7 year to introduce and support the elementary school and middle/high school environmental
8 education programs.***

9 Teacher workshops to present and demonstrate the use of Monument-developed educational
10 materials, activities, and curricula, as well as those developed with partners, are effective ways to
11 get Monument-based information into classrooms and informal education venues. Development
12 and distribution of educational materials is not enough; teachers are often overwhelmed by
13 available materials and should be taught how to use them, assisted in implementing materials in
14 their classrooms, and supported by followup activities.

15
16 ***Activity OEL-1.5: Continue Teacher and Class-at-Sea programs on an annual basis.***

17 In 2005, the first teacher and class-at-sea educational expedition to the NWHI was conducted.
18 During NOAA vessel allocation meetings, NOAA agreed to accommodate annual education
19 missions aboard one of the several research vessels active in the NWHI. Teachers who have been
20 active in using existing Monument educational materials will be chosen to participate in these
21 educational cruises, and select students will be sought. These programs allow teachers and
22 students who are active in learning about the NWHI to experience the area firsthand and share the
23 wonder of the place with the rest of the educational community. Annual expeditions will be
24 planned in conjunction with educational opportunities with State and FWS partners. Monument
25 educational materials developed in activity OEL-1.3 will be used during these expeditions. For
26 linked activities, see also the Native Hawaiian Culture and History Action Plan, strategy NHCH-5,
27 in section 3.1.2.

28
29 ***Activity OEL-1.6: Expand educational programs for school groups at Mokuapāpapa:
30 Discovery Center for Hawai'i's Remote Coral Reefs to host at least 10 groups per month.***

31 Educational programming at the Monument's premier education and outreach venue,
32 Mokuapāpapa: Discovery Center for Hawai'i's Remote Coral Reefs, will be expanded. Working
33 closely with local public, private, and charter schools, Discovery Center staff will create
34 educational partnerships to promote Mokuapāpapa as an educational facility and field trip venue.
35 Discovery Center staff will collaborate with the Monument's educational partners to codevelop
36 standards-based education programs at the Discovery Center for K-12 students. Visitation
37 calendars, pre- and post-visit teacher background and activities packets, and volunteer docent
38 capacity will be developed to meet the various needs of school and community groups.
39 Expanded programming, such as guided tours in the Hawaiian language, monthly talks, tide pool
40 classes, and reef-at-night visits to the aquarium, will provide continuing education opportunities
41 for adults. Discovery Center staff will work with partner facilities and agencies on Hawai'i
42 Island to codevelop on- and off-site programming, where appropriate, and to develop an
43 education strategy and identify areas of collaboration.

1 ***Activity OEL-1.7: Provide biennial wildlife-dependent educator workshops at Midway Atoll,***
 2 ***targeting a mix of science teachers and those from other fields of education and using the***
 3 ***Navigating Change curricula, within 2 years.***

4 The goal of these biennial educator workshops is to inspire a new group of educators to use
 5 environmental education as a method of connecting students and lifetime learners to Hawai‘i’s
 6 wildlife and culture. Over the past 5 years, more than 15 workshops have been conducted on the
 7 main Hawaiian Islands to introduce the standards-based Navigating Change curriculum to local
 8 teachers. The major themes included within the curriculum could provide the stepping stones for
 9 future development of educational activities such as telepresence, distance learning projects, and
 10 ocean stewardship programs.

11
 12 Agency planning for Midway Atoll educator workshops began in 2007, and a focus group of
 13 teachers, curriculum developers, educational leaders, and Navigating Change Educational
 14 Partnership members held a planning workshop on Midway Atoll in January 2008. The 2009
 15 educator workshop and beyond will be conducted mainly by the focus group educators, with
 16 support from the Navigating Change Educational Partnership. As curricula geared at new grade
 17 levels and targeting different audiences are developed, the number of educator workshops
 18 offered within the Monument may increase. Offering more educators the opportunity to
 19 experience Midway Atoll and bring the Monument back to their students and lifetime learners
 20 will be an important role for Midway in the coming years.

21
 22 ***Activity OEL-1.8: Facilitate at least two opportunities per year for accredited colleges,***
 23 ***universities, or private/nonprofit environmental or historical organizations to conduct wildlife-***
 24 ***dependent or historical college-level courses or administer informal educational camps, within***
 25 ***2 years.***

26 Organizations have already shown their interest in using Midway for educational experiences,
 27 since it provides unparalleled wildlife-dependent educational opportunities. Sponsoring
 28 organizations will be responsible for providing instructors and leading their participants.
 29 Monument staff will provide guidance during a mandatory advance orientation. When possible,
 30 Monument staff can provide learning opportunities that engage participants in biological and
 31 historical projects such as habitat restoration or historic preservation. FWS staff will also
 32 monitor group activities to ensure Midway’s wildlife and historic resources are protected.

33
 34 The MMB also will collaborate with universities to offer semester internship opportunities for
 35 students interested in resource management, cultural studies, history, or natural sciences. In the
 36 future, the MMB will investigate opportunities to bring select middle and high school students to
 37 Midway for courses in atoll ecosystems. The MMB supports expanding environmental
 38 education opportunities to the extent feasible on Midway Atoll. Developing lower-cost housing
 39 and increasing classroom and laboratory space will facilitate these programs. An opportunity to
 40 study Midway’s unique natural resources could be the catalyst to inspire lifelong devotion to the
 41 field of science.

42
 43 ***Activity OEL-1.9: Build formal evaluations into all education programs within 2 years.***

44 Evaluation of education and outreach programs and activities is critical to ensuring that the
 45 MMB is achieving its desired goals and reaching target audiences. This information is also

1 useful in helping to redesign current efforts to be more successful. Formal evaluations take time,
2 expertise, and will require external assistance in development.

3
4 **Strategy OEL-2: Develop and implement new tools to “bring the place to the students,”**
5 **rather than the students to the place, within 3 years.**

6
7 The Monument will serve as a powerful focal point for increasing ocean literacy in Hawai‘i, the
8 Nation, and the world. To engage a broad and diverse base of students around the world, the
9 MMB will continuously expand the types of products and modes of communication used in
10 educational programs. The MMB will benefit from continually exploring new research initiatives,
11 new technologies, and best management practices that may advise its efforts and enhance its ability
12 to restore, protect, and conserve Monument resources.

13
14 ***Activity OEL-2.1: Identify and prioritize research and development projects to increase ocean***
15 ***ecosystems literacy and conservation in NWHI.***

16 The MMB, working together with educational partnerships and other relevant groups, including
17 the private sector, will identify and prioritize research and development projects for new
18 products and innovative technologies that could be employed to increase ocean ecosystems
19 literacy and support for conservation of the NWHI. These tools may include technologies for
20 making remotely collected scientific data available for education purposes on a real-time basis,
21 and the possibility of hosting student research projects in the Monument, similar to what NASA
22 does with the space shuttle and space station. Since the challenges of increasing awareness of
23 the Monument have been likened to those involved in increasing understanding of space, the
24 MMB will work with NASA to learn from their extensive education programs.

25
26 ***Activity OEL-2.2: Use telepresence technology for educational and outreach activities within***
27 ***5 years.***

28 Telepresence is an important tool for helping to educate the larger community about the special
29 ocean region of the NWHI. Since most people will not be able to visit the NWHI due to its
30 remoteness and fragility, it is important to bring the place to the people. Technologies such as
31 underwater video cameras, real-time video transmission, virtual field trips, formal distance
32 learning programs, website interfaces, and exhibits in discovery centers can play an important
33 role in educating students and the public about the NWHI. Obstacles to implementing these
34 technologies do exist, such as cost, feasibility, and ecological sensitivities, but the MMB will
35 continue to invest in and use new technologies for providing this virtual experience.

1 **Table 3.5.4 Summary of Strategies, Activities, and Agency Leads for Ocean Ecosystems**
 2 **Literacy**
 3

Strategies and Activities	Agency Lead
Strategy OEL-1: Develop and implement educational programs in Hawai‘i to increase ocean ecosystems literacy and promote stewardship values within 5 years.	
Activity OEL-1.1: Expand and improve the NWHI educational partnership’s Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within 3 years.	NOAA FWS
Activity OEL-1.2: As curricula are developed, work with Hawaiian-language immersion schools and the Office of Hawaiian Affairs to ensure the curricula meet their needs, including translation into the Hawaiian language.	NOAA FWS
Activity OEL-1.3: Develop an ocean stewardship program for middle school and high school students within 5 years.	NOAA
Activity OEL-1.4: Conduct at least four teacher workshops in the main Hawaiian Islands per year to introduce and support the elementary school and middle/high school environmental education programs.	NOAA
Activity OEL-1.5: Continue Teacher and Class-at-Sea programs on an annual basis.	NOAA
Activity OEL-1.6: Expand educational programs for school groups at Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs to host at least 10 groups per month.	NOAA
Activity OEL-1.7: Provide biennial wildlife-dependent educator workshops at Midway Atoll, targeting a mix of science teachers and those from other fields of education and using the Navigating Change curricula, within 2 years.	FWS NOAA
Activity OEL-1.8: Facilitate at least two opportunities per year for accredited colleges, universities, or private/nonprofit environmental or historical organizations to conduct wildlife-dependent or historical college-level courses or administer informal educational camps, within 2 years.	FWS
Activity OEL-1.9: Build formal evaluations into all education programs within 2 years.	NOAA
Strategy OEL-2: Develop and implement new tools to “bring the place to the students,” rather than the students to the place, within 3 years.	
Activity OEL-2.1: Identify and prioritize research and development projects to increase ocean ecosystems literacy and conservation in NWHI.	NOAA
Activity OEL-2.2: Use telepresence technology for educational and outreach activities within 5 years.	NOAA

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3.6 Achieving Effective Monument Operations

3.6.1 Central Operations Action Plan

3.6.2 Information Management Action Plan

3.6.3 Coordinated Field Operations Action Plan

3.6.4 Evaluation Action Plan

3.6 Achieving Effective Monument Operations

Monument operations provide the support system for implementing strategies and activities described in other action plans. This support system includes improvement and maintenance of infrastructure in Honolulu to support field sites in the NWHI, information management, coordinated field operations, improvement and maintenance of field infrastructure, and program evaluation in both Honolulu and field sites.

Action plans to achieve effective operations focus on building and maintaining the vital personnel and infrastructure needs, both on land and at sea. The Information Management and Evaluation Action Plans (sections 3.6.2 and 3.6.4) describe programs and functions necessary to effectively carry out and assess the effectiveness of all other action plans. Each action plan consists of a set of strategies and corresponding activities to address a desired outcome. The desired outcomes of these action plans over the 15-year planning horizon are as follows:

- **Central Operations:** Conduct effective and well-planned operations with appropriate human resources and adequate physical infrastructure in the main Hawaiian Islands to support management of Papahānaumokuākea Marine National Monument.
- **Information Management:** Consolidate and make accessible relevant information to meet educational, management, and research needs for Papahānaumokuākea Marine National Monument.
- **Coordinated Field Operations:** Coordinate field activities and provide adequate infrastructure to ensure safe and efficient operations while avoiding impacts to the ecosystems in the Papahānaumokuākea Marine National Monument.
- **Evaluation:** Determine the degree to which management actions are achieving the goals of Papahānaumokuākea Marine National Monument.

