# CHAPTER 3:

# ENVIRONMENTAL EFFECTS

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## 3.1 INTRODUCTION

This section discusses the potential effects of the Proposed Action on the natural and human environment compared to the No Action alternative. A discussion of cumulative projects and effects is presented in Chapter 4.

Each section in this chapter includes the methods used for effects analysis and a discussion of factors used to determine the significance of direct and indirect effects (40 CFR, Section 1508.8). Direct effects are those that are caused by the Proposed Action and occur at the same time and place. Indirect effects are those caused by the Proposed Action but that occur later or are farther removed in distance from the Proposed Action.

### 3.1.1 Terminology

To determine whether an effect is significant, Council on Environmental Quality (CEQ) regulations require the consideration of context and intensity of potential effects (40 CFR, Section 1508.27). Context normally refers to the setting, whether local or regional, and intensity refers to the severity of the effect. Effects are categorized as follows:

- Significant – Effects would result in substantial consequences, either "beneficial or adverse" to cultural resources, populations, plant and animal communities within the local area and region, recreation opportunities, or visitor experiences;
- Minor negative effect – Adverse but not significant;
- Beneficial – A positive effect as a result of the Proposed Action; and
- No effect.

The effects analysis assumes that selecting the No Action alternative would maintain the current management regime provided by federal, state, and Monument regulations, and ongoing activities and uses, beneficial or negative, would continue at current levels. It assumes that

effects are presently occurring and would continue to occur under the No Action alternative, but that choosing the No Action alternative would not result in additional effects.

In the effects analyses, effects of the Proposed Action alternative are measured against those of the No Action alternative. A beneficial effect determination means that the Proposed Action would reduce detrimental effects on the natural environment or improve socioeconomic conditions compared to the No Action alternative. How the categories are determined is described in the following subsections for each resource area. A brief summary of the effects is listed at the beginning of each resource section (Sections 3.2 to 3.5).

### 3.1.2 Summary of Effects

This section provides a summary of potential effects of the Proposed Action on the natural and human environment compared to No Action. The Proposed Action to implement the Monument Management Plan would result, overall, in beneficial effects or no effects on most resource areas compared to the No Action alternative. Short-term negative effects could occur when animals or vegetation are being restored, protected, or enhanced. These effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to predisturbance conditions shortly after activity ceases, so this does not constitute a significant effect. In addition, these negative effects are minimized through the use of the BMPs described in Volume III, Appendix F. Therefore, while there may be short-term negative effects as a result of some activities, the long-term beneficial effects almost always offset the negative effects.

Beneficial effects of the Proposed Action on the ecosystem would result from improved planning and coordination of research, monitoring, and management actions by the Co-Trustees, compared to the No Action alternative. Although it is expected that plan implementation will result in overall beneficial effects to the human environment, these beneficial effects do not represent a significant impact. This is because the magnitude of benefits expected to result from plan implementation will be incrementally modest within in the context of the essentially uninhabited pristine lands and waters of the Monument. Research priorities would be developed to address gaps in managing the Monument based on ecosystem principles. There were no significant negative effects found as a result of any of the activities described for the Proposed Action alternative. The Proposed Action's environmental effects are summarized in the following tables: natural resources, (Table 3.2.1), cultural and historic resources (Table 3.3.1), socioeconomic resources (Table 3.4.1) and other resources (water quality, transportation and communications, infrastructure and utilities (Table 3.5.1).

## 3.2 NATURAL RESOURCES

### 3.2.1 Effects Analysis Methodology

In the description of the No Action and Proposed Action alternatives (Chapter 1), activities presented in the Monument Management Plan were divided into three categories: (1) Planning and Administrative, (2) Field, and (3) Infrastructure and Development. Planning and administrative activities are not considered to directly affect natural resources, either because they relate to development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation, or they are specifically administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately would have a direct effect and to the extent adequate information is currently available they are analyzed below. For activities proposed within the Monument or intended to improve management of the Monument, the methodology used to determine the effect on natural resources is as follows:

- Review and evaluate existing and past activities to identify their potential effect on natural resources;
- Review and evaluate activities within the Monument Management Plan to identify their potential to beneficially or negatively affect the ecosystem and its component parts within the Monument; and
- Assess the compliance of each activity within the Monument Management Plan with applicable federal, state, or local laws, regulations, and policies.

In addition, all proposed activities that may affect species protected under the ESA, MMPA, Migratory Bird Treaty Act, or other federal or state law would only proceed after compliance with applicable laws, including as necessary consultation, receipt of permits, and compliance with all permit terms and conditions.

### 3.2.2 Effects Common to Human Interactions with Natural Resources of the Monument

Possible effects from entry to the Monument include (1) effects on nesting and resting seabirds and other migratory birds, (2) effects on Hawaiian monk seals or Hawaiian population of the green turtle swimming and feeding in the nearshore marine environment or resting on beaches, (3) effects on spinner dolphins, (4) effects on fish, cetaceans, marine invertebrates, and corals, (5) effects on Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches, (6) trampling of native plants and insects, (7) damage to corals, (8) accidental release of pollution and contaminants, and (9) the accidental introduction and establishment of nonnative species. All activities would be designed and managed using BMPs, described in Volume III Appendix F of the Monument Management Plan, to avoid or minimize these effects. However, even with proper management and execution of a well planned project, certain behavioral responses in wildlife may occur that are not easily recognized by the casual observer.

There are a number of adverse consequences, including possible disturbance and mortality, every time a human or humans enter a seabird colony. Human activity or human presence in the Monument could result in detrimental effects which can be characterized as either mechanical,

thermal, or biological in nature. Mechanical effects include accidental crushing of eggs, chicks, or nest burrows and blockage of access to nest sites with gear. They also include equipment and man-made materials brought into the colony which may result in collisions or entanglement, and artificial lights at night which increase collision hazards by disorienting flying birds. Thermal effects can occur to either the eggs and/or very young chicks of seabirds that are vulnerable to exposure. Thermal stress could occur if attending adults are flushed from the nest and kept away for more than 3 minutes, so human activities that require staying in one place and in proximity to the bird nests are hazardous to birds and their young nesting in the vicinity of the operation. Biological effects include negative interspecies interactions between birds. These may be exacerbated by human presence in the colony in cases where an incubating bird is frightened away from its nest and the egg or hatchling is preyed upon by another species. If young ground-nesting terns (<1 week of age) flee their nest-site when humans approach, they may not be able to find their way back and could starve. The MBTA prohibits many of the aforementioned effects.

Stress reactions (elevated heart rate, elevated levels of corticosterone, and behavioral responses) have been documented in several species of nesting seabirds at several ecotourism locations as a result of human activities in nesting colonies (Jungius and Mirsch 1979; Fowler 1995; Nimon et al. 1995; Kitaysky et al. 2003). However, no studies have been conducted to document cumulative effects of human disturbance. Participants observing albatrosses, terns, boobies, Laysan ducks, or other species in the less visited areas could have the potential of greatly elevating stress hormone levels if the duration of the disturbance is excessive. Kitaysky et al. (2003) showed that limited-duration disturbance, however, has only minor, short-term effects. For this reason, BMPs for access would be implemented.

BMPs to avoid or minimize effects on seabirds and to limit access (See Monument Management Plan, Volume III, Appendix F) require several actions. These include when a person first approaches a seabird colony they must look for any nests or for adults flushing from inconspicuous nests. Searching for nests before approaching an area and avoiding any nests will increase protection for the birds and minimize effects from disturbance. Also, all activities would be planned to avoid displacing adults from their eggs or chicks for any longer than 3 minutes. Planning such as timing maintenance work for periods when the fewest birds are in the area or during non-seasonal windows is also important. In addition, BMPs include restricting observation periods for any particular bird or group of birds to 15 minutes or less (though observations occurring from a blind can continue for up to 1 hour) and incorporating quarantine protocols. It is important to note that even wildlife photography by professionals or amateurs can often be disturbing depending on the manner in which it is pursued. Another method to reduce the effects of human operations is in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building, as well as applying special terms and conditions in the Monument permitting process.

Human activities have played a major role in determining the status and population trends of Hawaiian monk seals over the past two centuries (Ragen 1997). From the 1960s to the 1990s, decreases in Hawaiian monk seal populations at several locations (French Frigate Shoals, Midway Atoll, and Kure Atoll) have been associated with human disturbance (Gerrodette and

Gilmartin 1990). Recreational beach activities caused Hawaiian monk seals to alter their pupping and hauling patterns, and survival of pups in suboptimal habitats was low, leading to gradual population declines (Kenyon 1972). Human activity and disturbance caused substantial declines at Midway Atoll (Kenyon 1972). Beach counts of Hawaiian monk seals at Midway Atoll averaged 56 animals in the late 1950s, but declined severely by the late 1960s, with only a single seal observed during an aerial survey in 1968. It is clear from these examples that Hawaiian monk seals are very sensitive to disturbance, and proposed activities would be carefully reviewed and, as appropriate, restricted so no further effects on seals would occur.

All water and land activities could continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on protected species. For example, should a Hawaiian monk seal or other listed species be observed during a dive trip or operations by humans, the standard procedure is to cease all activity until the animal departs the area. These procedures have been implemented for decades, with the result being no effects on listed wildlife, and only minimal disturbance with no lasting effects on other wildlife (such as to fish that may temporarily avoid or aggregate around divers).

Increased use of Monument waters also increases the potential for introductions of nonnative species, and the potential for negative interactions between humans and Hawaiian monk seals, sea turtles, spinner dolphins, cetaceans, and live corals. Data from research cruises in 2000, 2002 and 2003 have confirmed that at least 11 invasive species of fish, invertebrates and algae have been established in the NWHI. These introducions can have negative short and long-term effects on native species and ecosystems. Any action of pursuit or annoyance from boats potentially disturbs marine mammals in the wild by causing disruption of their behavioral patterns or displacement from essential habitat areas, especially if the cetaceans or seals are in a resting phase (Bejder et al. 1999) and these activities are prohibited under the MMPA. Snorkel or dive operations also include the added risk of damaging living coral (Hawkins et al. 1999). Improper boat operation could result in significant localized effects on the coral reef from repeated anchoring, touching, standing, or other avoidable physical disturbance to the coral.

Maintenance and repair for management operations at all sites where seasonal or year-round personnel reside may sometimes temporarily disturb or displace nesting seabirds or native plants. Examples of these activities are painting, maintaining septic and wastewater systems, keeping runways, roads, and trails clear, and repairing structures and real property assets. These effects are reduced by using standard BMPs, such as timing maintenance work for periods when the fewest birds are nesting in the area. Another method to reduce the effects of operations is, in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building.

BMPs used to reduce the risk of bird air strike vary between Midway and French Frigate Shoals because of different species compositions of seabird colonies next to the runways, different types of aircraft used at the two sites, and different constraints based on the runway facilities at each site. The two million seabirds that use Midway during the peak season make aircraft flights to the island potentially hazardous to both the birds and the aircraft personnel. Both Laysan and black-footed albatross use the runway as a soaring area on their way to feed during the day. However, bird use of the runway declines dramatically at night (363 versus 6 seabird runway

crosses per minute, according to Dolbeer and Arrington [1996]), so night flights have a greatly reduced chance of hitting birds (Kenyon et al. 1958). During the primary albatross season, i.e. November through July, flights are scheduled to arrive and depart after dark, thus minimizing effects on albatross and other seabirds (U.S. Fish and Wildlife Service 2004b). During August, September, and October, flights arrive during the day and may occasionally hit a white tern or brown noddy (U.S. Fish and Wildlife, No date). It is not possible to reduce the bird strike risk at Henderson Airfield to zero at any time of day or year, short of suspending all administrative and nonadministrative flight operations. However, the overall effects on natural resources becomes minimal with the small number of annual flights to the island, the requirement of night flights for most of the year, management of lights, advisory to pilots regarding flight paths, and runway clearing. Additionally, vegetation management along the runways modifies bird flight and nesting behavior, and therefore the runway is swept before each flight arrival or departure to remove or disperse birds.