Action plans described in this section will be implemented through close coordination among the MMB and in conjunction with other priority management needs.

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1 **3.6.1 Central Operations Action Plan**

2
3 **Desired Outcome**

5 Conduct effective and well-planned operations with appropriate
7 human resources and adequate physical infrastructure in the
9 main Hawaiian Islands to support management of
11 Papahānaumokuākea Marine National Monument.

Links to other Action Plans
All action plans

13
15 **Current Status and Background**

17 The Hawaiian Islands National Wildlife Refuge (NWR), Midway Atoll
19 National Wildlife Refuge, NWHI Coral Reef Ecosystem Reserve (Reserve),
20 NWHI Marine Refuge, and State Seabird Sanctuary at Kure Atoll were established prior to 2006,
21 but remain part of the Monument. The MMB agencies had varying levels of human resources
22 and facility infrastructure in place when the Monument was established. The majority of the
23 staff and administrative support is located in Honolulu. Outreach and other activities are
24 conducted at other locations within the main Hawaiian Islands, and some on-site management is
25 conducted as needed at a few sites within the Monument.

Links to Goals
Goal 1 Goal 4

26
27 The FWS and its preceding natural resource agencies have conducted management activities in
28 the NWHI since the establishment of the Hawaiian Islands NWR in 1909. Full time staff were
29 assigned for administrative and logistical support in 1979 when the U.S. Coast Guard abandoned
30 their presence at French Frigate Shoals. These FWS operations in support of the Hawaiian
31 Islands NWR were first conducted at Kīlauea Point NWR on the island of Kaua‘i, and were later
32 moved to the central FWS refuge office in Honolulu. FWS assumed wildlife management
33 responsibilities at Midway Atoll NWR in 1988.

34
35 The FWS currently maintains numerous Monument staff, in diverse roles, in Honolulu in the
36 Prince Jonah Kūhiō Kalaniana‘ole Federal Building (Federal Building). Support also is provided
37 by other FWS staff within the Federal Building, including from the Hawaiian and Pacific Islands
38 National Wildlife Refuge Complex, Pacific Islands External Affairs and Visitor Services, and
39 Pacific Islands Fish and Wildlife Office. Both the Hawaiian Islands and Midway Atoll refuges,
40 under the Monument staffing structure, maintain staff in Honolulu and in the NWHI (see section
41 3.6.3, Coordinated Field Operations Action Plan). In addition to the facilities at the Federal
42 Building, FWS maintains a bunkhouse and storage facility in the Kapahulu area of Honolulu. This
43 facility, while periodically available for FWS Monument needs, is administered by and primarily
44 serves the Pacific Remote Islands National Wildlife Refuge Complex.

45
46 Much of the necessary NOAA-related infrastructure and personnel were established while
47 implementing the Reserve from 2001 to the present. This included the creation of an office in
48 Hilo and an office in Honolulu, hiring of key staff, and the design, construction, and opening of
49 the Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs in Hilo.

50
51 Prior to Monument designation, Reserve staff carried out operations specific to the Reserve while
52 devoting a considerable amount of time working toward the designation of the Reserve as a
53 national marine sanctuary. Due to these demands, staff size increased steadily between 2000 and
54 2005, with most staff managing multiple diverse roles and becoming more centralized in the

1 Honolulu office. In 2004, Honolulu Reserve staff located to offices shared by the NMSP Pacific
2 Region and Hawaiian Islands Humpback Whale National Marine Sanctuary. Also in 2004, NOAA
3 began plans to relocate all Hawai‘i NOAA offices to a new consolidated Pacific Regional Center
4 on Ford Island by 2010. The Mokupāpapa Discovery Center exceeded expectations for the
5 number of annual visitors in its first year of operation requiring additional staff for managing the
6 facility.

7
8 In 2006, when the NWHI were designated as a Marine National Monument by Presidential
9 Proclamation 8031, staff involved in managing the Hawaiian Islands NWR, Midway Atoll NWR,
10 and the Reserve became Monument staff and immediately began carrying out a rolling
11 implementation of management of the newly designated Papahānaumokuākea Marine National
12 Monument.

13
14 NOAA Fisheries provides management support and program coordination for the Monument from
15 the Pacific Islands Regional Office (PIRO), located in downtown Honolulu. Established in 2004,
16 PIRO has increased its resources to meet a growing number of regional, national and international
17 requirements. In addition to senior leadership direction, a NOAA Fisheries Management Officer
18 was reassigned from existing staff to directly support the development and implementation of
19 Monument activities. NOAA’s Pacific Islands Fisheries Science Center, located adjacent to the
20 University of Hawai‘i’s Manoa campus, supports a variety of scientific activities taking place
21 within the Monument.

22
23 The State of Hawai‘i has had an active presence in monitoring and managing resources in NWHI
24 starting with assessing and managing fisheries in the 1950’s and continuing with the on-site
25 management of Kure Atoll in the late 1980s when the U.S. Coast Guard returned atoll management
26 back to the State. Resources under State jurisdiction are mainly managed by the Department of
27 Land and Natural Resources. The key line offices for undertaking this management are the
28 Division of Aquatic Resources and the Division of Forestry and Wildlife, both administrative
29 offices located in the Kalanimoku Building in downtown Honolulu. Staff involved in the
30 management of the Monument are located at this site and are also co-located with NOAA staff at
31 their offices in Hawai‘i Kai. Staff involved in the management of the State NWHI Marine Refuge
32 immediately began carrying out rolling implementation of the Monument as the needs of
33 comanagement evolved. While State staff involved in Monument operations have not grown in the
34 past few years, recent State administrative and legislative action has created additional positions to
35 implement State Monument activities.

36
37 In addition to those activities undertaken at the State administrative offices, staff involved in the
38 management of the State Seabird Sanctuary at Kure Atoll are located at the Division of Forestry
39 and Wildlife baseyard. All staff associated with the support of wildlife activities in the O‘ahu
40 district (of which Kure is a component) are located at this site. The Division of Aquatic Resources
41 also has an additional site for staging all boating and diving operations at their Ānuenu Research
42 Facility at Sand Island in Honolulu Harbor.

43
44 Additional support activities including conservation enforcement, alien species response,
45 emergency response, and historic preservation are located throughout the Department of Land and
46 Natural Resources and the Department of Health.

1
 2 OHA’s involvement in the management of the NWHI is based in part on the agency’s legal
 3 connection to ceded lands. The Hawai‘i Admission Act of March 18, 1959 (U.S. Public Law 86-3)
 4 states that one of the purposes of the public lands trust, the majority of which includes ceded lands,
 5 is to better conditions of Native Hawaiians. OHA was created to fulfill this purpose. The NWHI
 6 are a mixture of ceded lands controlled either by the State of Hawai‘i or the Federal government.
 7 Staff members from OHA’s Native Rights, Land and Culture division lead the agency’s efforts in
 8 ensuring that the ceded lands and cultural resources of the Monument are managed in such a way
 9 that it is culturally appropriate to the spiritual significance of the place to Native Hawaiians; that is
 10 beneficial to Native Hawaiians, in accordance with the Admission Act; and that retains Native
 11 Hawaiians’ traditional, customary, and religious rights and practices, in accordance with the
 12 Hawai‘i State Constitution. The nine OHA Trustees and OHA’s main administrative staff are
 13 housed in the Pacific Plaza Building in Honolulu, with community resource offices on five of the
 14 main Hawaiian Islands, including two offices on Hawai‘i Island.

15
 16 Volunteers currently provide support to the Monument in a number of locations including
 17 administrative offices, the Mokupāpapa Discovery Center in Hilo, French Frigate Shoals, Laysan
 18 Island, Midway Atoll, and Kure Atoll. These volunteers help Monument staff in carrying out their
 19 missions to protect the natural, cultural, and historic resources of the Monument (see 3.5.2 -
 20 Constituency Building and Outreach Action Plan).

21 22 **Need for Action**

23 Effectively managing such an extraordinary and high profile marine conservation project requires a
 24 strong operational foundation to support management goals. Operational support of onsite
 25 management and day-to-day operations require that highly trained and experienced staff are
 26 maintained and recruited to implement the strategies and activities described throughout this
 27 management plan. Volunteer services are also needed to augment this staff. In addition, the
 28 appropriate physical infrastructure must be in place to support operations. Each of the MMB
 29 agencies currently has infrastructure to maintain and possibly collocate both in Honolulu and
 30 elsewhere in the main Hawaiian Islands. Successful site operations are achieved through a
 31 synergy of people and places for them to work. This action plan presents strategies and activities
 32 designed to achieve effective site operations.

33 34 **Strategies to Achieve the Desired Outcome**

35 Three strategies have been identified to ensure the necessary human resources, physical
 36 infrastructures, and administrative procedures are in place to successfully manage the
 37 Monument. The strategies and activities are coded by the acronym for the action plan title,
 38 Central Operations (CO). A summary of strategies and activities is provided in Table 3.6.1 at the
 39 end of this action plan.

- 40
 41 • CO-1: Coordinate annual site operations planning and implementation over the life of the
 42 plan.
 43 • CO-2: Assess and enhance human resource and organizational capacity over the life of
 44 the plan.
 45 • CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in the main
 46 Hawaiian Islands over the life of the plan.

1
2 **Strategy CO-1: Coordinate annual site operations planning and implementation over the**
3 **life of the plan.**

4
5 Monument management agencies develop annual operating plans guided by their agency policies
6 and procedures and consistent with the Monument Management Plan. These individual agency
7 operating plans may be integrated to the extent possible to better guide day-to-day activities
8 based on budget allocations to ensure efficient and effective use of public resources.
9

10 ***Activity CO-1.1: Coordinate and implement annual operating plans.***

11 Annual operating plans will be developed and coordinated in accordance with agency requirements
12 and guided by site-specific needs articulated in planning documents and based upon funding
13 availability. The results of annual evaluation activities and current priorities will be reviewed and
14 considered in developing annual operating plans (see Section 3.6.4, Evaluation Action Plan).
15 Financial administration includes budget tracking, managing the financial portions of memoranda
16 of understanding and contracts, and purchasing and travel planning according to State and Federal
17 purchasing regulations. Administrative procedures and functions also include planning for
18 emergencies to ensure staff safety; complying with programmatic reporting requirements; records
19 retention; purchasing and maintaining equipment, supplies, and vehicles; maintaining
20 communication equipment including telephones, cellular phones, satellite phones and connections,
21 and radios, as well as communication policy. Although each agency will follow their own
22 procedures, activities will be coordinated to the extent possible to increase efficiencies, and where
23 possible standard operating procedures will be developed to outline roles and responsibilities as
24 needed.
25

26 **Strategy CO-2: Assess and enhance human resource and organizational capacity over the**
27 **life of the plan.**

28
29 Both human resource and organizational capacity are needed to achieve effective site operations.
30 With the Proclamation announcement comes high expectations for the Monument to implement
31 management actions in a short amount of time. To effectively meet Monument goals, the MMB
32 will develop a strong operational framework of human resources as early as possible. Human
33 resources and organizational capacity may be increased to carry out programs, including
34 administration, research and monitoring, threat reduction, education and outreach, information
35 management, and enforcement.
36

37 ***Activity CO-2.1: Regularly assess current status and future needs for human resources.***

38 In order to implement the Monument Management Plan effectively, human resource and
39 organizational capacity needs will be regularly assessed. These assessments will be used to
40 organize and better utilize existing staff, and identify technical and administrative human
41 resource overlaps and gaps. The assessments will also identify and prioritize capacity building
42 opportunities, and regional capacities and opportunities to coordinate and share resources with
43 partners. Alternative human resource capacity-building measures, such as internships, volunteer
44 programs, and partnerships, will be considered in the assessments as a means to increase staffing
45 capacity.

1 ***Activity CO-2.2: Improve human resources and organizational capacity.***

2 As funding, field-based housing, and other factors allow, the human resource and organizational
3 capacity of the Monument will be enhanced to address specific needs and carry out the strategies
4 and activities contained within the Monument Management Plan. Human resource development
5 includes staff recruitment, retention, recognition, training, communication, regular meetings,
6 time and attendance, as well as staff safety.

7
8 **Strategy CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in**
9 **the main Hawaiian Islands over the life of the plan.**

10
11 Effective and efficient human resources must be supported by sufficient physical infrastructure
12 resources. Efforts will be ongoing to maintain existing facilities in the main Hawaiian Islands and
13 design and improve facilities as required to support Monument administration and operations.

14
15 ***Activity CO-3.1: Regularly assess current status and future needs for infrastructure and***
16 ***facilities.***

17 In conjunction with assessments of human resource needs, infrastructure and facilities needs will
18 also be reviewed to optimize facilities utilization. These assessments will aim to organize and
19 better utilize existing facilities and infrastructure in the main Hawaiian Islands, identify physical
20 resource overlaps and gaps, and identify needs to support projected future growth and
21 collocation. These assessments will also identify and prioritize capacity building opportunities,
22 and regional capacities and opportunities to coordinate and share resources with partners.

23
24 Additional educational venues, such as Mokuapāpapa, will be considered for development as
25 stand-alone facilities or in partnership with existing educational and interpretive facilities.
26 Additional consideration will be given to the already planned and scheduled NOAA transition to
27 the NOAA consolidated facility.

28
29 ***Activity CO-3.2: Maintain and improve infrastructure and facilities.***

30 Maintenance and retention of current physical assets and the procurement or lease of additional
31 assets will be driven by need and available funding. All efforts will be made to combine
32 utilization of assets among MMB agencies for more efficient use of available resources.

33
34 ***Activity CO-3.3: Improve information technology infrastructure.***

35 Computer and information technology is an integral part of site infrastructure. Appropriate
36 equipment will be acquired, upgraded, and maintained to meet management needs. New
37 technologies will be regularly integrated (see 3.6.2 - Information Management Action Plan).

1 **Table 3.6.1 Summary of Strategies, Activities, and Agency Leads for Central Operations**

2

Strategies and Activities	Agency Lead
Strategy CO-1: Coordinate annual site operations planning and implementation over the life of the plan.	
Activity CO-1.1: Coordinate and implement annual operating plans.	NOAA State of Hawai‘i FWS
Strategy CO-2: Assess and enhance human resource and organizational capacity over the life of the plan.	
Activity CO-2.1: Regularly assess current status and future needs for human resources.	NOAA State of Hawai‘i FWS
Activity CO-2.2: Improve human resources and organizational capacity.	NOAA State of Hawai‘i FWS
Strategy CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in the main Hawaiian Islands over the life of the plan.	
Activity CO-3.1: Regularly assess current status and future needs for infrastructure and facilities.	NOAA State of Hawai‘i FWS
Activity CO-3.2: Maintain and improve infrastructure and facilities.	NOAA State of Hawai‘i FWS
Activity CO-3.3: Improve information technology infrastructure.	NOAA State of Hawai‘i FWS

3

1 **3.6.2 Information Management Action Plan**

3 **Desired Outcome**

5 Consolidate and make accessible relevant information to meet
 7 educational, management, and research needs for
 9 Papahānaumokuākea Marine National Monument.

Links to other Action Plans
3.1.1 Marine Conservation Science
3.1.4 Maritime Heritage
3.3.1 Permitting
3.3.2 Alien Species

11 **Current Status and Background**

13 Biogeographic studies, bathymetric spatial data, temporal analyses, research
 15 notes, maritime heritage data, Native Hawaiian cultural research, historic
 17 charts, published field project results, and other data all comprise the large
 19 and varied collection of NWHI information. These data sets include
 21 databases, oral histories, raw scientific results, physical specimens, and
 23 digital imagery. This collection has in the past been scattered among
 25 Federal and State agencies, universities, museums, and other agencies and
 27 institutions in varied formats, and some has simply remained in the
 29 possession of the individual investigator. Often the data are not adequately documented, creating
 31 the need for resource intensive validation for future integration purposes. Both the data and
 32 associated documentation are needed in order to be useful for long-term ecosystem-based
 33 management.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

34
 35 Strategic efforts to address the broad issue of data management for the NWHI have begun.
 36 Multiagency Reef Assessment and Monitoring Program expeditions in the NWHI, begun in
 37 2000, represent an initial attempt to establish a multiagency data clearinghouse for management
 38 purposes. To date, only a portion of the many years of existing NWHI data has been processed
 39 and made available.

40
 41 Several complementary projects have been initiated to address information management needs.
 42 A GIS spatial bibliography database for the NWHI is under development. This GIS incorporates
 43 geographical positions of past habitat characterization and field research into spatially referenced
 44 electronic documents. Additionally, an annotated bibliography of cultural resources for the
 45 NWHI is available on line at <http://www2.bishopmuseum.org/noaanwhi/index.asp>, which
 46 incorporates past cultural, geological, and biological studies in the NWHI. This annotated
 47 bibliography of past cultural, geological, and biological studies in the NWHI was created with
 48 the support of NOAA’s National Ocean Service and the NWHI Coral Reef Ecosystem Reserve.
 49 The resources catalogued are primarily available in the Bishop Museum Library and Archives,
 50 the libraries at the University of Hawai‘i at Mānoa, and the State of Hawai‘i Archives.
 51 Additionally, the Office of Hawaiian Affairs is developing an archipelago-wide Wahi Pana
 52 Database of cultural information, and the MMB is working to integrate this database with other
 53 Monument data sets.

54
 55 The MMB also participates in the National Marine Sanctuary Program’s Information
 56 Management and Spatial Technology (IMaST) plan for all field sites. The IMaST plan organizes
 57 the many spatial resources within the National Marine Sanctuary System and makes them
 58 available to all sites and partner staff needing geospatial information, data, training, software,
 59 hardware, and hands-on experience. IMaST enhances capacity and integrates capabilities for site
 60 and national program staff in the utilization of geospatial technology.

1
2 Additionally, the MMB has initiated the development of a field-based data collection tool that
3 will help to facilitate collection of research and vessel activity data from scientific expeditions
4 conducted aboard research vessels active in the NWHI. This system will help to meet permit
5 criteria for data management and reporting, and will assist in data entry, metadata recording, and
6 data integrity. This system is one component of the larger Information Management System that
7 is addressed in strategies outlined below and is already being developed based upon a set of
8 priority management questions.
9

10 **Need for Action**

11 Access to accurate information is essential to implement an adaptive, ecosystem approach to the
12 management of the Monument. A large amount of data have been, and will continue to be,
13 collected on the NWHI environments by various State, Federal, and academic institutions, as
14 well as private sector partners. Presently, results of research efforts are in multiple independent
15 locations and in formats not readily available to resource managers, who need access to pertinent
16 characterization information and up-to-date reports as a basis to make decisions for the
17 protection of ecosystems. To address this difficulty, this action plan presents strategies and
18 activities to develop a comprehensive data management and retrieval system, and to consolidate
19 and organize information gathered from diverse sources, thus ensuring that stakeholders will
20 share access to an expanding repository of knowledge on the NWHI.
21

22 **Strategies to Achieve the Desired Outcome**

23 Research and information compilation on the Monument is ongoing, therefore gathering and
24 consolidation of that information is also an ongoing process. A comprehensive approach is critical
25 to achieving the desired outcome, which is to ensure that relevant information is collected and
26 integrated in a standardized and useable manner, consolidated, and made accessible. Only a broad
27 and comprehensive approach can ensure that information management will promote data gap
28 analysis for the purposes of management and research. The Monument will not duplicate data, but
29 along with partners, has already begun to build a decentralized information system that allows data
30 discovery and access while allowing principal investigators and major agencies to house and
31 maintain their own data.
32

33 The MMB will create the Papahānaumokuākea Information Management System (PIMS), a
34 crucial tool for integrated management of the Monument. Aggregated data in the PIMS will
35 provide material for multiple purposes, including outreach and education products, Monument
36 management and evaluation, regional coordination among partners, and comparative data for
37 regional research work. As a clearinghouse node for information, the PIMS must ensure that
38 appropriate material is made available to managers, researchers, and the public in a timely
39 manner. Some of the data available for management or research purposes may be of a sensitive
40 nature and, therefore, not appropriate for public and education-focused release. Security
41 procedures and policies will be in place to ensure that only appropriate users can access specific
42 data. Access will be limited to reading the data, no updates or changes will be allowed through
43 the decentralized information system.
44

45 Through the PIMS, managers will have access to integrated biogeographic and spatial analyses,
46 maps, and reports that define the characterization of the ecosystem diversity, maritime heritage

1 data, and Native Hawaiian cultural information to aid in evaluating the interaction and
2 effectiveness of past, current, and future management efforts. Management of information in a
3 manner that is responsive to the changing needs of the Monument is part of an adaptive,
4 ecosystem-based management system and ensures that NWHI research will be fully valued. The
5 following strategies are designed to consolidate and make more readily available the abundance
6 of useful information on the NWHI for management, research, education, and enforcement
7 purposes. The strategies and activities are coded by the acronym for the action plan title,
8 “Information Management” (IM). A summary of strategies and activities is provided in Table
9 3.6.2 at the end of this action plan.