At Tern Island and French Frigate Shoals, the species most commonly killed during aircraft operations is the sooty tern, but occasionally wedge-tailed shearwaters, great frigatebirds, and both species of albatross are also hit. Tern Island does not have runway lights, so all operations are done during daylight. Just before landings and takeoffs, all the staff members on the island frighten birds way from the runway. Flight activities could have a minor negative effect on migratory birds because of increased noise disturbance and potential air strike interaction. However, they also have a beneficial effect on all natural resources by facilitating management actions that benefit wildlife and habitats.

### 3.2.3 No Action

This section briefly describes activities that are currently under way in the Monument and provides analysis of the effects associated with these activities. Only those activities that could have an effect on natural resources are included in the analysis. The analysis describes the projected beneficial and negative effects that could be expected to continue under the No Action alternative, should this alternative be selected for implementation. Implementation of the No Action alternative could result in no change to the current situation; however, current activities could continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.2-1 at the end of this section.

#### 3.2.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands

**Maritime Heritage Action Plan**

***Planning and Administrative Activities***

As part of the No Action alternative, efforts are under way to plan for conservation of selected maritime artifacts (MH-1.4). Artifacts would be recovered only when this activity can proceed in a manner that respects the integrity of the ecosystem and the goals of the Monument. These activities could have a short-term minor negative effect on terrestrial and marine native species and habitat during recovery actions due to land disturbance, human disturbance, and noise. Operations to recover maritime heritage artifacts occur over a short period of time, and once the recovery is completed, the disturbed areas would be restored as part of BMPs.

***Field Activity***
The effort to monitor, map, and characterize existing resources includes maritime heritage as well as biological and ecological resources are identified in activity MH-1.2. Shoreline terrestrial surveys and inventories, marine remote sensing using magnetometer, and side-scan sonar would continue to be used to locate potential maritime heritage targets, and noninvasive diving surveys would continue for assessing and inventorying sites. All in-water and on-land activities are and would continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. For example, should a Hawaiian monk seal or other listed species be observed during a dive, the standard procedure is to cease all activity until the animal departs the area. In addition, any person who encounters a Hawaiian monk seal on a beach while conducting an activity not related to Hawaiian monk seal population monitoring and recovery actions must not come within 150 feet (46 meters) of the seal. The 150 foot (46 meter) buffer around these animals is a general minimum distance, but for certain activities greater distance may be necessary to avoid take. These BMPs have been in effect for decades to avoid negative effects on the Hawaiian monk seal. The agencies also commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

Prior to implementation of this activity, additional compliance may be required. There may be a short-term minor negative effect on threatened and endangered species, migratory birds, and marine species from vessels and diver presence during annual maritime heritage field surveys. However, affected individuals could be expected to resume normal behavior within a short period of time, with no lasting negative effects. (See section 3.2.2 for detailed discussion of effects.) The agencies also commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

### 3.2.3.2 Conserving Wildlife and Habitats

**Threatened and Endangered Species Action Plan**

***Planning and Administrative Activities***
Plans are under way for education, training, and regular interaction with species and habitat experts to build the capacity of the consulting agencies to conduct consultations and coordinate with action agencies (TES-8.3). NMFS and FWS will investigate the possibility to provide targeted workshops explaining the requirements for project specific and programmatic ESA consultations and work with partners to develop "best practices" and other protocols to avoid effects on listed species and habitats. Implementation of these best practices and protocols developed during the workshops would impose conditions on all future activities for additional protection of listed species and habitat, resulting in long-term beneficial effects on natural resources of the Monument.

***Field Activities***
The No Action alternative includes efforts to reduce marine debris within the Monument and to continue with large-scale efforts to remove debris from critical aquatic habitats (TES-1.1).

There could be short-term minor negative effects on seabirds from boats and humans during marine debris removal activities. Common effects that occur when humans enter a seabird colony are discussed in section 3.2.2. These effects could be reduced by adhering to operational protocols and implementing standard BMPs (see Volume III, Appendix F). However, there could be an overall beneficial effect on the endangered Hawaiian monk seal by reducing injuries and mortality from entanglement in marine debris. Entanglements of migratory birds could also decrease. Marine habitat could benefit from minimizing damage to coral and other marine species from scouring by tangled nets.

Annual spinner dolphin mark/recapture photo identification surveys would be continued at Midway, Kure, and Pearl and Hermes Atolls (TES-2.2) under the No Action alternative. Understanding the population trends of this species could aid in evaluating the success of management activities. Being able to adapt management actions based on real-time data could allow managers to make changes more quickly and could ultimately benefit spinner dolphin populations.

Activities in place to conserve green turtle nesting and basking habitat (TES- 3.2) through the use of BMPs (see Monument Management Plan, Volume III, Appendix F) currently prevent the introduction of mammalian predators on eggs and hatchlings, reduce artificial lighting near nesting beaches, prohibit undesirable habitat alteration, and control human access. Limited-entry policies would be continued, and human activities would be strictly regulated at islands and reefs used by the Hawaiian population of green turtles. Implementation of these activities would comply with ESA recovery permits that include terms and conditions to avoid or minimize effects. Protection and management of nesting habitats could increase nesting success for the green turtle, resulting in long-term beneficial effects on green turtle populations.

Laysan duck population monitoring on Laysan Island and Midway Atoll would continue through mark-recapture and monitoring of reproductive success and survival, disease screening and prevention to avoid translocation of unhealthy individuals, and genetics research to prevent loss of genetic diversity during population translocation (TES-5.1). During mark-recapture and recovery efforts, handling and marking individual ducks could disturb individual organisms, possibly causing them to temporarily leave a nest or other habitat, discontinue feeding, preening, basking or other behavior. While mark-recapture activities may disturb individuals of a population, resulting in short-term negative effects, the long-term beneficial effects of increasing the number and health of the entire population of Laysan ducks would more than offset the short-term negative effects.

Monitoring is a critical element and could be used for adaptive management. Before monitoring takes place, all necessary compliance requirements would be completed. During monitoring, trampled vegetation, human presence, and noise could have short-term minor negative effects on native habitat and could disturb other bird species present. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects.

Annual censuses of passerine populations and monitoring of their food and habitat would continue under the No Action alternative. This includes monitoring the status of native plant and

terrestrial invertebrate populations (TES-6.1). This could result in a long-term beneficial effect on passerines by enabling managers to identify changes in population dynamics early so that additional management activities could be implemented to preserve passerine populations. Field activities associated with monitoring passerines could have a short-term minor negative effect on passerine birds and native habitat through human presence and minor trampling of vegetation. These effects could be reduced by adhering to the operational protocols and implementing standard BMPs (see Volume III, Appendix F). Endangered passerines in the Monument (Nihoa finches, Nihoa millerbirds, and Laysan finches) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll. In addition, the agencies would commit to consultation under the ESA, or MMPA, as appropriate, for any action began that could affect any bird, marine mammal, federal listed species, or designated critical habitat.

Activity TES-7.3 continues actions for the preparations necessary for the establishment of a self-sustaining *Pritchardia remota* population on Laysan Island, including eliminating alien species (TES-7.3). Seeds of native species, e.g., *Pritchardia remota* and *Mariscus pennatiformis*, would continue to be collected from the wild (taking no more than 15 percent of the seeds from any one plant) and reared in a greenhouse on Laysan Island. Strict protocols are followed during seed collection and propagation to avoid transport of pests, diseases, and pathogens. The Monument staff would also continue to propagate approved seed sources collected on Laysan Island in the greenhouse on Sand Island (TES-7.4). These activities could result in a beneficial effect on threatened and endangered species, native habitat, and migratory and passerine birds that use the habitat for cover, nesting, and feeding because they would provide high value habitat to the species that use these fauna and thus would be an important part of the overall protection of the species. To protect *Prichardia remota* from catastrophic events and achieve recovery objectives, this species is being established outside its known native range on Laysan Island and Eastern and Sand Islands at Midway Atoll (TES-7.5). Effects on native species and risk of hybridization with closely related species would be evaluated before sites are chosen and species are translocated. The goal is to create three colonies with at least 100 mature individuals per colony. In addition, during restoration the actions of replacing vegetation, human presence, and increased noise could have a short-term minor negative effect on native habitat and could disturb other bird species. (Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2.) Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects.

### Migratory Birds Action Plan

#### *Planning and Administrative*

The Monument staff will work with partners to reduce the effect of commercial and sport fisheries outside the Monument on migratory bird populations (MB-2.5). The black-footed

albatross and Laysan albatross that nest almost exclusively in the Monument are most affected by bycatch mortality (Flint 2004). The FWS, NMFS, and the Regional Fisheries Management Councils have worked cooperatively to implement the National Plan of Action to reduce seabird bycatch, which has reduced mortality from the U.S. based commercial fleet. The agencies are working to extend these efforts to reduce mortality from foreign-based fishing fleets. Continued implementation of this plan could reduce incidents of bycatch mortality in fisheries inside and outside the Monument, resulting in long-term beneficial effects on migratory bird populations in general and the black-footed albatross and Laysan albatross in particular.

**Habitat Management and Conservation Action Plan**

***Field Activities***

Efforts are under way to collect and "fingerprint" oil found washed ashore and on wildlife from mystery spills to determine its origin and build an oil sample archive for possible use as evidence to assign liability (HMC-2.5). The ability to identify the primary sources of oil spilled into the marine environment could provide knowledge needed for developing measures to prevent future spills, thereby reducing the number of future spills, which could lessen the overall effects of oil in the long term. Fingerprinting the source could also provide potential funding as the vessel owners could be made to pay for the spill and cleanup, as is standard if proof can be made, which would provide more income for conservation actions. However, it is important to note than none of these post spill practices outweigh the detrimental effects of oil in the marine environment. Past experience in similar circumstances indicate there are beneficial effects on ocean, nearshore, and shoreline habitats to be had by reducing illness and death of associated marine species that use these habitats (including threatened and endangered species, migratory and resident birds, and marine mammals), and by minimizing the fouling of plants in the nearshore and shoreline beaches.

Under the No Action alternative, monitoring would continue in the area at Laysan Island that was contaminated by the insecticide carbofuran (HMC-2-6). Carbofuran was causing mortalities in carrion flies and ghost crabs at a beach crest site at Laysan Island. The area was cleaned and treated on-site. Continued monitoring to detect evidence of carbofuran resurfacing at Laysan Island would provide managers with the necessary information to quickly institute a cleanup plan to prevent or minimize any future losses. This could result in a long-term beneficial effect on endangered Laysan finches, the dune habitat, and associated insects and other arthropods on Laysan Island.

A plan is in place to propagate and outplant native species, chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island, on 250 acres of vegetated area at Midway Atoll, focusing on the original footprint of the islets of Midway Atoll. Target species for outplanting include bunchgrass (*Eragrostis variabilis*), naupaka (*Scaevola sericea*), morning glory (*Ipomoea pes caprae* and *I. indica*), *Solanum nelsonii*, *Capparus sandwichiana*, *Chenopodium oahuense,* and *Lepidium bidentatum* (HMC-4.1). The restoration of native habitats through propagating and outplanting native species on Midway Atoll could result in long-term beneficial effects on threatened and endangered species, migratory birds, and other native plants and insects. During restoration, the actions of replacing vegetation, human presence, and increased noise could have a short-term minor negative effect on native habitat

and/or could disturb other bird species. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects. In addition, the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action began that could affect any marine mammal or federally listed species or designated critical habitat.

Current efforts to reestablish 60 acres of native shrub community on Laysan Island would continue under activity HMC-4.3. Reestablishing native shrubs is preceding the removal of the alien plant *Pluchea indica* to avoid an interim loss of nesting substrate for red-footed boobies, great frigatebirds, and black noddies. The restoration effort on Laysan Island would continue to focus on restoring plants, terrestrial arthropods, and avian components of the biological community that occurred before human contact. Reestablishing the native shrub community could result in a beneficial effect on threatened and endangered species, migratory birds, terrestrial arthropods, and native habitat by expanding and improving the quality of habitat. During restoration, human presence and increased noise could have a short-term, minor negative effect on native habitat and could also disturb other bird species. These effects could be reduced by adhering to operational protocols and by implementing standard BMPs (see Volume III, Appendix F). Endangered Laysan finches are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects. In addition, the agencies commit to consultation under the ESA and MMPA, as appropriate, before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

Changes in species composition and structure of the coastal shrub and mixed grass communities on basaltic islands in the Monument would continue to be monitored under activity HMC-4.7. Field activities associated with monitoring vegetation communities could have a short-term minor negative effect on seabirds and native habitat through human presence and minor trampling of vegetation. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. These effects could be reduced by adhering to operational protocols and implementation of standard BMPs (see Volume III, Appendix F). Endangered passerines on Nihoa (Nihoa finches, Nihoa millerbirds,) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll to avoid effects on these species. Every effort would be made to minimize effects, and affected individuals

would be expected to resume normal behavior within a short period after the activity has ended, with no lasting negative effects. In addition, the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat. Monitoring data could be used to determine future needs through adaptive management, resulting in a beneficial effect on the coastal shrub and mixed grass communities.

Under activity HMC-6.1, water quality monitoring would continue, including monitoring water level, salinity, and other water quality parameters of Laysan Lake and mudflats on Laysan Island and ʻākulikuli (*Sesuvium portulacastrum*) flats at Southeast Island, Pearl and Hermes Atoll, and Spit Island at Midway Atoll, and documenting any loss of lake area. Monitoring changes in such environmental factors as lake water level and salinity currently provide data used to plan restoration and to assess its efficacy. As needed, dune habitat on Laysan Island would be restored to stabilize movement if lake loss started to occur, as identified in activity HMC-6.2. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Overall, these activities listed above could result in a beneficial effect on threatened and endangered species, migratory and passerine birds, and native vegetation by protecting existing freshwater and saline water sources, and by reducing lake loss from encroaching dunes. There could be short-term minor negative effects on species, such as migratory shorebirds and Laysan ducks, using the mudflats and lakes due to human disturbance during monitoring. However, affected individuals would be expected to resume normal behavior within a short period, with no lasting effects once the activity was finished assuming aforementioned BMPs would be in place. In addition the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat.

#### 3.2.3.3 Reducing Threats to Monument Resources

**Alien Species Action Plan**

***Field Activities***

Under activity AS-3.2, hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument would continue to be required. Current quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument would continue under activity AS-3.1. The absence of activities to adequately control and eradicate invasive species, such as *Verbesina* sp., grey bird locust, and house mouse, would cause negative effects on migratory birds, endangered plant and bird species, and other native species and their habitats. Requiring hull inspections and following quarantine protocols would greatly reduce the potential to introduce invasive species into the Monument. Reducing competition with and predation by invasive species would protect the health and condition of all habitat and species in the Monument and would have a beneficial effect on these resources.

**Maritime Transportation and Aviation Action Plan**

***Infrastructure Development Activities***

Efforts would continue to encourage the energy and water efficiency of vessels operating in the Monument under activity MTA-2.4. For example, the NOAA ship Hiʻialakai began a recycling

program and installed water-saving devices to reduce inputs to the Monument as much as possible. Plans are in place to test the use of biofuels and nonpetroleum-based hydraulic fluid. Increased efficiency would not have a direct beneficial effect on natural resources, but as global habitats and resources are conserved, indirect beneficial effects on natural resources would result.

### 3.2.3.4 Managing Human Uses

#### Permit Action Plan

***Planning and Administrative Activities***
Coordination of appropriate environmental review for all permitted activities would continue under activity P-1.3. Permitting activities would ensure that permittees are aware of all protocols and operating requirements, and the required environmental review of all proposed activities would assess any potential effects of the activities on the resources of the Monument. Coordinating appropriate environmental review to consider the effects of both federal and state actions could result in a beneficial effect by protecting the natural resources of the Monument.

#### Enforcement Action Plan

***Planning and Administrative Activities***
Under the No Action alternative, operation of the VMS for all permitted vessels (EN-2.2) would continue. Additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument would continue to be integrated under activity EN-2.3. In addition regulations briefings in pre-access training required for all Monument users would continue (EN-3.1). The ability to monitor all permitted vessels transiting the Monument would allow enforcement personnel to ensure vessels are following procedures identified in the pre-access training and are operating within their permit area. Additionally, enforcement personnel would be able to respond quickly to vessels engaged in activities that constitute a violation. This could result in a beneficial effect on all resources of the Monument by reducing the potential of vessel groundings vessel dumping, oil spills, etc.

#### Midway Atoll Visitors Services Action Plan

***Planning and Administrative Activities***
Activity VS-2.2 includes visitor services specialists and Midway Atoll staff continuing to review the visitor program every two years. The team would review the visitor services to evaluate whether the program is meeting its objectives. This information would inform on such planning decisions as the extent of visitor interactions with wildlife that would be permitted in the future. Reviewing the visitor program every two years would provide a consistent and relatively frequent way to identify potential problems with any existing planning actions and also allows for changes to be made to the plan to additionally minimize any effects visitors might have on the Monument's natural resources, resulting in a long term beneficial effect. The effects of implementing the Interim Midway Atoll Visitor's Plan are evaluated in the associated final EA for the Interim Visitor Services Plan (U.S. Fish and Wildlife Service 2007b). That document may be found at http://www.fws.gov/midway/VSP/AppendixG.pdf and is incorporated by

reference herein. The effects of the No Action alternative are the same as those set out in the EA for the Interim Plan.

### 3.2.3.5 Coordinating Conservation and Management Activities

#### Constituency Building and Outreach Action Plans

***Planning and Administrative Activities***

Under activity CBO-1.2 the Monument staff would continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument's natural, cultural, and historic resources and on-going activities. The MMB agencies would continue seeking out and participating in events that reach a broader audience and provide constituents with knowledge of the Monument (CBO-3.1). The Monument staff would continue participating in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA's ONMS until the Monument Alliance is established (CBO-3.8). Engaging Monument constituencies through integrated communications and interactive experiences could result in a beneficial effect on the Monument's natural resources because Monument staff, MMB agencies and members of the Council would be able to more easily provide input from stakeholders and to share information that might be useful in managing natural resources and supporting future programs.

#### Ocean Ecosystems Literacy Action Plan

***Planning and Administrative Activities***

At least four teacher workshops per year would be conducted in the main Hawaiian Islands to introduce and support the elementary school and middle school and high school environmental education programs (OEL-1.4). Teacher workshops could increase awareness of the importance of natural resources among teachers and students alike, and possibly among students' families, and would likely increase interest in the Monument and generate support for conservation of its resources. These workshops could result in a beneficial effect on Monument natural resources by creating opportunities to expand public involvement in, enhancing cultural awareness of, and increasing support for protection and restoration efforts, including volunteer participation in Monument activities.

### 3.2.4 Proposed Action

This section describes the effects of the activities that would be conducted under the Proposed Action. Those activities described above for the No Action alternative, and their beneficial and negative effects, would continue. The effects of the Proposed Action are summarized in Table 3.2-1 and include those effects that would occur with the continuation of actions described in the No Action alternative.

In the subsections that follow, the component activities of the Proposed Action are briefly described, followed by a discussion of the effects of each activity.

### 3.2.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands

#### Marine Conservation Science Action Plan

***Field Activities***

The Proposed Action alternative includes measuring connectivity and genetic diversity of key species to compare the similarity or differences of populations (MCS-1.5). Understanding the genetic diversity of species groups, and the way in which the populations in areas change could be helpful to forecast, prepare for and mediate potential threats to populations within the Monument. The Monument staff would implement management-driven research priorities identified in the Monument Natural Resources Science Plan under activity MCS-2.4, which would include monitoring both marine and terrestrial environments. Before implementing this activity, additional compliance might be required. Establishing research priorities would allow researchers to focus on and evaluate areas of greatest importance to the health and protection of the Monument, thereby more effectively applying needed resources to the most critical areas, resulting in long-term beneficial effects on ocean and nearshore habitats. These data could also feed into an adaptive management strategy to improve research results.

#### Native Hawaiian Culture and History Action Plan

***Planning and Administrative Activities***

The Proposed Action alternative includes the preparation of a Cultural Resources Program Plan (NHCH-4.1) and the integration of Native Hawaiian values and cultural information into general outreach and education programs (NHCH-5.1). The Proposed Action also calls for the development of a culturally based strategy for education and outreach to the Native Hawaiian community (NHCH-5.2) and integration of Native Hawaiian values and cultural information into Monument permittee education and outreach program (NHCH-5.3). Native Hawaiian culture and history activities proposed under the NHCH Action Plan would increase access to Monument islands for observing Native Hawaiian cultural practices. These activities may result in effects such as temporary disturbance or displacement of native wildlife and plants. Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2. These short-term minor negative effects are reduced by using BMPs mentioned in Section 3.2.2. These activities would also educate the public as to the importance of the natural environment to Native Hawaiian culture and would ensure that efforts to maintain and restore the natural environment within the Monument take into account traditional Native Hawaiian values and culture. Native Hawaiians and the general public would see that conservation management and respect for traditional beliefs and practices can work together. This in turn could generate greater public support efforts to maintain, restore, and protect the environment, resulting in a beneficial effect on the natural resources within the Monument.

#### Historic Resources Action Plan

***Planning and Administrative Activities***

Activity HR-1.1 proposes to reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead-based paint abatement plan, and other facilities maintenance and use plans. HR-1.2 proposes to submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners, and activity HR-2.1 proposes that

within three years, a dedicated capacity to implement the updated Historic Preservation Plan would be created. The Proposed Action alternative proposes to train Monument staff and the Midway contractors annually on the content of the Historic Preservation Plan and implementation of appropriate treatments (HR-2.2). The Historic Preservation Plan includes protocols for not only carrying out historic resource preservation and restoration activities but protocols to ensure that actions taken as part of the plan would be done to avoid any effects on protected species and generally to minimize effects on the Monument's natural resources. The removal of the lead-based paint from buildings and adjacent soil, and following the protocols to minimize effects of preservation and restoration work, would result in a beneficial effect on all natural resources, including on threatened and endangered species and terrestrial habitats. It is estimated that over the life of the project, 6,745 to 9,900 Laysan albatross chicks would be saved from lead poisoning a year (Finkelstein 2006).

**Maritime Heritage Action Plan**

***Planning and Administrative Activities***

A status report on potential environmental hazards would be completed within a year and updated annually under activity MH-1.3. This activity would identify wreck sites and other debris that represent potential environmental hazards, such as leaking fuel, debris-containing hazardous material, and debris with unknown contaminants. The plan not only identifies these sites but identifies plans for containment, cleanup, removal, and remediation to minimize the potential contamination to ocean, nearshore, and shoreline habitats. The long-term beneficial effects of implementing the plan are to protect and improve the health of these habitats and the species found there, including threatened and endangered species, marine mammals, and migratory birds.

### 3.2.4.2 Conserving Wildlife and Habitats

**Threatened and Endangered Species Action Plan**

***Planning and Administrative Activities***

Activities that are proposed under the Threatened and Endangered Species Action Plan include planning activities designed to conserve Hawaiian monk seal habitat (TES-1.3) and to reduce the likelihood and effect of human interactions on monk seals (TES-1.4). Before these activities were implemented, additional compliance might be required. The goal of these proposed activities is to restore seal habitat for resting, breeding, and rearing pups and to educate Monument users on proper implementation of standard operating protocols and BMPs (see Monument Management Plan, Volume III, Appendix F). These activities could have a beneficial effect on the endangered Hawaiian monk seal by improving the health of adults and improving breeding success and juvenile survival rates. In addition, using existing BMPs to control activities and reduce disturbance along the beaches could provide benefits to other species as well, such as migratory birds using these areas for nesting and feeding.