- 10
- 11 • IM-1: Within 5 years, develop and implement a system for handling Monument data.
- 12 • IM-2: Within 5 years, facilitate appropriate access and use of PIMS.
- 13

14 **Strategy IM-1: Within 5 years, develop and implement a system for handling Monument**
15 **data.**

16
17 The sources and types of NWHI data are diverse and do not necessarily adhere to uniform data
18 management. For all data to be accessible by the PIMS, data protocols and Federal Geographic
19 Data Committee (FGDC) compliant metadata standards will be implemented. These standards
20 must also adhere to existing data management and metadata protocols established by the Federal
21 government. Agreements between various agencies for data sharing, access, security, and use
22 must also be developed and implemented.

23
24 ***Activity IM-1.1: Develop and implement a data discovery, inventory, and acquisition strategy.***

25 A data discovery, inventory, and acquisition strategy will be developed and implemented based
26 on meetings and workshops with partners and other organizations. The strategy will identify the
27 types, format, and sources of existing information and data sets, as well as potential new data
28 sources. Workshops will be held annually to review progress of data acquisition and revise the
29 strategy as needed.

30
31 ***Activity IM-1.2: Develop appropriate data management protocols, procedures, and agreements***
32 ***with partner agencies.***

33 One of the first tasks in information management, after determining data sources, is to develop
34 and implement protocols for how data is collected, documented, stored, and shared, as well as
35 their schema and format. Existing metadata standards within NOAA will be utilized to
36 document the data. Agreements with data providers to define use and access restrictions, as well
37 as data transfer methods, will be developed. A shipboard data collection tool is currently being
38 developed and implemented aboard the NOAA ships active in the NWHI. This tool will help to
39 facilitate data capture, standardization, and chain of custody. A rigorous quality
40 assurance/quality control protocol will be developed and implemented to maintain information
41 and data quality in the system in accordance with the Data Quality Act. A long-term strategy for
42 data assimilation and review will be developed in conjunction with data providers.

1 ***Activity IM-1.3: Continue to design, build, and maintain the Papahānaumokuākea***
 2 ***Information Management System.***

3 An information and database management system is being designed, developed, and configured to
 4 meet a broad spectrum of needs of the MMB, including Monument program and site applications,
 5 research and educational needs, and public access. The system is built on a sophisticated data
 6 model implemented in a relational database, and incorporates custom applications for spatial data
 7 management, tabular data management, data import/export and reconciliation, and reporting as an
 8 integral part of the data management strategy. Storage and security of data, as well as ease of
 9 access, are some of the issues that are being addressed. Agreements with data providers developed
 10 in the previous activity (IM-1.2) will be essential to the success and utility of this system, since the
 11 PIMS is not a massive data archive but a system that defines interrelationships between distributed
 12 data sources, which are the vast majority of data. The PIMS stores some data that are not already
 13 maintained by other partner agencies, such as image and video data, and the spatial bibliography.
 14

15 ***Activity IM-1.4: Begin incorporating information into PIMS.***

16 A significant amount of effort will be involved in data entry, formatting, and regular review. A
 17 long-term strategy for data assimilation and review processes will be developed in conjunction
 18 with data providers. The prioritization of data entry will be based on specific management and
 19 scientific questions. This activity will initiate indepth analyses to answer these questions. The
 20 data needed and accessed for these analyses will be documented and loaded into the inventory.
 21 Collaborative links to data that are being maintained by partners will be created and maintained
 22 to ensure seamless access to these data.
 23

24 **Strategy IM-2: Within 5 years, facilitate appropriate access and use of PIMS.**

25
 26 Tools and protocols to access the data in PIMS need to be developed and deployed. Some
 27 information may be public domain, and other information, such as the exact locations of historic
 28 shipwrecks, will be restricted by law to protect the resources. Levels of access to the data will be
 29 determined through agreements with partners. Educational materials that interpret the data and
 30 make the information accessible and understandable to a wider audience will also be developed
 31 and deployed.
 32

33 ***Activity IM-2.1: Design tools for accessing the PIMS.***

34 Using the latest technologies, the MMB will develop tools for accessing, updating, analyzing,
 35 and retrieving PIMS data. Access tools will be primarily web-based. These tools will allow for
 36 integration into GIS, on-line analytical processing via open database connectivity, object linking
 37 and embedding, and synchronization with analogous database management system resources.
 38

39 Tools will include integrated biogeographic and spatial analyses, maps, and reports that define
 40 the characterization of the ecosystem diversity, interaction, and health, and the effectiveness of
 41 past, current, and future management efforts.
 42

43 ***Activity IM-2.2: Assess data access needs and provide training for PIMS users.***

44 Assessing the uses of the PIMS will be an evolving process, and providing access will be tightly
 45 integrated with activity IM-2.1, above. Before any access is provided, rules and access
 46 restrictions will be determined to ensure security and confidentiality of the data. These

1 restrictions will be determined in coordination with data providers. A training program for
2 management and other users of the PIMS will be developed so that access and use are facilitated.

3
4 ***Activity IM-2.3: Develop interfaces to feed data to repositories such as National Biological***
5 ***Information Infrastructure, Pacific Basin Information Node, Coral Reef Information System,***
6 ***and Integrated Ocean Observing System.***

7 The MMB will maintain standardized metadata records for data indexed within the PIMS to help
8 facilitate the population of other data repositories with NWHI data. To automate this process,
9 agreements and data streaming/sharing mechanisms will need to be developed.

1 **Table 3.6.2 Summary of Strategies, Activities, and Agency Leads for Information Management**
 2

Strategies and Activities	Agency Lead
Strategy IM-1: Within 5 years, develop and implement a system for handling Monument data.	
Activity IM-1.1: Develop and implement a data discovery, inventory, and acquisition strategy.	NOAA
Activity IM-1.2: Develop appropriate data management protocols, procedures, and agreements with partner agencies.	NOAA
Activity IM-1.3: Continue to design, build, and maintain the Papahānaumokuākea Information Management System.	NOAA
Activity IM-1.4: Begin incorporating information into PIMS.	NOAA
Strategy IM-2: Within 5 years, facilitate appropriate access and use of PIMS.	
Activity IM-2.1: Design tools for accessing the PIMS.	NOAA
Activity IM-2.2: Assess data access needs and provide training for PIMS users.	NOAA
Activity IM-2.3: Develop interfaces to feed data to repositories such as National Biological Information Infrastructure, Pacific Basin Information Node, Coral Reef Information System, and Integrated Ocean Observing System.	NOAA

3
4

3.6.3 Coordinated Field Operations Action Plan

Desired Outcome

Coordinate field activities and provide adequate infrastructure to ensure safe and efficient operations while avoiding impacts to the ecosystems in Papahānaumokuākea Marine National Monument.

Links to other Action Plans
All Action Plans are related to carrying out field operations

Current Status and Background

Field operations in the Monument rely upon ships, aircraft, seasonal field camps, and three field stations with varying degrees of infrastructure. Interagency planning and sharing of resources for fieldwork began with the Tripartite Commission’s work in the late 1970s (Tripartite Agreement 1978). Recent field activities in the NWHI continue this cooperative work through a number of projects. One of the most significant of these is the annual NWHI Reef Assessment and Monitoring Program research and outreach expeditions. These expeditions are made possible through sharing of both vessels and dive teams.

Links to goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 7
Goal 8

In September 2004, the NOAA ship *Hi‘ialakai* became the first oceanographic research platform primarily dedicated to the National Ocean Service. *Hi‘ialakai* is a 224-foot T-AGOS-class research ship that is designed to conduct and facilitate research operations in remote areas throughout the Pacific. The ship’s primary mission is to support the research, monitoring, assessment, restoration, and outreach needs of NOAA’s National Ocean Service in waters around the Hawaiian Islands and the American Flag Territories. Maintenance and operations of NOAA ships are managed by NOAA Marine and Aircraft Operations.

The NOAA Ship *Oscar Elton Sette* is the sister ship to the *Hi‘ialakai* and primarily supports the scientific missions of NOAA Fisheries, Pacific Islands Fisheries Science Center, in Honolulu, Hawai‘i. The ship normally operates throughout the central and western Pacific, and conducts fisheries assessment surveys, physical and chemical oceanography, marine mammal projects, and coral reef research. The *Oscar Elton Sette* has participated in coordinated Reef Assessment and Monitoring Program efforts since its arrival in 2003.



NOAA Ship *Hi‘ialakai*. Photo: Don Suthers

Several other vessels such as the NOAA Ship *Ka‘imimoana*, the University of Hawai‘i’s R/V *Kilo Moana* and R/V *Kaimikai-O-Kanaloa*, Coast Guard vessels, and chartered vessels are

1 engaged in mapping, deep-water benthic characterization, marine debris removal, protected
2 species recovery activities, management-oriented research, and resupply missions to FWS and
3 State land-based operations throughout the Monument. Collectively, these ships conduct
4 approximately 10-12 missions per year during the months of April through November. Much
5 of the fieldwork conducted in the Monument is supported by NOAA ships.

6
7 FWS maintains permanent staff and infrastructure at Tern Island (French Frigate Shoals) and
8 Midway Atoll as well as a year-round FWS field camp at Laysan Island. The State maintains
9 facilities at Kure Atoll, which are staffed much of the year. Seasonal field camps are located at
10 Nihoa Island, Lisianski Island, and Pearl and Hermes Atoll.

11
12 Midway Atoll NWR includes facilities and infrastructure left by the military when the Naval Air
13 Facility closed. It includes 237 real property assets, including a Federal Aviation Administration
14 (FAA) approved commercial airport, numerous buildings, airplane hangars, roads, utilities,
15 docks, seawalls, shipping channel, in addition to structures listed on the National Register of
16 Historic Places. This infrastructure supports refuge management operations, airport operations,
17 and a limited number of partners and visitors. The FWS and FAA have partnered together to
18 manage Henderson Airfield and maintain Midway's aging infrastructure. Over the past 6 years,
19 FWS has been upgrading and rightsizing Midway's operating systems, and FAA has constructed
20 a new airfield operations building as well as other airfield improvements.

21
22 By utilizing World War II and Cold War era buildings, FWS managers are able to preserve the
23 history of the atoll, provide support to the many ongoing management and research projects, and
24 focus on protecting the islands and surrounding reefs for the benefit of the unique mix of species
25 that live at Midway Atoll. In order to effectively plan for future Monument operations at
26 Midway, a Conceptual Site Plan was drafted. This Conceptual Site Plan (Appendix B) outlines
27 the vision and practical realities of future uses and provides an overarching view of priority
28 actions. Field infrastructure requirements for education, research, restoration, and management
29 programs were identified by the MMB in a requirements document produced in 2007.