Activity TES-1.5 includes actions that would support outreach and education on Hawaiian monk seals. Educating the public and interest groups with information to understand the critical status of the Hawaiian monk seal population would result in better protection of the seal while outside the Monument; for example, the public would know to give space to Hawaiian monk seals

resting on beaches on the main Hawaiian Islands. Increased awareness through outreach and education could have a long-term beneficial effect on the recovery of the Hawaiian monk seal population by reducing incidents of human interaction and harassment, thereby allowing the seal to conserve energy for activities like feeding and reproduction.

Under activity TES-4.1, the FWS would work with Japanese ornithologists on ways to establish one or more breeding populations of the endangered short-tailed albatrosses on Midway Atoll. The goal is to have two colonies of at least 250 breeding pairs per colony (U.S. Fish and Wildlife Service 2005a). Collaborative efforts would also include satellite tagging projects studying feeding patterns, how weather systems and winds influence short-tailed albatross movements, and how ocean productivity and seafloor bathymetry affect their distribution. This would protect the species by establishing nesting colonies on islands free from volcanic activity and mammal predators, resulting in a beneficial effect on the endangered short-tailed albatross species. Activity TES-4.3 would create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument. Bycatch of endangered and migratory birds and nontarget marine species during commercial fishing by foreign fleets outside the Monument is a serious problem. This activity would make information on bycatch avoidance measures available to commercial fishers and would result in a beneficial effect on endangered species, migratory birds, and other marine species that inhabit the Monument by reducing bycatch mortality when they are migrating outside the Monument.

To protect *Amaranthus brownii*, *Schiedea verticillata*, and *Prichardia remota* from catastrophic events and to achieve recovery objectives, the potential for establishing these species outside their known native range on Mokumanamana, Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll would be assessed under activity TES-7.5. To minimize the negative effects on native species, the potential for displacement and risk of hybridization with closely related species would be evaluated before sites were chosen and species translocated. The goal is to create three colonies with a minimum of 500 mature individuals per colony of *Amaranthus brownie*, 300 mature individuals per colony of *Schiedea verticillata*, and 100 mature individuals of *Prichardia remota* (U.S. Fish and Wildlife Service 1998). Evaluating the potential to translocate *Amaranthus brownii*, *Schiedea verticillata*, and *Prichardia remota* could result in a beneficial effect on the species once translocation occurs by establishing new populations and providing increased protection from catastrophic events. Before this activity is implemented, additional compliance may be required.

***Field Activities***

Activities supporting and facilitating emergency response for the endangered Hawaiian monk seal would put into place standardized protocols that could ensure a rapid and well-organized response to situations in the Monument that threaten endangered Hawaiian monk seals (TES-1.2). Improved coordination and collaboration among agencies to facilitate effective and rapid emergency response to ship groundings, oil spills, disease outbreaks and other events would minimize effects on Hawaiian monk seals. Additionally, Monument staff would continue to monitor predation of sharks on Hawaiian monk seals and its effects and develop and implement methods to deter predation as appropriate (TES-1.6). These activities could have a beneficial effect on the endangered Hawaiian monk seal by decreasing population loss. There could also be beneficial effects on migratory birds, marine mammals, and terrestrial and marine habitat by

reducing exposure to oil spills. There may be short-term minor negative effects on marine mammals due to disturbance from response activities. However, emergency response activities would be temporary, and affected individuals would be expected to resume normal behavior within a short period after the activities were completed. In addition, the agencies commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat.

Expanding field activity for collecting biological information on nesting turtle populations (TES-3.1) could improve the health of the green sea turtle. Understanding the abundance of nesting sea turtles and their life history needs could result in more effective management of existing populations. In addition, a new activity, protecting and managing marine turtle habitat, including foraging areas and migration routes (TES 3.2), could reduce losses due to disturbance. This could result in the additional management of such potentially detrimental activities as anchoring and effects from vessel transit, could minimize the effects on foraging areas, reduce potential exposure to hazardous materials, and minimize vessel hazards to turtles in open waters. Both of these activities could have a long-term beneficial effect on the Hawaiian population of the threatened green sea turtles by ensuring the health of sea turtles and minimizing losses from shipping and boating interactions.

As a surrogate for estimating contaminant body-burdens in short-tailed albatrosses, the feathers, eggs, and dead chicks of black-footed albatrosses at Midway Atoll (TES-4.2) would be analyzed to determine the level of persistent environmental contaminants. This information could be used to determine a correlation between contamination levels and nesting success and could assist in developing plans to reduce contaminant exposure of the short-tailed albatross by targeting cleanup of areas where albatross feed and nest. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Reducing exposure to contaminants could result in a beneficial effect on the endangered short-tailed albatross through improved nesting success rates. Similar beneficial effects on other migratory birds could also occur. Collection of feather, eggs, and dead chicks could cause a short-term negative effect on seabirds from human interactions and a short-term negative effect on terrestrial vegetation from trampling plants during collection activities. (See section 3.2.2 for detailed discussion of effects.) However, collection would occur infrequently at any given location, and the short-term negative effects could be minor. These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Restoration or creation of habitat to support translocation of the endangered Laysan duck to other sites in the Monument would be implemented under activity TES-5.2. This would include transporting juveniles to additional islands and conducting post release monitoring. The goal is to have a total of at least 240 breeding adults at these sites (U.S. Fish and Wildlife Service 2004a). By monitoring the populations, changes could be made through adaptive management that could improve the success of translocating Laysan ducks. Providing improved monitoring practices or adaptive management techniques could further assist in meeting recovery plan criteria. This would occur several ways, including by creating practices that would allow for the expansion of the population throughout its range, by protecting the population from a catastrophic event (resulting in a long-term beneficial effect on the endangered Laysan duck),

and by increasing overall protective measures for this species. During restoration, human presence and noise at translocation sites could result in short-term minor negative effects. Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2. These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Five endangered plant species are restricted to Nihoa and Laysan Island and are subject to extinction from catastrophic events. To protect all endangered plant species on Nihoa and Laysan Island from extinction, seeds would be collected and maintained in off-Monument locations (TES-7.1). This could allow for the restoration of these native plants if such a catastrophic event were to occur. Overall, this activity could result in a beneficial effect on these plants and terrestrial plant communities on Nihoa and Laysan Island and to the Laysan finch, Nihoa finch, and Nihoa millerbird that depend on the native plant community for food, cover, and nesting. Short-term minor negative effects on the terrestrial plant community could occur during seed collection through trampling and reduced seed drop. Seed collection would occur over a short period, and affected individuals would be expected to recover once the activities were completed. These effects would be further reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Existing colonies of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa would be supplemented, and factors restricting colony expansion, such as herbivory by alien species, would be addressed (TES-7.2). This would increase numbers and locations of these species on Nihoa where they are endemic. The goal is to have 300 to 500 individuals per colony. Outplanting *Amaranthus brownii* and *Schiedea verticillata* could result in a beneficial effect on these species once outplanting occurs by expanding the existing colonies, eliminating competition from alien species, and establishing new populations.

### Migratory Birds Action Plan

#### *Planning and Administrative Activities*

Activity MB-2.3 would ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds. Monument staff would coordinate with and provide technical information regarding migratory birds to those responsible for multiagency spill prevention and pre-spill activities, as well as actual response actions. This could allow agencies to develop plans that would minimize effects of spills on migratory birds and to develop recovery plans that would include protocols for handling birds that have been affected by spills. This could prevent mortalities and speed rescue efforts. This beneficial effect would help prevent reduction of migratory bird populations that might otherwise result from releases of oil or hazardous materials or from the responses to such releases.

### Habitat Management and Conservation Action Plan

#### *Planning and Administrative Activities*

The Proposed Action alternative includes activities that would identify and prioritize restoration needs in shallow-water reef habitats affected by anthropogenic disturbances within five years

(HMC-1.1) and could 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 (HMC-2.4). Managers would investigate opportunities for restoration and would prioritize actions so that they could focus funds and resources to address the most important needs. This attention to conservation and recovery actions could result in a beneficial effect on marine and terrestrial habitats within the Monument.

An ecological risk assessment would be conducted to determine allowable lead levels in soils at Midway and would remove lead from buildings and soils to nonrisk levels under activity HMC-2.7. The ecological risk assessment could determine the cleanup level necessary to reduce risks to human and wildlife health. The beneficial effects of this effort could be to improve the health of nesting migratory birds suffering from droop-wing and other lethal and sublethal effects.

Activity HMC-4.4 would formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island. This plan calls for investigating the botanical history of Lisianski and Laysan Island and could aid in native habitat restoration efforts, resulting in a beneficial effect on native plant species and on migratory and resident birds and other species that depend on the habitat that would be restored.

Planning activity HMC-7.2 would evaluate the potential to restore and create, as needed, freshwater sources at proposed translocation sites for Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird. Before this activity is implemented, additional compliance might be required. This action would provide an important habitat feature presently lacking in these areas, thereby improving the chance of a successful translocation effort. These freshwater sources could also provide benefits to other migratory birds, native invertebrates, freshwater algae, terrestrial arthropods, and native habitat by expanding important habitat and improving reproductive success.

Other federal and state agencies would be educated about overflight rules and would promote compliance regarding overflights and close approaches at the Monument under activity HMC-9.1. This effort could reduce the potential for aircraft collisions with birds, resulting in a beneficial effect on migratory and resident birds, as well as on the crews of the aircraft that might otherwise be injured in collisions with the birds.

Aircraft operations occur at two Islands in the Monument, Sand Island at Midway Atoll and Tern Island at French Frigate Shoals. At both sites there are occasional bird strikes during aircraft takeoff and landings. Between August 2007 and August 2008, there were 6 bird strikes at Midway Atoll NWR. Four Laysan albatross, 1 Brown noddy & 1 Red-tailed tropicbird were hit and killed by aircraft. Flights arrive and depart at night when the albatross are present (November - July) which limits collisions. Additionally, very few seabirds are killed each year by aircraft collisions, because birds are hazed from the runway by trained personnel prior to aircraft operations. Unfortunately, a low number of Bonin Petrels are killed when they crash into lights at the airport hangar building. We do not currently have an estimate of the number killed, but USFWS plans to quantify this impact in the future. The lights are turned on for human safety and are turned off immediately after the aircraft operations are completed. These incidents cause mortality to birds (most often seabirds) and in some cases increase the risk to the aircraft

as well as to crew and passengers. The frequency at which these bird strikes occur varies by site, bird species, time of day, wind velocity, month of the year, and level of breeding activity in the bird colony. BMPs (see Monument Management Plan, Volume III, Appendix F) to reduce risk of bird air strikes vary between Midway and French Frigate Shoals. They were developed because of different species compositions of seabird colonies adjacent to the runways, types of aircraft used at the two sites, and constraints based on the runway facilities at each site. At Midway, the greatest risk of bird aircraft collision is from the two resident albatross species. Because they fly primarily during daylight hours, routine flight takeoffs and landings are scheduled to occur after sundown or before sunrise. Additionally, vegetation management along the runways modifies bird flight and nesting behavior, and the runway is swept or hazed of birds before each flight arrival or departure.

At Tern Island, French Frigate Shoals, the most commonly killed species is the sooty tern but occasionally wedge-tailed shearwaters, great frigatebirds, and albatrosses of both species are also hit. Tern Island does not have runway lights, so all operations are done during daylight hours. Just before landing and takeoffs, staff on the island make a sweep of the runway to haze birds from the runway. Flights would not be scheduled from June to August, when sooty terns are most numerous and most likely to be hit. Loads on takeoff could be minimized to improve the pilots' ability to get above the bird hazard zone as soon as safely possible, and flights could be curtailed on windless days when bird casualty has historically been highest. Flight activities could have a minor negative effect on migratory birds, but efforts to reduce effects would be made before the activities occur. Facilitating management actions that benefit birds, and also a wide variety of plant and wildlife species and habitats could have long-term beneficial effects on the natural resources of the Monument.

***Field Activities***

Field personnel would evaluate the effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls. They would prioritize cleanup action based on risk assessments (HMC-2.1) and would work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary (HMC-2.2). They would investigate the extent of contamination at these sites and would assess their integrity, containment effectiveness, and hazard potential. Based on this information, the highest priority sites would be removed, remediated, or sealed. Monitoring would continue to assess whether further action is needed. Some proposed activities would require further analysis and compliance by the agencies as more detailed information on these potential actions becomes available and specific plans are developed. These requirements may include additional analysis, in accordance with NEPA, and consultation under ESA, MMPA, NHPA, and other relevant laws.

Possible short-term negative effects from these actions could include: (1) disturbance to nesting and resting seabirds and other migratory birds; (2) effect on Hawaiian monk seals or the Hawaiian population of green turtles swimming and feeding in the nearshore marine environment or resting on beaches; (3) effect on spinner dolphins; (4) effect on fish, cetaceans, marine invertebrates, and corals; (5) disturbance to Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches; (6) trampling of native plants and insects; (7) damage to corals; (8) accidental release of pollution and contaminants; and (9) the accidental introduction and

establishment of nonnative species. Effects of these activities would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F). Overall, evaluating the effects of contamination from shoreline dumps and verifying the integrity of known landfills and dumps could result in beneficial effects on marine, coastal, and terrestrial habitats, as well as to marine mammals, migratory birds, and threatened and endangered species, by reducing exposure to hazardous materials from the dump sites.

The proposed activity HMC-2.3 would locate historic disposal sites at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls, and they would be investigated for contamination. Efforts include searching for documented but not yet located landfills and underground storage tanks and evaluating their contamination levels. These sites would be evaluated, and remediation actions would be planned.

Possible short-term minor negative effects from these remediation actions could include: (1) disturbance to nesting and resting seabirds and other migratory birds; (2) effect on Hawaiian monk seals or Hawaiian populations of green turtles swimming and feeding in the nearshore marine environment or resting on beaches; (3) effect on spinner dolphins; (4) effect on fish, cetaceans, marine invertebrates, and corals; (5) disturbance to Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches; (6) trampling of native plants and insects; (7) damage to corals; (8) accidental release of pollution and contaminants; and (9) the accidental introduction and establishment of nonnative species.

Common results of the effects of human interactions with natural resources are explained in Section 3.2.2. These effects are expected to be reduced by using standard BMPs listed in Section 3.2.2. Another method mentioned in this section to reduce the effects of operations is, in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building, as well as applying special terms and conditions in the Monument permitting process. Overall, locating and investigating disposal sites could result in long-term beneficial effects on marine, coastal, and terrestrial habitats, marine mammal, migratory birds, and threatened and endangered species by preventing exposure to and providing adequate protection from contaminants, such as PCBs.

A proposed activity on 34-acre Southeast Island at Pearl and Hermes Atoll would restore native plant vegetation that is critical to the survival of several native plants (HMC-4.5). After the invasive alien plant *Verbesina encelioides* is removed, native species would be propagated and outplanted. This restoration is considered critical to the survival of several native plant species and a small population of endangered Laysan finch. This activity could have beneficial effects on threatened and endangered species by improving the viability of the endangered Laysan finch and native plants. The beneficial effects would occur after a short-term minor negative effect from removing invasive alien vegetation that may currently provide cover or food for Laysan finches.

Coordinated ecosystem restoration activities on Kure Atoll would be implemented (HMC-4.6), including prioritizing and eliminating ecosystem threats caused by past human disturbance, removing invasive species, and increasing the range of and reintroducing native plant species.

The beneficial effects include improving nesting, foraging, and resting (loafing) habitat for migratory birds and improving the chances of survival of the translocated endangered Laysan finch and Laysan duck populations. There could be a short-term minor negative effect by removing invasive alien vegetation that may currently provide cover or feed to migratory birds. This could be offset in the long term by the resultant improved foraging, resting, and nesting conditions which the restored native habitat would afford.

Inventorying and documenting the life histories of endemic terrestrial invertebrates on Nihoa and Mokumanamana (HMC-5.1) would aid in identifying and controlling those species that affect the native vegetative communities, including the five endangered plant species found there. This could have the beneficial effect of preserving the most intact native coastal plant assemblages in the state. Field activities for the plants could however have a short-term minor negative effect on migratory bird species due to increased human presence and resultant disturbance and noise effects. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. However, affected bird individuals would be expected to resume normal behavior within a short period after the activity has ended, with no lasting effects if BMPs are utilized.

### 3.2.4.3 Reducing Threats to Monument Resources

#### Emergency Response and Natural Resource Damage Assessment Action Plan

***Planning and Administrative Activities***

Damage assessment is an important component of any emergency response plan (ERDA-1.4). The Monument Emergency Response and Assessment Team would coordinate with the appropriate agencies to ensure that appropriate response, injury assessment, and restoration take place for any given emergency throughout the Monument. This could result in beneficial effects on all threatened and endangered species, migratory birds, marine mammals, marine and terrestrial species, and habitat by minimizing damage from the event and facilitating restoration. An example of this is minimizing unintentional damage that might otherwise result from response and restoration efforts, thereby allowing a faster recovery of any affected population. Any response, by either boat or vehicle, could disturb marine mammals, migratory birds, and other native species, and could include effects on the species ranging from disturbance to potential mortality every time a seabird colony is entered. These effects are explained in Section 3.2.2. The short-term negative effects could be offset by implementing BMPs. In the long term, the benefits provided by the response actions, which could minimize damage from any event and aid in recovery, would offset the short term negative effects. In addition, the agencies commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

#### Marine Debris Action Plan

***Field Activities***

The Proposed Action alternative calls for Monument staff to work with partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1); to catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and to work with partners on marine debris studies (MD-2.1). These efforts could reduce the potential for species in marine and terrestrial habitats being exposed to

dangerous debris, such as abandoned nets, and to hazardous material. All water and land activities would continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. For example, should a Hawaiian monk seal or other listed species be observed during a dive, the standard procedure would be to cease all activity until the animal departs the area. In addition, any person who encounters a Hawaiian monk seal on a beach while conducting an activity not related to Hawaiian monk seal population monitoring and recovery actions must not come within 150 feet (46 meters) of the seal. These BMPs have been in effect for decades to avoid negative effects on the Hawaiian monk seal.

During net removal, breakage, abrasion, and infaunal disturbance could result in short-term negative effects from mechanical damage to the reef ecosystem. Every effort would be made to avoid reef ecosystems and to minimize lasting effects from these activities.

These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F). Among other actions these require that a person approaching a seabird colony first look for any nests or for adults flushing from inconspicuous nests. Also, all activities could be planned to avoid displacing adults from their eggs or chicks for more than three minutes. There could be a beneficial effect on natural resources by reducing injury or mortality and improving the health of the reef and associated species.

**Alien Species Action Plan**

***Field Activities***

Surveying distributions and populations of known alien species at regular intervals (AS-2.1) and developing and implementing monitoring protocols for early detection and characterization of new infestations (AS-2.3) would assist in understanding the distribution and populations of known alien species. This would allow for prioritizing control and eradication efforts and in monitoring the success of previous efforts. Instituting monitoring protocols would provide measures for collecting data that are meaningful and useful to managers. This could result in a beneficial effect on all native species within the Monument that are harmed by competition or predation by alien species.

Under activity AS-4.2, rodenticide would be used to eradicate the house mouse from all of Sand Island (1,128 acres) at Midway Atoll. Beforehand, though, additional compliance might be required. Common effects of human interaction with natural resources are explained in Section 3.2.2. Through active management, every effort would be made to prevent negative effects on nontarget native species from the use of rodenticide. Eradication of the house mouse would remove a potential vector for diseases and would eliminate competition for seed and other food items that native species require, resulting in an overall beneficial effect.

To protect nontarget species, Activity AS-5.2 proposes to conduct toxicant trials on pesticides to evaluate their efficacy and to document ecological effects at selected islands on highest priority invasive species of ants and wasps. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Determining the toxicant and treatment levels that would

be least likely to negatively affect nontarget species and reduce or eliminate target invasives could benefit native species by preventing mortality from treatment methods and by eliminating alien species that may compete for food or directly prey on native species. Conducting toxicant trials on pesticides is likely to result in a short-term negative effect on tested native invertebrates. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm, resulting in long-term beneficial effects on natural resources.

Activity AS-5.3 would control and possibly eradicate the two introduced mosquito species at Midway Atoll within 10 years, using methods prescribed in the Integrated Pest Management Plan. The mosquito is a vector for avian pox that affects nesting seabirds, the endangered Laysan duck, and other endangered bird species that may be established on Midway Atoll. Eliminating or controlling the mosquito could reduce mortality of these species and nonlethal effects of the pox. This could result in a long term beneficial effect on the Laysan duck and migratory birds and could improve the chances of success for future introductions of other endangered species. Some techniques for eliminating mosquitoes could have a short-term negative effect on native arthropods. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm.

Actions under Activity AS-5.4 would develop and implement a plan to control and possibly eradicate the invasive gray bird locust on Nihoa, Mokumanamana, French Frigate Shoals, and Lisianski Island. Additionally, Activity AS-5.5 could protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high priority plant sites. The locust feeds on native plants, including endangered species, and during periodic outbreaks can strip plants of their leaves and seed. Actions to control and/or eradicate the invasive gray bird locust could have temporary negative effects on native invertebrates. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm to other listed species. Controlling and possibly eradicating the invasive gray bird locust could provide long-term benefits to endangered plants by removing stressors. This could also benefit endangered birds that depend on the vegetation for cover, nesting, and feeding.

The Proposed Action alternative includes activities to control and eventually eradicate golden crownbeard (AS-6.1) and weedy shrubs on Kure, Midway, and Pearl and Hermes Atolls. Also, in all areas where they occur, the alternative could control or eradicate the invasive grass sandbur from Kure, Midway, and Pearl and Hermes Atolls, Lisianski Island, and French Frigate Shoals (AS-6.2) and could also control or eradicate Indian pluchea (*Sporobolus pyramidatus)* and swine cress (*Coronopus didymus*) from Laysan Island (AS-6-3). Activity AS-6.4 would also control and eventually eradicate prioritized alien plant species from Kure Atoll. All of these are fast-growing prolific invasives that crowd out native species. Eradicating them could have beneficial effects on native plant species by allowing the natives to expand into areas where they historically occurred. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. This eradication could also benefit migratory and endangered birds dependent on the native vegetation for cover, nesting, and feeding.

Eradication could cause short-term negative effects on seabirds from human interactions, increased noise, and from trampling vegetation reducing habitat value. Common effects that

occur when human enter a seabird colony are explained in Section 3.2.2. Endangered passerines in the Monument (Nihoa finches, Nihoa millerbirds, and Laysan finches) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities could be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll to avoid effects on these species. Additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm to seabirds.

Under AS-7.1, invasive red algae would be mapped, controlled and eventually eradicated where it occurs (AS-7.1). The red algae grow in dense mats and can cover and smother coral and other marine species. Mapping the location of these infestations could assist in eradication efforts. All water and land activities would continue to be conducted in accordance with operational protocols and BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. While removal of red algae might have short-term negative effects on reef ecosystems from mechanical damage to the reef, such as breakage, abrasion, and infaunal disturbance, the long-term beneficial effect of reducing the extent of the red algae infestation could allow native marine corals and marine species that depend on that coral to return to their historic levels.

Activity AS-7.2 proposes to conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives. Snowflake coral can overgrow corals and hard reef surfaces and eat zooplankton that native corals depend on. Understanding this coral and sites of likely infestation could prepare managers to move quickly to eradicate this invasive before it spreads to large areas. The beneficial effect of this effort could be to protect existing corals, reef, and associated species.