30
31 Tern Island is the support hub for management operations at French Frigate Shoals. The
32 facilities consist of 42 real property assets that remain from prior Coast Guard use. These
33 include shore protections, two septic tanks, a small barracks that serves as a residential and office
34 facility, a single warehouse, several small storage and utility buildings, water catchment systems,
35 a 3,000 foot crushed coral runway, a shipping channel, and a small boat ramp and dock. All of
36 the Tern Island real property assets are utilized by and support MMB agencies and are
37 maintained by FWS.

38
39 Laysan Island is a temporary year round field camp that supports management of the island. The
40 facility consists of seven temporary wood-framed platform tents used for sleeping, offices,
41 communications, cooking, and storage. To support this field camp a reverse osmosis water
42 system, photovoltaic power system, and a hurricane shelter for high wind and surf emergencies
43 are maintained. Laysan is currently accessible only by ship.

44
45 Green Island serves as the hub for the State of Hawai'i's Seabird Sanctuary at Kure Atoll. The
46 facilities consist of storage buildings, a four room residential and office building, water tank,

1 septic tank, a nonoperational coral runway, and a small boat pier. The assets on Green Island are
2 maintained by the State.

3 *Past coordination efforts*

4 In the past, NOAA has hosted an annual NWHI field calendar meeting to facilitate overall field
5 coordination among the Co-Trustees. The goal of this type of meeting was to create a master
6 calendar of all field operations, scheduled flights, cruise plans, field camps, and similar activities.
7 These meetings were open to managers, scientists, and staff from all agencies and groups
8 conducting research or field activities in the NWHI. Attendees provided dates, places, and other
9 logistical details of planned fieldwork to the calendar. Field activities typically included NOAA
10 research vessel cruises, scheduled FWS charter flights to Midway and Tern Island, marine debris
11 cleanup activities, ship charters to support FWS field stations, and special field activities such as
12 *Hōkūle‘a* voyages. The purpose of the common calendar was to increase coordination,
13 efficiency, and safety for all NWHI fieldwork.
14

15 *Impacts of fieldwork*

16 Well-planned field activities are designed to minimize negative impacts to ecosystems, avoid
17 redundant efforts, and achieve efficient use of agency resources. Each year, coordinated
18 planning benefits management activities such as the multiagency-supported effort to remove
19 derelict fishing gear from the reefs and beaches; implementation of endangered plant, monk seal,
20 sea turtle, and bird recovery actions; management and restoration of marine and terrestrial
21 species and their habitats; and conducting management-oriented research. This emphasis on
22 coordinated planning and the application of consistent interagency permit requirements will
23 prevent or minimize potential impacts that could be associated with these types of activities.
24

25 *Diving Protocols*

26 Standardization of safety training and diving protocols among different agencies has proved
27 difficult in the past. MMB agencies have established interagency reciprocity agreements for diving
28 protocols and with affiliated institutions of the American Academy of Underwater Sciences. These
29 agreements are renewed and updated as necessary.
30

31 **Need for Action**

32 Field coordination among the MMB and the Interagency Coordinating Committee provides for
33 efficient use of public funds, increased availability of assets, reduced duplication of effort, and
34 minimized impacts to Monument resources. Due to the remote nature of the region and limited
35 availability of facilities, coordination is essential to the success of activities such as emergency
36 response, wildlife and habitat management, law enforcement, research, as well as marine debris
37 removal and other threat reduction tasks.
38

39
40 Appropriate vessels, aircraft, facilities, equipment and training are critical to carrying out field
41 operations in a safe and effective manner. Coordinating these assets among Co-Trustees is
42 central to achieving the goals of the Monument. This plan provides strategies and activities for
43 coordinating the implementation of low-impact field operations, by ensuring that necessary
44 facilities, equipment, and transportation are available and that staff is properly trained (see
45 section 3.3.4, Emergency Response and Damage Assessment Action Plan).
46

1 **Strategies to Achieve the Desired Outcome**

2 Nine strategies have been identified for achieving the desired outcome of coordinating field
3 activities and providing adequate infrastructure to ensure safety and efficient operations while
4 avoiding impacts to ecosystems in the Monument. The strategies and activities are coded by the
5 acronym for the action plan title, “Coordinated Field Operations” (CFO). A summary of
6 strategies and activities is provided in Table 3.6.3 at the end of this action plan.

- 7
- 8 • CFO-1: Conduct necessary site planning and infrastructure development to enhance
9 Monument field operations capacity over the life of the plan.
- 10 • CFO-2: Enhance interagency planning and coordination for field operations and develop
11 protocols and processes that will be utilized throughout the life of the plan.
- 12 • CFO-3: Maintain and enhance housing and field camp capacity using short-, medium-
13 and long-term approaches across the life of the plan.
- 14 • CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at
15 Midway Atoll.
- 16 • CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway
17 Atoll within 5 to 15 years.
- 18 • CFO-6: Within 5 years improve the small boat operational capacity to enable quick,
19 reliable access to the region in support of management and continue to enhance the
20 program throughout the life of the plan.
- 21 • CFO-7: Within 5 years identify interisland aircraft transportation options.
- 22 • CFO-8: Develop a comprehensive dive operations program for Monument management
23 activities within 5 years.
- 24 • CFO-9: Develop necessary research, education, visitor, and administrative facilities
25 across the life of the plan.
- 26

27 **Strategy CFO-1: Conduct necessary site planning and infrastructure development to 28 enhance Monument field operations capacity over the life of the plan.**

29

30 In-depth site planning and analyses are needed to ensure that field operations align with the
31 purpose and mission of the Monument, as well as the purposes of the Midway Atoll and
32 Hawaiian Islands National Wildlife Refuges, NWHI Coral Reef Ecosystem Reserve, the State of
33 Hawai‘i NWHI Marine Refuge, and the Seabird Sanctuary at Kure Atoll. This effort will help
34 meet the shared responsibilities for management, emergency response, enforcement, education,
35 recreation, and research in the Monument.

36

37 ***Activity CFO-1.1: Initiate and complete necessary planning to implement the draft Midway 38 Atoll Conceptual Site Plan.***

39 Substantial time and resources are required to complete the preferred alternative for
40 infrastructure rehabilitation, reconstruction, and development included in the draft Midway Atoll
41 Conceptual Site Plan (Appendix B). Priority actions for Midway have been identified in chapter
42 6 of the draft Midway Atoll Conceptual Site Plan and are included in this action plan. Several of
43 these are projected for completion in the short term, while others will require additional planning
44 and environmental analysis and are anticipated to take place over the life of the plan.

45

1 ***Activity CFO-1.2: Develop conceptual site plans for Hawaiian Islands National Wildlife***
2 ***Refuge and Seabird Sanctuary at Kure Atoll.***

3 Individual conceptual site plans will be developed for the Hawaiian Islands National Wildlife
4 Refuge and the State Seabird Sanctuary at Kure Atoll to identify long-term infrastructure
5 alternatives and priorities. These plans will be based upon the identification of field
6 requirements developed by the MMB in 2007 and will assess the opportunity for education,
7 research, restoration, and management programs. It is anticipated that these plans will be
8 developed within 3 years.

9
10 ***Activity CFO-1.3: Develop a strategy for long-term sustainability for operations throughout***
11 ***the Monument using alternative energy systems and waste reduction within 2 years.***

12 In accordance with agency building standards, the strategy will consider solar and other
13 renewable energy generation, integration of kitchen waste with biodiesel or other sustainable fuel
14 types use in machinery, composting of food waste, growing produce on site (at Midway only),
15 passive lighting and cooling, and construction using sustainable nontoxic building materials.
16 Each building will be evaluated to determine the feasibility of generating its own power. In the
17 interim period, proven energy efficiencies will be implemented within the limits of appropriated
18 funding.

19
20 ***Activity CFO-1.4: Plan for use of sustainable construction and landscape architecture for***
21 ***facilities and assets throughout the Monument.***

22 In support of the “Greening of America” governmentwide initiative, the managing agencies will
23 apply feasible “greening” methodologies and technologies to future operations and construction
24 projects at Midway and all other field sites, including NOAA ships. These green principles will
25 be applied to the operation of small boats, selection of nontoxic lubricants and maintenance
26 materials, and development of fuel capacity.

27
28 **Strategy CFO-2: Enhance interagency planning and coordination for field operations and**
29 **develop protocols and processes that will be utilized throughout the life of the plan.**

30
31 One of the Monument’s operating principles is to use effective planning and communication to
32 coordinate activities in order to minimize resource impacts, avoid redundant or duplicative
33 efforts, and achieve efficient use of agency resources in the implementation of priority
34 management needs. The MMB will work with partners in planning field operations for these
35 purposes and to contribute to the success of each project. Ship scheduling, coordination of
36 logistical support, and interagency collaboration are elements of field operations that will be
37 addressed in advance of each field season.

38
39 ***Activity CFO-2.1: Develop interagency agreements to facilitate effective field coordination***
40 ***throughout the Monument.***

41 Interagency agreements to coordinate field operations, share resources, and commit to joint
42 implementation of field priorities will be developed as appropriate. Agreements will be
43 considered among the Co-Trustee agencies and the Interagency Coordinating Committee, as
44 appropriate. (See section 3.5.1, Agency Coordination Action Plan)

Activity CFO-2.2: Develop and implement standardized field operation protocols.

Environmental, safety, and preparedness protocols for field operations consistent with partner agency standards will be developed to provide resource protection and safe field operations. A Field Operations Manual will be prepared and updated as needed that includes these protocols, as well as protocols and chain of command procedures for reporting environmental and safety incidents, personnel communication, and evacuations. All principal investigators and managers working in the NWHI will receive a copy of the Field Operations Manual.

Activity CFO-2.3: Assess threats that field activities pose to Monument resources.

Permitted activities will be monitored through field activity reports to assess the threats they may pose to the resources. Reporting requirements will be developed with partners that will draw on existing databases when available. Any incidents will be tracked to assess potential damages to resources. Data will be managed in a geographic information system to provide for adaptive management by the MMB in conducting or authorizing future field activities (see the Information Management Action Plan, section 3.6.2).

Activity CFO-2.4: Annually coordinate field operations to efficiently deploy personnel and share resources among agency partners.

The MMB will host an annual NWHI field calendar meeting to create a master calendar of all field operations, scheduled flights, cruise plans, field camps, and similar activities, open to managers, scientists, and staff of all agencies and groups conducting research or field activities in the NWHI. Each year a common field calendar will be developed to ensure that the highest priority management needs are met as efficiently and economically as possible.

Activity CFO-2.5: Develop a staff coordination agreement between Midway Atoll NWR and the State Seabird Sanctuary at Kure Atoll.

To assist in island management activities, occasional site “exchange” visits will be conducted between the State and FWS staff at Midway and Kure Atolls. This will ensure that habitat restoration and management activities and wildlife monitoring activities are coordinated between FWS and the State.