The Proposed Action would support and conduct research on alien species detection and effects of invasive species on native ecosystems (AS-8.1) and would support and conduct research on invasive species prevention, control methods, and eradication techniques (AS-8.2). Understanding alien species and how they affect native species and researching effective control and eradication methods could allow managers to take measures to prevent their establishment and to minimize the effects on native species. The beneficial effect of this effort could be to protect native habitats and the species that depend on them.

#### 3.2.4.4 Managing Human Uses

**Permitting Action Plan**

***Planning and Administrative Activities***

Certain strategies would improve the effectiveness of permit activities through reviewing and revising the permit process and establishing a Monument-wide reporting process. Specifically, these activities are engaging outside experts to review permit applications (P-1.4), analyzing permit data to inform management decision making (P-2.2), developing and implementing a Monument reporting process (P-2.4), and developing and implementing a permit and regulatory

education program (P-3.1). By improving the effectiveness of the permitting process, permit requirements could be improved to ensure that Monument resources are being protected. This could provide beneficial effects for all Monument natural resources.

Developing and implementing a Native Hawaiian cultural education program for all permit recipients (P-3.2), coordinating permitting outreach (P-3.3), and developing a pre-access training and briefing program (P-3.4) could result in beneficial effects on all Monument natural resources. Coordinating information, outreach, and education could minimize and prevent negative effects on the Monument's natural resources by ensuring that all permittees are aware of all protocols and requirements designed to protect the cultural, historic, and natural resources of the Monument.

**Midway Atoll Visitor Services Action Plan**

***Field Activities***
Activity VS-1.1 would provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources. Visitors could be given the opportunity to view wildlife on Midway Atoll only and would be required to follow rules and protocols to ensure that that their activities are carried out in ways to minimize negative effects.

Continuously monitoring the effects of visitors and other users on wildlife and historic resources to ensure their protection (VS-1.3) would support an adaptive management approach to visitor use of the Monument. Under this scenario, data reflecting visitor effects would inform management decisions on the extent of visitor use that could be permitted in the future. Providing visitors with opportunities for wildlife-dependent recreation and monitoring the effects of visitors and other users on wildlife and historic resources could have beneficial effects by minimizing negative effects on resources, increasing public awareness of native species and listed species, and by protecting natural resources in the Monument. More specific descriptions of the effects of visitors at Midway Atoll are contained in the Environmental Assessment for the Interim Midway Visitors Service Plan and in relevant compatibility determinations.

### 3.2.4.5 Coordinating Conservation and Management Activities

**Constituency Building and Outreach Action Plan**

***Planning and Administrative Activities***
Increased public awareness of and interest in the Monument and in conservation of its natural resources could result from the following: Incorporating new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystem literacy and conservation in the Monument within five years (CBO-1.4); Continuing to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument (CBO-2.2); As needed, holding focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents (CBO-3.2); Continuing to seek out and support partnership opportunities that focus on Oceania-related issues (CBO-3.3); Within one year, establishing and supporting a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will regularly provide recommendations

and information on specific management issues (CBO-3.5); Continuing to work with the Friends of Midway Atoll National Wildlife Refuge, through FWS and supporting the establishment of a Monument-related "friends" group (CBO-3.7); and Continuing to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA's ONMS until the Monument Alliance is established (CBO.3.8).

This might generate volunteers and support for ongoing Monument activities. Increased volunteer efforts and support for activities in the Monument could result in a beneficial effect on Monument natural resources by creating opportunities to expand protection and restoration efforts.

**Ocean Ecosystem Literacy Action Plan**

***Planning and Administrative Activities***

Activity OEL-1.1 would 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 three years. As curricula are developed, Activity OEL-1.2 proposes for Monument staff to work with Hawaiian-language immersion schools to ensure the curricula meet their needs, including translation into the Hawaiian language. Activity OEL-1.3 would develop an ocean stewardship program for middle school and high school students within five years. Educating school-age children could result in increased awareness of the importance of natural resources among teachers and students alike and possibly among the students' families. Increased interest in and support for the conservation of Monument resources could result in a beneficial effect on Monument natural resources by creating opportunities to expand protection and restoration efforts.

### 3.2.4.6 Achieving Effective Monument Operations

**Coordinated Field Operations Action Plan**

***Planning and Administrative Activities***

Additional planning activities would target managing, maintaining, and coordinating the use of small boats and identifying aircraft service that would increase operation efficiency and delivery capacity (CFO-6.1). These planning activities could indirectly benefit natural resources by providing for the most efficient and least detrimental use of available resources to transport researchers and staff engaged in habitat restoration and other Monument management activities to the locations where their work is to be done, and by potentially avoiding or minimizing potential disturbance to or collisions with birds and marine mammals from transportation activities.

***Infrastructure and Development Activities***

Within five to ten years, a small research/enforcement vessel would be stationed at Midway Atoll (CFO-6.3). This would allow enforcement personnel to respond to activities that represent a hazard to terrestrial or marine habitats. Additionally, Monument management staff would have the ability to rapidly respond to potentially hazardous events and to avoid or at least minimize any damage that might be caused. This could result in both a short and long term beneficial

effect on marine and terrestrial natural habitat, threatened and endangered species, marine mammals, migratory birds, and other native species.

Providing logistical, infrastructure, and transportation support for threatened and endangered species recovery actions (CFO-9.3) would enhance the ability to transport threatened and endangered species, equipment, and personnel among the various atolls to aid in recovery efforts. Being able to capture, transport, treat, and return threatened and endangered animals to the wild is important for maintaining a healthy population, and increasing the efficacy of this action would result in a beneficial effect.

### 3.2.5 Summary of Effects

Table 3.2-1 summarizes the effects on natural resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and negative effects on natural resources of the Monument. The natural resources of the Monument, includes, but is not limited to, terrestrial and marine resources, native plants and wildlife, seabirds, migratory birds, marine species and special status species.

**Table 3.2-1**
**Summary of Effects on Natural Resources of the Proposed Action Alternative**

| **Understanding and Interpreting the Northwestern Hawaiian Islands** | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Marine Conservation Science** *(EA section 1.5.1)* *(EA section 1.6.1)* | Planning/ Administrative | • Beneficial effects on all natural resources of the Monument |
| **Native Hawaiian Culture and History** *(EA section 1.5.2)* *(EA section 1.6.2)* | Planning/ Administrative | • Minor negative effects on native plants and wildlife<br>• Short-term minor negative effects on seabirds<br>• Beneficial effect on all natural resources of the Monument |
| **Historic Resources** *(EA section 1.5.3)* *(EA section 1.6.3)* | Planning/ Administrative | • Beneficial effect on all natural resources of the Monument<br>• Beneficial effects on threatened and endangered species<br>• Beneficial effects on terrestrial habitats |
| **Maritime Heritage** *(EA section 1.5.4)* *(EA section 1.6.4)* | Planning/ Administrative | • Beneficial effects on ocean, nearshore, and shoreline habitats<br>• Beneficial effects on threatened and endangered species<br>• Beneficial effect on marine mammals<br>• Beneficial effects on migratory birds |
| | Field Activities | • Short-term minor negative effect on threatened and endangered species<br>• Short-term minor negative effect on migratory birds<br>• Short-term minor negative effect on marine species |
| **Conserving Wildlife and Habitats** | | |
| **Action Plan** | **Action Areas** | **Effects** |
| **Threatened and Endangered Species** *(EA section 1.5.5)* | Planning/ Administrative | • Beneficial effect on all threatened and endangered species<br>• Beneficial effect on migratory birds<br>• Beneficial effect on marine mammals |

| | | |
|---|---|---|
| *(EA section 1.6.5)* | | • Minor negative effect on shoreline vegetation |
| | Field Activities | • Beneficial effect on the endangered spinner dolphin<br>• Beneficial effect on the endangered Hawaiian monk seal<br>• Beneficial effect on the threatened green sea turtle<br>• Beneficial effect on the endangered Laysan duck<br>• Beneficial effect on migratory birds<br>• Beneficial effect on marine habitats<br>• Beneficial effect on terrestrial habitat<br>• Beneficial effect on passerines<br>• Beneficial effect on the endangered *Prichardia remota* and *Mariscus pennatiformis*<br>• Short-term minor negative effect on Hawaiian monk seal<br>• Short-term minor negative effect on migratory birds<br>• Short-term minor negative effect on seabirds<br>• Short-term negative effect on terrestrial habitat<br>• Short-term minor negative effects on native invertebrates<br>• Short-term minor negative effects on terrestrial plants |
| **Migratory Birds**<br>*(EA section 156.6)*<br>*(EA section 1.6.6)* | Planning/ Administrative | • Beneficial effect on threatened and endangered species<br>• Beneficial effect on migratory birds |
| **Habitat Management and Conservation**<br>*(EA section 1.5.7)*<br>*(EA section 1.6.7)* | Planning/ Administrative | • Beneficial effect on migratory and resident birds<br>• Beneficial effect on marine mammals<br>• Beneficial effect on marine, coastal, and terrestrial habitats<br>• Beneficial effect on migratory and resident birds<br>• Beneficial effect on freshwater habitat and species |
| | Field Activities | • Beneficial effect on the endangered Laysan finch and other threatened and endangered species<br>• Beneficial effect on native coastal plant community<br>• Beneficial effect on native plant communities<br>• Beneficial effect on arthropods<br>• Beneficial effect on migratory birds<br>• Short-term minor negative effects on migratory and passerine birds<br>• Short-term minor negative effects on marine species<br>• Short-term minor negative effect on passerine birds<br>• Short-term minor negative effect on terrestrial plants and habitat |
| **Reducing Threats to Monument Resources** | | |
| **Action Plan** | **Action Areas** | **Effects** |
| **Marine Debris**<br>*(EA section 15.8)*<br>*(EA section 1.6.8)* | Field Activities | • Beneficial effect on the endangered Hawaiian monk seal<br>• Beneficial effect on migratory birds<br>• Beneficial effect on marine and terrestrial habitat<br>• Short-term negative effects on reef ecosystem |

| | | |
|---|---|---|
| **Alien Species**<br>*(EA section 1.5.9)*<br>*(EA section 1.6.9)* | Field Activities | • Beneficial effect on threatened and endangered species<br>• Beneficial effect on native species<br>• Beneficial effect on marine and terrestrial habitat<br>• Beneficial effect on native corals and reef fish<br>• Beneficial effect on migratory birds<br>• Beneficial effect on native species<br>• Short-term negative effect on native invertebrates<br>• Short-term minor negative effect on seabirds<br>• Short-term negative effect on reef ecosystem |
| **Emergency Response and Natural Resource Damage Assessment**<br>*(EA section 1.5.11)*<br>*(EA section 1.6.11)* | Planning/ Administrative | • Beneficial effect on threatened and endangered species<br>• Beneficial effect on migratory birds<br>• Beneficial effect on marine mammals<br>• Short-term minor negative effect on marine mammals and migratory birds |
| **Managing Human Uses** | | |
| **Action Plan** | **Action Areas** | **Effects** |
| **Permitting**<br>*(EA section 1.5.12)*<br>*(EA section 1.6.12)* | Planning/ Administrative | • Beneficial effect on all natural resources in the Monument |
| **Midway Atoll Visitors Services**<br>*(EA section 1.5.14)*<br>*(EA section 1.6.14)* | Field Activities | • Beneficial effect on all natural resources in the Monument |
| **Coordinating Conservation and Management Activities** | | |
| **Action Plan** | **Action Areas** | **Effects** |
| **Constituency Building and Outreach**<br>*(EA section 1.5.16)*<br>*(EA section 1.6.16)* | Planning/ Administrative | • Beneficial effect on all natural resources in the Monument |
| **Ocean Ecosystems Literacy**<br>*(EA section 1.5.18)*<br>*(EA section 1.6.18)* | Planning/ Administrative | • Beneficial effect on all natural resources in the Monument |
| **Achieving Effective Monument Operations** | | |
| **Action Plan** | **Action Areas** | **Effects** |
| **Coordinated Field Operations**<br>*(EA section 1.5.21)*<br>*(EA section 1.6.21)* | Planning/ Administrative | • Beneficial effect on threatened and endangered species<br>• Beneficial effect on migratory and resident birds<br>• Beneficial effect on marine mammals |
| | Infrastructure and Development | • Beneficial effect on threatened and endangered species<br>• Beneficial effect on migratory birds<br>• Beneficial effect on marine mammals<br>• Beneficial effect on marine and terrestrial habitats<br>• Beneficial effect on native species |

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## 3.3 CULTURAL AND HISTORIC RESOURCES

### 3.3.1 Effects Analysis Methodology

The method for assessing potential effects on cultural and historic resources involves identifying sensitive resources in the ROI, identifying activities that could affect those resources, and determining the type and magnitude of potential effects on those resources. Only cultural resources that are determined to be eligible for listing under the NRHP are subject to protection under the NHPA; however, additional protection for cultural resources is provided under ARPA, American Indian Religious Freedom Act (AIRFA), the Native American Graves Protection and Repatriation Act (NAGPRA), and several executive orders. Resources that are pending evaluation for NRHP eligibility have been treated and would continue to be treated as eligible until formal determinations are made.