Strategy CFO-3: Maintain and enhance housing and field camp capacity using short-, medium- and long-term approaches across the life of the plan.

There is a critical need to plan and design facilities at various field sites to ensure that activities can be accomplished. The needs of visitors, staff, volunteers, contractors, researchers, and educators will be considered, as well as temporary accommodations in case of emergency aircraft landings, ship evacuations, or emergency response events. As stated in Activity CFO-1.4, the MMB will apply all feasible green construction methods and technologies to all future projects.

Activity CFO-3.1: Construct low-impact structure pilot project at Midway Atoll.

A low-impact shelter will be constructed as a pilot project in the housing zone on Midway within 2 years in accordance with the Midway Atoll Conceptual Site Plan. This pilot project will serve to gauge the feasibility of using this type of structure elsewhere at Midway. These structures will be designed to operate “off-grid” using renewable energy resources. The buildings will

1 incorporate recycled materials, will be nonpolluting, and may potentially increase the available
2 wildlife habitat. The buildings will serve as lodging for short-term and transient visitors.

3
4 ***Activity CFO-3.2: Replace Bravo Barracks at Midway Atoll.***

5 Bravo Barracks houses permanent operations and maintenance personnel, but the end of its
6 useful life is within 3 years. The barracks are in critical need of demolition and replacement.
7 Replacement is essential in order to provide safe housing for personnel to sustain island
8 operations.

9
10 ***Activity CFO-3.3: Replace Charlie Barracks at Midway Atoll.***

11 Charlie Barracks replacement is essential in order to provide safe housing for island visitors and
12 transient personnel. Such replacement is envisioned to take place within 10 years.

13
14 ***Activity CFO-3.4: Rehabilitate “Officers’ Row” Housing at Midway Atoll.***

15 The 10 historic Officers’ Row houses serve as examples of historic Albert Kahn architecture and
16 are identified for restoration in the draft Midway Atoll Conceptual Site Plan. This increased
17 housing capacity will accommodate increased agency and partner personnel. The rehabilitation
18 of these structures would take place within 10 years.

19
20 ***Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.***

21 Well-established, permanent biological monitoring and restoration programs at Kure Atoll are
22 dependent on existing housing and facilities on Green Island at Kure Atoll. Given the harsh
23 environmental conditions that exist, there is an ongoing need to maintain, expand, or replace
24 communications equipment, solar power and water production units, sewage treatment
25 infrastructure, buildings, and equipment. All field operations requirements at Kure Atoll will be
26 assessed in accordance with Activity CFO-1.2.

27
28 ***Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at French
29 Frigate Shoals.***

30 A permanent biological field station exists on Tern Island at French Frigate Shoals. The
31 biological monitoring programs that operate from the island are dependent upon existing
32 housing, warehouses, small boat facilities, and a short coral rubble air strip. Given the harsh
33 environmental conditions, there is an ongoing need to maintain, expand or replace
34 communications equipment, solar power and water production units, buildings, and equipment.
35 For example, the barracks roof requires replacement by 2012. All field operations requirements
36 at French Frigate Shoals will be assessed in accordance with Activity CFO-1.2.

37
38 ***Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and
39 Hermes Atoll on Southeast Island.***

40 A seasonal three-person tent field camp is currently maintained at Pearl and Hermes Atoll to
41 support the long-term Hawaiian monk seal population monitoring effort. Periodic overwashing
42 of the islands by storm surges will require tent platforms to be built as soon as possible to
43 provide for personnel safety. A year-round small tent camp is also needed to support invasive
44 plant species eradication. The establishment of a permanent field camp in addition to upgrading
45 the existing seasonal camp will be evaluated in accordance with Activity CFO-1.2.

Activity CFO-3.8: Maintain and enhance the existing tent field camp at Laysan Island.

An intensive alien species eradication and native habitat restoration program is currently underway at Laysan Island. A year-round presence of staff on island is necessary. Staff reside in a minimal tent camp, which requires routine maintenance and replacement of solar power, water purification, and communications equipment as well as periodic replacement of tents and other structures.

Strategy CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll.

The current fuel capacity at Midway Atoll was designed to meet the requirements of the FWS, FAA, and the United States Coast Guard (USCG). This includes fuel for site operations, aircraft, and heavy equipment and a limited amount of gasoline for small boats and vehicles. Additional Co-Trustee fuel requirements will be met through additional gasoline and the introduction of biodiesel.

Activity CFO-4.1: Maintain recently replaced fuel farm at Midway Atoll.

The Midway Atoll fuel farm is designed to meet current FWS, FAA, and USCG needs. In the short term a Memorandum of Agreement will be drafted describing how the MMB agencies can share and replenish existing supplies, while increasing the capacity of gasoline, biodiesel, or other sustainable fuel types. The MMB will convert existing and new small boats, vehicles, and heavy equipment to the use of biodiesel or other sustainable fuel types where feasible.

Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.

The MMB will work toward converting existing and new small boats, vehicles, and heavy equipment to the use of biodiesel or other sustainable fuel types where feasible. Two locations will be evaluated for storage and distribution of this type of fuel. The first is located on the concrete pad adjacent to the north seawall on the inner harbor of the Atoll. This location has the advantage of being close to future small boat piers, which would allow for simple and safe fueling procedures. However, this would require regular supervision of this fuel supply in addition to that required at the fuel farm. Alternatively, the fuel could be stored at the existing fuel farm location, but this option would necessitate a fueling truck or the use of boat trailers to complete fueling operations.

Strategy CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.

A number of centralized systems such as water and sewage and a number of facilities and buildings are utilized by all personnel throughout the Monument. This critical infrastructure is the backbone of all operations. Without substantial investment in the rehabilitation and repair of these resources, all operations will be seriously impaired. System needs have been identified through the draft Midway Atoll Conceptual Site Plan and will continue to be evaluated to reduce reliance on centralized utilities. Additional needs for other islands and atolls throughout the Monument will be developed in the future as cited in CFO-1.2.

1 **Activity CFO-5.1: Rehabilitate water catchment and distribution system.**

2 Within 5 years the water catchment and distribution system will be rehabilitated in order to
3 adequately supply existing needs and those envisioned in the draft Midway Atoll Conceptual Site
4 Plan.

6 **Activity CFO-5.2: Rehabilitate septic and wastewater systems.**

7 Reliable septic and wastewater systems will be required to support existing and additional needs
8 envisioned in the draft Midway Conceptual Site Plan. The rehabilitation of these systems will
9 take place within 5 years.

11 **Activity CFO-5.3: Treat all wooden historic structures at Midway Atoll for termites.**

12 All wooden historic structures must be treated for termites within 3 to 5 years in order to
13 maintain the structural integrity of the buildings. Without treatment, the buildings will
14 deteriorate beyond repair.

16 **Activity CFO-5.4: Evaluate and expand food services as necessary.**

17 The Clipper House presently serves as the primary food service facility at Midway. Overall food
18 services will need to be expanded to accommodate future population increases.

20 **Activity CFO-5.5: Rehabilitate seaplane hangar.**

21 Due to its size (large enough to hold heavy equipment, boats, and workshops), its location (short
22 distance from inner harbor and boat ramp), and its historic significance (designed by Albert
23 Kahn and still contains scars from the Battle of Midway), the seaplane hangar needs to be
24 maintained. A priority is to replace the roof of the building.

26 **Activity CFO-5.6: Repair inner harbor sea wall.**

27 The inner harbor is critical to operations at Midway. Any future docking and pier facilities in the
28 harbor must be preceded by the repair of the existing seawall within 15 years.

30 **Strategy CFO-6: Within 5 years improve the small boat operational capacity to enable
31 quick, reliable access to the region in support of management and continue to enhance the
32 program throughout the life of the plan.**

34 Improved access to the islands and atolls of the NWHI has been identified as a top priority.
35 Small boat support is a key component to reliable access between islands and around individual
36 island reef systems. Small boat capacity is instrumental to research, conservation, enforcement,
37 outreach, education, and emergency response throughout the archipelago.

39 **Activity CFO-6.1: Inventory, maintain, and coordinate the use of small boats and related field
40 resources.**

41 The Co-Trustees have a variety of small boats and related field resources that are used for
42 fieldwork within the Monument. An inventory of small boats and support equipment will be
43 conducted Monumentwide to determine whether these resources can be used more effectively
44 by the Co-Trustees, and to reduce duplicative efforts.

1 **Activity CFO-6.2: Within 2 years, station additional vessels at Midway for use during the**
 2 **summer marine research field season.**

3 New vessels will be used to support existing field activities at Midway Atoll and to establish an
 4 annual research and monitoring program for marine debris, maritime heritage, and coral reef
 5 communities. These vessels will expand the range of operations both inside and outside the
 6 lagoon as well as to Kure Atoll on a limited basis.

7
 8 **Activity CFO-6.3: Within 5- 10 years station a small research/enforcement vessel at Midway**
 9 **Atoll.**

10 A small research/enforcement vessel (SRV) would expand research, enforcement, education,
 11 response, and restoration capabilities from French Frigate Shoals to Kure Atoll. Repair and
 12 maintenance facilities will be established at Midway, and full-time support personnel will be
 13 identified to properly manage this asset. This vessel will be permanently based at Midway, but
 14 could also be based out of the main Hawaiian Islands for part of the year to service the southeast
 15 portions of the Monument. This vessel will provide the opportunity to dedicate short cruises to
 16 individual projects on a regular basis.

17
 18 **Activity CFO-6.4: Construct new finger piers along the north wall of Midway's inner harbor.**

19 To meet the small boat needs, within 5 years evaluate the structural integrity of the inner harbor
 20 seawall, make appropriate improvements, and construct three finger piers. These piers will be
 21 designed to simplify fueling and loading as well as to provide short term in-water storage for a
 22 variety of small boats. Midway's inner harbor is not fully protected from outside sea conditions,
 23 and additional piers will allow for sheltered small boat storage under a variety of conditions.

24
 25 **Activity CFO-6.5: Redevelop existing boathouse at Midway into a multiuse facility.** Consistent
 26 with the priorities contained within the draft Midway Atoll Conceptual Site Plan, redevelop the
 27 existing boathouse at Midway into a multipurpose boathouse, dive center, and storage facility.
 28 The facility will have maintenance bays for servicing small boats and a dive locker including a
 29 compressor, recompression chamber, appropriate storage, and work area. The building will be
 30 resited and potentially raised to address concerns over flooding on the seaplane pad. Small boat
 31 operations depend on a reliable means of removing the boats from the water. At present, the
 32 seaplane ramp that is used is not sufficiently steep, and results in inadvisable launch and
 33 recovery methods. A new boat ramp will be constructed to address this concern, while
 34 renovating the adjacent small boat pier.