The types of effects that would be difficult to quantify or qualify are those that certain activities may have on the spiritual and cultural values of cultural resources and their inseparability from the natural environment. Traditional Native Hawaiian practices tie current generations to their ancestors through genealogies that link them to the earliest creation in Hawai‘i. These ties hold that their ancestors become familial deities shortly after death and are personified in the natural and physical elements. Because of this familial relationship to these elements, the traditional values view of the world is that it is sacred and to be treated with high reverence. These values center on the integral nature of the cultural and ecological environment. Maintaining this principle is done through pono (righteous, necessary, appropriate) actions toward the natural environment/ecosystem, and more specifically by taking care of wahi kūpuna (ancestral sites), which provide a means to maintain connection with the mauli ola of their ancestors (spiritual life force, essence, literally “breath of life”).

### 3.3.2 Effects Common to Proposed Actions on Cultural and Historic Resources

Section 106 of the NHPA requires federal agencies to consider the effects of their actions on properties listed on or eligible for listing on the NRHP. These properties also include those ATI that have been evaluated and determined to be eligible. Pending formal evaluations, all cultural resources and potential components of cultural landscapes could be treated as though they are eligible.

NHPA and NEPA compliance are separate and parallel processes, and the standards and thresholds of the two acts are not precisely the same. A negative effect on a historic property, as defined by the NHPA, is not necessarily a significant effect under NEPA. While mitigation under the NHPA does not necessarily negate the negative nature of an effect, mitigation measures identified under NEPA could reduce the significance of an effect. NHPA and NEPA compliance are separate and parallel processes, and the standards and thresholds of the two acts are not precisely the same.

Section 106 and its implementing regulations, 36 CFR Part 800, state that an undertaking has an effect on a historic property (i.e., NRHP-eligible resource) when it could alter those characteristics of the property that qualify it for inclusion on the NRHP. An undertaking is considered to have a negative effect on a historic property when it diminishes the integrity of the

property's location, design, setting, materials, workmanship, feeling, or association. Section 106 negative effects include the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting;
- Neglect of a property, resulting in its deterioration or destruction; and
- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

A broader range of Native Hawaiian sites, including sacred sites, burials, and cultural items and other areas of traditional importance that might not necessarily be considered eligible for protection under NRHP, may still be protected under AIRFA, ARPA, or NAGPRA.

Activities that are not currently covered by a state cultural impact assessment (CIA) or that have not undergone Section 106 consultations may cause a short-term negative effect on both cultural and historic resources. Activities proposed to identify, collect, and review publications, data sets, and documents to identify cultural resources beyond Midway Atoll within 12 years are not covered under a CIA. Negative effects could be minimized by exercising the NHPA Section 106 process, which includes review and consultation among the Co-Trustees, the State Historic Preservation Officer, OHA, and Native Hawaiian organizations. See Section 3.3.2.2 for further discussion of the CIA.

Historic properties at Midway Atoll NWR are managed according to a 1999 Historic Preservation Plan (Speulda et al. 1999). The plan was drafted with recommendations from interest groups, historic preservation specialists, and the Advisory Council on Historic Preservation. The Midway Historic Preservation Plan prescribes one of six different treatment categories for each of the 63 historic properties on the atoll: reuse, secure, leave as-is, fill in, demolish, or relocate. The plan also identifies procedures for treating new discoveries and caring for museum collections and includes recommendations for interpretation, education, and public outreach.

### 3.3.2.1 Paleontological Resources

Paleontological sensitivity or potential is a qualitative measure of the density and scientific value of a site's fossils. It also gauges the probability that site development would directly or indirectly destroy a unique scientifically significant paleontological resource. Such a resource is generally considered to consist of vertebrate remains, of unusual, useful, or exceptionally well-preserved trace fossils or invertebrate/plant remains or of exceptionally rich or diverse fossil assemblages. Paleontologists use a three-part classification of paleontological sensitivity

outlined by the Society of Vertebrate Paleontology (1995). It includes high sensitivity, low sensitivity, and undetermined sensitivity rankings. Within this classification scheme, a high sensitivity site has one of the following characteristics:

- It is underlain by or contains exposures of sedimentary rocks or some types of volcanic rocks that are of the right age, origin, and location to *potentially* contain significant fossils;
- It is underlain by or contains exposures of sedimentary rock or some types of volcanic rocks that are *known* to contain significant fossils; or
- It contains potentially datable remains older than the historic period, including nests and middens (a deposit of shells, bones, and other artifacts that suggest previous human settlement).

Sites that do not contain the characteristics listed above are not considered sensitive.

### 3.3.2.2 State of Hawai‘i Cultural Impact Assessment

Native Hawaiian customary and traditional subsistence, cultural, and religious practices are protected under Section 7 of Article XII of the Constitution of the State of Hawai‘i. Chapter 6E, Hawaii Revised Statutes, and rules adopted thereunder also protect historic and cultural sites and property found within the State.

The state has a number of laws and programs to protect cultural rights and locations. Chapter 6E of the Hawaii Revised Statutes establishes the Historic Preservation Program for ongoing historical and archaeological research and development. This program includes statewide surveying and inventorying historic properties, aviation artifacts, and burial sites; preparing, reviewing, and revising a state historic preservation plan; providing interpretive programs for historic properties; holding burial sites in trust; and regulating archaeological activities. Section 6E-7 maintains that all historic property on lands and under waters owned or controlled by the state shall be property of the state and that property is not allowed to be transferred without consultation with the appropriate island burial council. Section 6E-43 states that discovery of prehistoric and historic burial sites over 50 years old requires consultation with the appropriate island burial council. Section 6E-61 establishes a Hawai‘i biological survey consisting of an ongoing natural history inventory of the Hawaiian archipelago to locate and identify flora and fauna for a wide range of uses. Chapter 6E also defines violations regarding activities that take, excavate, injure, destroy, or alter any historic property, aviation artifact, and burial site, including manipulation of human remains.

Chapter 300 of Hawaii Administrative Rules outlines the practices and procedures of Native Hawaiian burial sites to ensure their care and protection. It establishes the Island Burial Councils, which determine the preservation or relocation of previously identified Native Hawaiian burial sites. These rules, along with Sections 6E-11, 6E-12, 6E-43, 6E-43.5, and 6E-43.6, HRS, were amended or enacted to provide additional protection for Native Hawaiian burial sites.

In addition to the above, the state requires an assessment of potential impacts on cultural practices and features as part of the environmental review process. In assessing cultural effects, the CIA was developed following the Guidelines for Assessing Cultural Impacts by the State of Hawai'i's Department of Health's Office of Environmental Quality Control. A CIA for the Papahānaumokuākea Marine National Monument Management Plan was prepared in accordance with state laws and is found in Appendix A.

### 3.3.3 No Action

This section is a brief description of activities that are underway in the Monument and an analysis of the effects associated with these activities. Only those activities that could have an effect on cultural and historic resources are included. Analyzed are the projected beneficial and negative effects expected to continue under the No Action alternative. Should this alternative be selected for implementation, it could result in no change to the current situation. Nevertheless, current activities could continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.3-1 at the end of this section.

#### 3.3.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands

**Native Hawaiian Culture and History Action Plan**

***Planning and Administrative Activities***

Monument regulations define Native Hawaiian practices as cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. Monument staff would identify cultural research needs, priorities and opportunities as they arise (NHCH-1.2) and would continue to manage cultural and historic resources through planning and administrative activities that could increase the staff's capacity to carry out strategies and activities (NHCH-3.1). These activities could have beneficial effects on cultural and historic resources by increasing the Monument staff's knowledge base, understanding, and interpretive values of cultural and historic resources, providing for better protection and management of cultural and historic resources.

Research needs that could be accomplished through Hawaiian cultural methods would be identified and used to increase staff knowledge. Such research could be conducted through ethnographic interviews, researching oral traditions, and archival searches (NHCH-1.1). The MMB would continue to support Native Hawaiian cultural research needs and facilitate research on issues and priorities identified by providing grants, logistical support, and berthing space aboard research vessels (NHCH-2.2). Native Hawaiian traditional knowledge and management concepts would be identified and incorporated into the management of Monument resources (NHCH-3.4). Identifying research needs, supporting Native Hawaiian cultural access, and incorporating Native Hawaiian traditional knowledge and associated practices into Monument management could have beneficial effects on cultural and historic resources. This would come about by enhancing, incorporating, and perpetuating understanding of Native Hawaiian culture and knowledge, in an effort to better manage and protect the resources.

### Maritime Heritage Action Plan

#### *Planning and Administrative Activities*

Preserving maritime heritage resources, such as submerged and beached shipwrecks, aircraft, and other sites of historical, cultural, and archaeological significance, provides records of the historical activities in the NWHI and allows increased protection and management of the resources. The MMB would continue to carry out activities under the Maritime Heritage action plan and would complete a Monument Maritime Heritage Resource Research Plan (MH-3.3). Efforts would be made to collect and review maritime publications and to develop regular status reports to develop a maritime heritage database (MH-1.1, MH-1-4). Maritime archaeologists would develop and maintain this internal maritime heritage resource database to prioritize target sites (MH-1.5). All new data and findings, including recovered and conserved maritime artifacts, would be incorporated into education and outreach materials through the participation of Monument maritime archaeologists in coordinating and participating in public outreach regarding Monument heritage resources and maritime history (MH-2.1) and participating in select presentations, conferences, and events (MH-2.2). Protecting and managing maritime heritage resources through inventorying, evaluating, and interpreting them would increase maritime heritage preservation in the Monument and awareness of these resources. This could have beneficial effects on cultural and historic resources.

For more effective use of facilities and equipment, the MMB would coordinate interagency communication regarding maritime resources management (MH-3.1). Protective status for specific sites would be sought as needed using federal recognition under the NHPA and the NRHP. Preservation measures of the DLNR would be implemented for resources on state bottomlands (3 nautical miles from emergent lands) via the SHPD (MH-3.2). Under the No Action alternative, there could be beneficial effects on cultural and historic resources as a result of improved management, preservation, and protection of cultural and historic resources.

#### *Field Activities*

Locating and preserving heritage sites within the Monument increases the understanding of these resources and fosters effective and protective management of historic sites. Monument staff would continue to coordinate and carry out annual field mapping surveys and complete progress reports of select heritage sites to better understand and interpret heritage sites (MH-1.2). Knowledge gained from mapping would contribute to understanding and interpreting heritage sites and would lead to better management and protection; therefore, these activities could have beneficial effects on cultural and historic resources.