35
 36 **Activity CFO-6.6: Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug**
 37 **Pier at Midway Atoll.**

38 In order to ensure access for large vessels such as NOAA, USCG, and University research
 39 vessels, Pier No. 1 and the Tug Pier will be evaluated for needed renovations and maintenance.
 40 The ability for ships to dock at Midway, in conjunction with reliable air transport, will assist in
 41 efficient research operations and crew changes on cruises, while also providing an additional
 42 place for supply ships and other vessels to dock.

Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.

Eastern Island pier renovation is required to ensure continued access for researchers and field workers. Attention is required as soon as feasible to prevent damage to boats and improve passenger safety.

Strategy CFO-7: Within 5 years identify interisland aircraft transportation options.

Available flights to and from the Monument are a limiting factor to the expansion of a visitor services program and science station at Midway Atoll, and a host of management, research, educational activities, and enforcement and emergency response throughout the Monument. Frequent and reliable access in support of these activities is needed. Flights are currently booked by individual agencies on an as-needed basis, which contributes to their high costs and low frequency. The following activities will be conducted to ensure that Monument aircraft needs are considered and met.

Activity CFO-7.1: Identify a reliable, efficient, cost-effective aircraft service to double the delivery capacity of personnel and cargo between Honolulu and Midway.

Without reliable air transport, the vast majority of current operations at Midway, as well as many operations in the other islands of the NWHI, would cease to exist. Air transport maintains the link between Midway and Honolulu, and allows Midway to serve as the logistical hub for the northern end of the archipelago. Air transport is currently limited by the small cargo and personnel capacity of the aircraft being used. Identifying a more capable aircraft service is key to the expanded function of Midway and other areas within the Monument.

Activity CFO-7.2: Within 5-10 years evaluate the need for a dedicated aircraft for transportation, research, evacuation, education, surveillance, management, and enforcement in the Pacific region.

A shared aircraft that would be used across the Pacific region or seasonally may be an effective way to defray the high costs of air transportation. Maintenance facilities and staffing would need to be considered if such a craft were acquired. The need for a dedicated aircraft will be evaluated within 5-10 years.

Activity CFO-7.3: Within 15 years acquire appropriate aircraft to service the Monument and the Pacific region.

Pending the outcome of the evaluation (Activity CFO-7.2) an appropriate aircraft or use of multiple platforms will be acquired as necessary to meet the needs of the Monument and region.

Strategy CFO-8: Develop a comprehensive dive operations program for Monument management activities within 5 years.

Coordinated dive operations are critical to effectively and safely carrying out marine research, monitoring, emergency response, and management activities. Such a program will require infrastructure and equipment investments, training, interagency communication and agreements, and compliance with all agency requirements.

1 Activity CFO-8.1: Refurbish or replace the dive recompression chamber at Midway.

2 A dive recompression chamber was installed and refurbished on Midway in the late 1990s in
 3 support of commercial dive tour operations and research. The chamber has not been serviced in
 4 over 5 years and needs to be assessed and refurbished or replaced. This chamber would be
 5 maintained by an onsite chamber operator/dive technician.

7 Activity CFO-8.2: Investigate acquisition of portable dive recompression chamber for use on a small research vessel.

9 A small, portable recompression chamber aboard the small research vessel referenced in CFO-
 10 6.3 would vastly extend the SCUBA-based research capacity of scientists in the remote NWHI.
 11 This equipment would be based at Midway and maintained by an onsite chamber operator/dive
 12 technician.

14 Activity CFO-8.3: Incorporate a dive operations center into the refurbished boathouse facility at Midway.

16 Consistent with the draft Midway Atoll Conceptual Site Plan, resite and refurbish the boathouse
 17 facility on Sand Island to include a dive center complete with storage, maintenance facility,
 18 compressor, recompression chamber, dive locker, and tool shed as articulated in Activity CFO-
 19 6.5.

21 Activity CFO-8.4: Support interagency dive operations.

22 Agency dive supervisors will support interagency and contract field operations by maintaining
 23 updated reciprocity agreements, open communication among agency dive masters and chief
 24 scientists, and current records on agency and contract divers to ensure certifications and training
 25 requirements are current. Each agency is responsible for maintaining and ensuring the
 26 proficiency of its divers.

28 Strategy CFO-9: Develop necessary research, education, visitor, and administrative facilities across the life of the plan.

31 A variety of infrastructure needs have been identified by the MMB and partner agencies for
 32 research, education, visitor interpretation, and administration to effectively meet the vision,
 33 mission, and goals of the Monument. Planning and appropriate redevelopment of existing
 34 buildings and construction of new facilities will take place according to the priorities identified
 35 in the draft Midway Atoll Conceptual Site Plan and the future Seabird Sanctuary at Kure Atoll
 36 and Hawaiian Islands National Wildlife Refuge conceptual site plans as cited in CFO-1.2.

38 Activity CFO-9.1: Design a marine laboratory at Midway and develop in phases.

39 A variety of needs will be met by the development of a marine laboratory at Midway. An
 40 evaluation and planning effort will help determine if the research and educational needs of
 41 potential users will be best met by developing several small facilities over time, or by a design
 42 that allows new requirements to be filled as they arise. Initially the lab would provide basic
 43 amenities to augment research and education capacity including field schools, seasonal research,
 44 and long-term monitoring. A monk seal captive care facility (as outlined in activity CFO-9.2),
 45 wet/dry lab infrastructure, and quarantine standards will be included in the plan and built as

1 funding becomes available. Several locations are well suited for a laboratory and will be
2 evaluated in order to determine an appropriate site.

3
4 ***Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on***
5 ***Sand Island.***

6 A monk seal captive care facility at Midway has been identified as a critical component for
7 survival of the species. Holding tanks, water treatment and pumping capability, freezer storage,
8 and a dedicated food preparation area are required to be included in these facilities, which will
9 dramatically improve the effectiveness of rehabilitating ailing monk seals in the NWHI.

10
11 ***Activity CFO-9.3: Provide logistical, infrastructure, and transportation support for threatened***
12 ***and endangered species recovery actions.***

13 Advanced recovery efforts, particularly efforts to address juvenile survival, will require
14 logistical, infrastructure, and transportation capabilities that currently do not exist. The ability to
15 transport threatened and endangered species, equipment, and personnel among the various atolls
16 will be a challenge to efforts to relocate animals, or to capture and return animals that may be
17 brought into captivity for nutritional support or medical treatment. For example, the ability to
18 hold Hawaiian monk seals in a temporary facility, likely on Midway Atoll, is a critical
19 component of these types of recovery actions. Finally, travel from the main Hawaiian Islands to
20 Midway also restrains the ability to move people, equipment, and seals.

21
22 ***Activity CFO-9.4: Complete Phase I rehabilitation of Midway Mall and the commissary***
23 ***building.***

24 Collectively the commissary building and the Midway Mall present ideal central locations for
25 MMB and partner offices, classroom space, storage, visitor services, and basic laboratory space.
26 Phase I rehabilitation of Midway Mall and the commissary will include cleaning and
27 maintenance, completion of office and classroom space, and a feasibility study of how best to
28 incorporate solar and other renewable energy, a green roof, and other sustainable design
29 principles. The complete Midway Mall rehabilitation will require more substantial work and
30 resources.

31
32 ***Activity CFO-9.5: Construct airport welcome center on Sand Island within 2 years.***

33 A passenger terminal/welcome facility will be constructed at the airport to handle passenger
34 arrival and departures from Midway. This simple facility will offer restrooms, baggage
35 handling, and a waiting area out of the weather.

1 **Table 3.6.3 Summary of Strategies, Activities, and Agency Leads for Coordinated Field**
 2 **Operations**
 3

Strategies and Activities	Agency Lead
Strategy CFO-1: Conduct necessary site planning and infrastructure development to enhance Monument field operations capacity over the life of the plan.	
Activity CFO-1.1: Initiate and complete necessary planning to implement the draft Midway Atoll Conceptual Site Plan.	FWS
Activity CFO-1.2: Develop conceptual site plans for Hawaiian Islands National Wildlife Refuge and Seabird Sanctuary at Kure Atoll.	State of Hawaii FWS
Activity CFO-1.3: Develop a strategy for long-term sustainability for operations throughout the Monument using alternative energy systems and waste reduction within 2 years.	State of Hawaii FWS
Activity CFO-1.4: Plan for use of sustainable construction and landscape architecture for facilities and assets throughout the Monument.	State of Hawaii FWS
Strategy CFO-2: Enhance interagency planning and coordination for field operations and develop protocols and processes that will be utilized throughout the life of the plan.	
Activity CFO-2.1: Develop interagency agreements to facilitate effective field coordination throughout the Monument.	NOAA State of Hawaii FWS
Activity CFO-2.2: Develop and implement standardized field operation protocols.	FWS
Activity CFO-2.3: Assess threats that field activities pose to Monument resources.	NOAA
Activity CFO-2.4: Annually coordinate field operations to efficiently deploy personnel and share resources among agency partners.	NOAA
Activity CFO-2.5: Develop a staff coordination agreement between Midway Atoll NWR and the State Seabird Sanctuary at Kure Atoll.	State of Hawaii FWS
Strategy CFO-3: Maintain and enhance housing and field camp capacity using short-, medium- and long-term approaches across the life of the plan.	
Activity CFO-3.1: Construct low-impact structure pilot project at Midway Atoll.	FWS NOAA
Activity CFO-3.2: Replace Bravo Barracks at Midway Atoll.	FWS
Activity CFO-3.3: Replace Charlie Barracks at Midway Atoll.	FWS
Activity CFO-3.4: Rehabilitate “Officers Row” Housing at Midway Atoll.	FWS
Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.	State of Hawaii
Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at French Frigate Shoals.	FWS
Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and Hermes Atoll on Southeast Island.	FWS
Activity CFO-3.8: Maintain and enhance the existing tent field camp at Laysan Island.	FWS
Strategy CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll.	
Activity CFO-4.1: Maintain recently replaced fuel farm at Midway Atoll.	FWS
Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.	NOAA FWS

1

Strategies and Activities	Agency Lead
Strategy CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.	
Activity CFO-5.1: Rehabilitate water catchment and distribution system.	FWS
Activity CFO-5.2: Rehabilitate septic and wastewater systems.	FWS
Activity CFO-5.3: Treat all wooden historic structures at Midway Atoll for termites.	FWS
Activity CFO-5.4: Evaluate and expand food services as necessary.	FWS
Activity CFO-5.5: Rehabilitate seaplane hangar.	FWS
Activity CFO-5.6: Repair inner harbor sea wall.	FWS
Strategy CFO-6: Within 5 years improve the small boat operational capacity to enable quick, reliable access to the region in support of management and continue to enhance the program throughout the life of the plan.	
Activity CFO-6.1: Inventory, maintain, and coordinate the use of small boats and related field resources.	NOAA
Activity CFO-6.2: Within 2 years, station additional vessels at Midway for use during the summer marine research field season.	NOAA
Activity CFO-6.3: Within 5- 10 years station a small research/enforcement vessel at Midway Atoll.	NOAA
Activity CFO-6.4: Construct new finger piers along the north wall of Midway's inner harbor.	FWS
Activity CFO-6.5: Redevelop existing boathouse at Midway into a multi use facility.	FWS NOAA
Activity CFO-6.6: Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug Pier at Midway Atoll.	FWS
Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.	FWS
Strategy CFO-7: Within 5 years identify interisland aircraft transportation options.	
Activity CFO-7.1: Identify a reliable, efficient, cost-effective aircraft service to double the delivery capacity of personnel and cargo between Honolulu and Midway.	FWS
Activity CFO-7.2: Within 5-10 years evaluate the need for a dedicated aircraft for transportation, research, evacuation, education, surveillance, management, and enforcement in the Pacific region.	NOAA
Activity CFO-7.3: Within 15 years acquire appropriate aircraft to service the Monument and the Pacific region.	NOAA
Strategy CFO-8: Develop a comprehensive dive operations program for Monument management activities within 5 years.	
Activity CFO-8.1: Refurbish or replace the dive recompression chamber at Midway.	NOAA
Activity CFO-8.2: Investigate acquisition of portable dive recompression chamber for use on a small research vessel.	NOAA
Activity CFO-8.3: Incorporate a dive operations center into the refurbished boathouse facility at Midway.	FWS NOAA
Activity CFO-8.4: Support interagency dive operations.	NOAA State of Hawai'i FWS

2

Strategies and Activities	Agency Lead
Strategy CFO-9: Develop necessary research, education, visitor and administrative facilities across the life of the plan.	
Activity CFO-9.1: Design a marine laboratory at Midway and develop in phases.	FWS
Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on Sand Island.	FWS NOAA
Activity CFO-9.3: Provide logistical, infrastructure, and transportation support for threatened and endangered species recovery actions.	NOAA
Activity CFO-9.4: Complete Phase I rehabilitation of Midway Mall and the commissary building.	FWS
Activity CFO-9.5: Construct airport welcome center on Sand Island within 2 years.	FWS

1

1 **3.6.4 Evaluation Action Plan**

2
3 **Desired Outcome**

5 Determine the degree to which management actions are
7 achieving the goals of Papahānaumokuākea Marine National
9 Monument.



11
13 **Current Status and Background**

15 The Monument evaluation process is designed to meet specific site-level
17 desired outcomes and goals, as well as FWS’s and NOAA’s overarching
19 missions, goals, and priorities. The Government Performance and Results
21 Act seeks to make the Federal government more accountable to the
22 American people for the tax dollars it spends and the results it achieves. NOAA and FWS view
23 the use of performance measures for assessment and evaluation as critical to continued success.



24
25 NOAA’s strategic plan (2004a) and NOAA’s National Ocean Service Strategic Plan (NOAA
26 2003a) outline four mission goals and six cross-cutting priorities. The NMSP (National Marine
27 Sanctuary Program) falls under the first mission goal:

28
29 Protect, restore, and manage the use of coastal and ocean resources through
30 ecosystem-based management.

31
32 The NMSP also clearly supports five of the six cross-cutting priorities:

- 33 • Integrated global environmental observation and data management system
- 34 • Environmental literacy, outreach, and education
- 35 • Sound, reliable, state-of-the-art research
- 36 • International cooperation and collaboration
- 37 • Organizational excellence

38
39 The Department of the Interior is complying with the Government Performance and Results Act
40 through its performance management system, which provides useful information to managers
41 and promotes accountability for results. Specifically, FWS has adopted the following principles
42 and priorities, which all apply to Monument management:

43
44 **Conservation Principles:**

- 45 • Science: Our work is grounded in thorough, objective science.
- 46 • Stewardship: Our ethic is to conserve natural resources for future generations.
- 47 • Service: It is our privilege to serve the American people.
- 48 • Professionalism: We hold ourselves to the highest ethical standards, strive for excellence,
49 and respect others.
- 50 • Partnerships: We emphasize creative, innovative partnerships.
- 51 • People: Our employees are our most valued asset.
- 52 • Legacy: We ensure the future of natural resource conservation by connecting people with
53 nature.

54

1 Priorities:

- 2 • National Wildlife Refuge System: Conserving our lands and resources.
- 3 • Landscape Conservation: Working with others.
- 4 • Migratory Birds: Conservation and management.
- 5 • Threatened and Endangered Species: Achieving recovery and preventing extinction.
- 6 • Aquatic Species: National Fish Habitat Initiative and trust species.
- 7 • Connecting People with Nature: Ensuring the future of conservation.

8 Given the similarity of NOAA and FWS priorities and the unifying Monument vision, mission,
9 and goals, the Co-Trustees are committed to developing management plan performance measures
10 to evaluate whether the strategies and activities contained in the action plans are achieving the
11 goals and desired outcomes of the Monument. The management plan performance measures fall
12 into three categories: annual benchmarking, management capacity assessment, and outcome
13 assessment.

14
15 Annual benchmarking measures will be used to determine whether activities have occurred as
16 planned. Management capacity assessment measures will be used every 2 to 3 years to
17 determine the adequacy of implementation mechanisms and processes, including interagency
18 coordination and stakeholder and community participation. Outcome assessment measures will
19 be used every 4 to 5 years to evaluate the impacts of management actions on the resources and
20 ecosystem status. These measures will be further defined through the process described in
21 activity EV-1.1, below.

22
23 **Need for Action**

24 One of the largest challenges in the management of ocean resources lies in knowing whether
25 management actions are effective over time (Pomeroy 2004). Research and long-term
26 monitoring programs are essential in an ecosystem-based management context, to provide
27 reliable information and data to determine whether management actions are achieving desired
28 outcomes. A second and equally important challenge is improving management based on
29 reliable information and data, a sound governance process, and experience (Olsen et al. 1999).

30
31 Evaluation is needed to determine if management actions are achieving the desired outcomes,
32 addressing priority management needs, and meeting the goals of the Monument. The outcomes
33 of evaluation processes can then be used to improve processes, programs, and accountability;
34 prioritize activities; and inform constituents.

35
36 The U.S. Commission on Ocean Policy recommends that national goals and guidelines be
37 developed leading to a uniform process for effective design, implementation, and evaluation of
38 marine protected areas. The President's Ocean Action Plan has elements addressing this issue.
39 Since the Monument is the largest marine protected area in the United States, NOAA, FWS, and
40 the State of Hawai'i are in a unique position to respond to these challenges and recommendations
41 through a comprehensive evaluation process.

42
43 **Strategies to Achieve the Desired Outcome**

44 A meaningful evaluation requires the use of measurable strategies and the ability to monitor,
45 evaluate, provide feedback, and then assess what is working and what needs to be changed in

1 terms of desired outcomes, strategies, and activities. The strategy and activities are coded by the
 2 abbreviation for the action plan title, "Evaluation" (EV). A summary of strategies and activities
 3 is provided in Table 3.6.4 at the end of this action plan.

- 4
- 5 • EV-1: Implement a comprehensive evaluation process within 1 year.
- 6

7 **Strategy EV-1: Implement a comprehensive evaluation process within 1 year.**

8
 9 Management plan measures will be used to determine the degree to which management actions
 10 achieve desired outcomes, address priority management needs, and meet the goals of the
 11 Monument. The use of site performance measures will ensure that proposed changes are
 12 consistent with the Monument vision, mission, management principles, and goals.

13
 14 Evaluation activities will be developed and implemented by the MMB. Evaluation reports will
 15 be prepared and reviewed by partner agencies and organizations for review and
 16 recommendations.

17
 18 ***Activity EV-1.1: Prepare a comprehensive Monument evaluation strategy.***

19 A comprehensive evaluation strategy will be designed to guide evaluation activities over a
 20 5-year period. The strategy will describe information and data needs and methods to evaluate
 21 activity outputs and to quantify site measures. The output from this activity is a Monument
 22 evaluation strategy that describes site performance measures, their evaluation methods and
 23 timeframes, measurable elements, and roles and responsibilities of the Co-Trustees, partner
 24 agencies, and other organizations involved in the evaluation process.

25
 26 ***Activity EV-1.2: Conduct annual program review.***

27 Agency leads will be identified and responsible for developing milestones for each plan,
 28 tracking progress, and reporting to the MMB regarding milestones reached or interventions
 29 needed. The status of implementation of each action plan will be reviewed annually. MMB
 30 staff leads for each action plan will be responsible for determining the status of completion of
 31 planned activities and accomplishment of activity outputs. Data and information on site
 32 indicators will be compiled and analyzed in accordance with the timeframes described in the
 33 evaluation plan. The output of this activity is an annual report describing the status of activity
 34 implementation and recommended adjustments.

35
 36 ***Activity EV-1.3: Conduct comprehensive evaluation and prepare a State of the Monument***
 37 ***Report.***

38 During the fifth year of plan implementation, a comprehensive evaluation will be conducted
 39 considering the results of preceding annual reports and incorporating surveys, assessments, and
 40 long-term research and monitoring studies as described in the comprehensive evaluation plan
 41 (Activity EV-1.1). The comprehensive evaluation will describe the degree to which
 42 management actions have achieved desired outcomes, addressed priority management needs,
 43 and met goals for the Monument over the 5-year period. Status and trends of Monument
 44 resources, management issues, and ecosystem components will be described with
 45 recommendations for improved management actions. The output from this activity is a State
 46 of the Monument Report.

1

2 ***Activity EV-1.4: Conduct a management plan review.***

3 As part of an adaptive management approach to ensure that Monument management is
4 effective, the Monument Management Plan will undergo a 5-year review. Scientific
5 discoveries, advancements in managing marine resources, and new resource management
6 issues or approaches to issues will be updated over time.

7 The comprehensive evaluation and State of the Monument Report will serve as the primary input
8 for the 5-year management plan review. Monument staff, together with partner agencies and
9 organizations, will review past activities, revise strategies and activities accordingly, and as
10 appropriate add new strategies and activities based on priority management needs. The output of
11 this activity will be a revised Monument Management Plan and revised regulations (as needed)
12 for the next 5 years of operations, based on the review of recommended changes identified by the
13 comprehensive evaluation.

1 **Table 3.6.4 Summary of Strategies, Activities, and Agency Leads for Evaluation**

2

Strategies and Activities	Agency Lead
Strategy EV-1: Implement a comprehensive evaluation process within 1 year.	
Activity EV-1.1: Prepare a comprehensive Monument evaluation strategy.	NOAA
Activity EV-1.2: Conduct annual program review.	NOAA
Activity EV-1.3: Conduct comprehensive evaluation and prepare a State of the Monument Report.	NOAA
Activity EV-1.4: Conduct a management plan review.	NOAA

3

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