### 3.3.3.2 Conserving Wildlife and Habitats

### Threatened and Endangered Species Action Plan

#### *Planning and Administrative Activities*

Through proper planning, implementation, and inclusion of established management practices, the protection of cultural and historic sites could be incorporated as appropriate into natural resource management plans. Increasing the capacity of NMFS and FWS (TES-8.1) and working

with federal agencies proposing activities within the Monument (TES-8.3) to facilitate ESA consultation would ensure protection of threatened and endangered species by improving the consultation process for all persons involved. Through protection of the natural environment, cultural and spiritual values of the Native Hawaiian culture in the Northwestern Hawaiians Islands can be maintained. This preserves intangible elements of the Hawaiian culture, such as their recognized spiritual and genealogical connections to the natural environment, the integrity of Native Hawaiian sacred sites, and the ability of people to perpetuate traditional practices. Protecting the surrounding natural habitats could have beneficial effects on the integrity of cultural and historic resource sites.

### *Field Activities*

The natural environment and its resources are seen as an integral part of Hawaiian culture and many of its practices. Field activities that are carried out to conserve, manage, monitor, and document natural habitats include supporting activities to advance recovery of Hawaiian monk seals removing marine debris from critical habitats (TES-1.1); encouraging increasing populations of Laysan ducks through monitoring (TES-5.1); and maintaining stable populations of passerine species by conducting annual censuses of populations and their required food and habitats (TES-6.1).

These activities aim to protect surrounding natural resources and to increase or stabilize species' populations, thereby having beneficial effects on cultural and historic resources.

Intangible elements of the Hawaiian culture, such as its recognized spiritual and genealogical connections to plants, would be maintained by establishing populations of listed plant species. Species abundance is increased and the natural environment is restored by increasing the number and locations of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa (TES-7.2), establishing a self-sustaining *Pritchardia remota* population on Laysan Island (TES-7.3), and continuing greenhouse operations on Laysan Island to propagate and outplant rare plant taxa (TES-7.4). These activities aim to protect surrounding natural resources and to increase or stabilize species' populations, thereby having beneficial effects on cultural and historic resources and traditional practices.

## Migratory Birds Action Plan

### *Field Activities*

Protecting the natural environment can maintain cultural and spiritual values of Native Hawaiian culture in the NWHI. Field activities to conserve, manage, monitor, and document natural habitats and to minimize the impact of threats to migratory birds include maintaining rigorous quarantine protocols to prevent the introduction of alien species, such as invasive plants or animals that may damage migratory bird habitats (MB-2.4). Protecting natural habitats for migratory birds could have beneficial effects on cultural and historic resource site integrity by maintaining natural values important to Native Hawaiian culture.

### Habitat Management and Conservation Action Plan

#### *Field Activities*

Restoring and maintaining native ecosystems supports the traditional practices of Native Hawaiians for protecting and maintaining natural resources. Investigating and inventorying known contamination from historic human use in the NWHI include collecting and characterizing oil found washed ashore and on wildlife, building an oil sample archive (HMC-2.5), and monitoring the area at Laysan Island that was contaminated by carbofuran (HMC-2.6). The investigation and inventories of contaminated sites in the NWHI could have beneficial effects on cultural and historic resources by protecting and restoring native ecosystems from the numerous effects of known contaminants.

Restoring and maintaining coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument includes propagating and outplanting native species (HMC-4.1), implementing the Draft Restoration Plan (HMC-4.2), and replacing 60 acres of introduced shrub *Indian pluchea* at Laysan Island with native species (HMC-4.3). The maintenance and better understanding of the Monument's wetland and mudflat habitats include monitoring water level, salinity, and other water quality parameters of Laysan Lake, documenting any loss of lake area (HMC-6.1), and restoring dune habitat on Laysan Island to minimize sand movement (HMC-6.2). These activities could have beneficial effects on cultural and historic resources by preserving the native ecosystems and natural habitats, thereby supporting traditional Hawaiian values of protecting and maintaining natural resources.

### 3.3.3.3 Reducing Threats to Monument Resources

### Marine Debris Action Plan

#### *Planning and Administrative Activities*

Culture and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. The MMB will work with fishery management councils to assess and address fishing practices or domestic fishing gear that contribute to marine debris problems (MD-1.5) The results of this planning activity would include coordinating with the Councils for an accountability requirement for all vessels using the type of gear that contributes to marine debris in the NWHI. Planning for the removal of debris, detecting and preventing incoming debris, and educating the public to prevent future generations of debris in the Monument could prevent the destruction or desecration of undiscovered cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

### Alien Species Action Plan

#### *Field Activities*

Detecting, controlling, eradicating, and preventing the introduction of alien species supports the traditional Native Hawaiian values of protecting and maintaining natural resources. Measures taken to enforce the use of current quarantine protocols and hull inspections and cleaning to prevent the introduction of invasive terrestrial species to the Monument could have a beneficial effect on cultural resources (AS-3.1, AS-3.2). Preventing alien species invasions could reduce

the need to work on, near, or at cultural sites to eradicate alien species. This could have a beneficial effect on cultural and historic resources. While eradication of pests could yield a beneficial effect on cultural and historic resources, there is a potential for short-term minor negative effects through site disturbance during activities requiring work on, near, or at cultural sites. During eradication, every effort would be made to minimize effects from disturbance on cultural sites. Additionally, exercising the NHPA Section 106 process, if appropriate, could further reduce the potential for negative effects.

#### 3.3.3.4 Managing Human Uses

**Permitting Action Plan**

***Planning and Administrative Activities***

The natural environment is protected and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are maintained through an effective and integrated permit program to manage human access and to minimize and prevent negative impacts on the Monument. This is achieved by promptly reviewing permit applications to ensure informed permit-related decision making across Co-Trustee agencies (P-1.1); refining and updating the permit application, instructions, and permit template through feedback from permittees and other users (P-1.2); coordinating appropriate environmental review for all permitted activities (P-1.3); and regularly updating the public on proposed and permitted activities (P-3.5).

These activities provide additional oversight of Monument activities, contributing to a well-informed resource management staff, who would be better equipped to manage and protect cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

**Enforcement Action Plan**

***Planning and Administrative Activities***

The natural environment is protected and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are maintained through an effective compliance and enforcement program within the Monument. Such activities as conducting a comprehensive threat assessment, drafting an enforcement plan (EN-2.1), and operating the mandatory VMS for all permitted vessels (EN-2.2) would provide additional oversight of Monument activities. This contributes to a well-informed resource management staff, who would be better equipped to manage and protect cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

#### 3.3.3.5 Coordinating Conservation and Management Activities

**Constituency Building and Outreach Action Plan**

***Planning and Administrative Activities***

Public outreach for managing activities within the Monument helps maintain the connection between cultural and conservation practices. Outreach is improved by MMB agencies

collaborating to reach a broader audience (CBO-3.1), to support partnership opportunities that focus on Oceania-related issues (CBO-3.3), and to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council to provide formal advice on management activities (CBO-3.8). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

**Native Hawaiian Community Involvement Action Plan**

***Planning and Administrative Activities***

The unique biological, cultural, scientific, educational, historical, and recreational values of the NWHI require that the region be carefully managed to ensure these values are not diminished for future generations. Such activities as identifying how traditional knowledge could be integrated into Monument activities (NHCI-3.1) would further engage the Native Hawaiian community in management activities in the Monument. Native Hawaiian involvement would perpetuate the relationship between their spirituality and the natural and physical elements of the NWHI, resulting in beneficial effects on cultural and historic resources.

**Ocean Ecosystem Literacy Action Plan**

***Planning and Administrative Activities***

The natural environment would be protected and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be maintained by developing and implementing educational programs to increase ocean ecosystems literacy and promote stewardship values. Activities to accomplish this include expanding and improving the NWHI educational partnership's Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within three years (OEL-1.1). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

***Field Activities***

The natural environment and its resources are an integral part of the Hawaiian culture and many of its practices. The natural environment would be protected and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be maintained through educational expeditions to the NWHI. An example of this is activities that continue to provide educational opportunities for teachers and students at the NWHI (OEL-1.5, OEL-1.8). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

### 3.3.3.6 Achieving Effective Monument Operations

#### Evaluation Action Plan

***Planning and Administrative Activities***

An annual program review would include a description of the status of activity implementation and any recommended adjustments that would be provided in an annual report (EV-1.2). This review, including tracking the progress of the actions plans, would ensure ongoing protection and proper management of cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

## 3.3.4 Proposed Action

The Proposed Action would expand current activities and includes new activities described in the Monument Management Plan; the effects of these activities are described below. Implementation of the Proposed Action includes continuing those activities described for the No Action alternative, described in Section 3.3.3 above. The effects of these activities would also continue under the Proposed Action. Only those activities that would have an effect on cultural and historic resources are included in this analysis.

The Proposed Action would require additional conditions of permittees accessing the Monument. The permittee and any person entering the Monument must attend a cultural briefing or view designated cultural informational materials outlining the region's cultural significance and Native Hawaiians' spiritual and genealogical connection to the natural and cultural resources. Disturbance of any cultural or historic property is prohibited under the conditions of a Monument permit. The Proposed Action could result in additional funding for educational programs and exhibits for historic resources in the Monument. Further public outreach provided through new programs, visitor centers, and educational materials would bring heightened public awareness for historic resources within the Monument and a greater constituency base for support and protection of cultural resources. Repairing, maintaining, and restoring historic structures would prolong their integrity and would protect cultural and historic resources into the future.

### 3.3.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands

#### Native Hawaiian Culture and History Action Plan

***Planning and Administrative Activities***

Monument regulations define Native Hawaiian practices as cultural activities conducted to perpetuate traditional knowledge, to care for and protect the environment, and to strengthen cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. In partnership with the Native Hawaiian Cultural Working Group, cultural practitioners, and other experts, the MMB would develop a Cultural Resources Program Plan (NHCH-4.1). The purpose would be to identify cultural resources, sites, and other locations within the Monument that are appropriate for use in contemporary Native Hawaiian culture. The Cultural Resources Program Plan would address protocols, policies, and procedures for

collecting, curating, and disposing of archaeological materials, artifacts, and human remains. Monument staff would continue to work with partners to compile existing information about the region and initiate new cultural and historic research (NHCH-2.1). The MMB would support Native Hawaiian cultural research needs through additional partnership contracts, grants or formal agreements with Native Hawaiian organizations (NHCH-2.2). Increasing the understanding of Native Hawaiian histories and culture and documenting the archaeological sites and sacred resources of the NWHI by developing a formal plan and facilitating research could have beneficial effects on the cultural and historic resources of the Monument by recognizing the significance of the NWHI to Native Hawaiians.

As part of the Cultural Resources Program Plan, the MMB would work toward establishing agreements with local universities and museums to provide proper stewardship of cultural resources and artifacts through curation, research, use, return, and repatriation of collections (NHCH-2.7). A Native Hawaiian nomenclature working group would also be established to evaluate newly discovered regions, islands, and geographical and oceanic features and sites (NHCH-2.4). Information developed through this working group would be recorded in the forthcoming Monument Information Management System (NHCH-2.5). Increasing the understanding and documentation of Native Hawaiian histories and culture through research could have beneficial effects on the cultural and historic resources of the Monument. This would be done by enhancing and perpetuating understanding of Native Hawaiian culture and knowledge so as to better manage and protect the resources.

The MMB would work toward increasing resource managers' knowledge base of Native Hawaiian values and cultural information through "in-reach" programs. Monument resource managers and staff and MMB members would participate in informal and formal briefings, cultural workshops, and cultural exchanges in cooperation with other marine protected area sites that integrate traditional knowledge into their management (NHCH-3.3). This activity could have a beneficial effect on cultural and historic resources by increasing the Monument staff's knowledge base, understanding the interpretive values of cultural and historic resources, and providing for better protection and management of cultural and historic resources.

Native Hawaiian values and cultural information would be used to guide outreach and the development of educational materials (NHCH-5.1). Traditional ways of storytelling, such as hula, mele, and oli, would be encouraged to develop a culturally based strategy for education and outreach (NHCH-5.2). Native Hawaiian values and cultural information would be integrated into Monument permittee education and outreach programs and would foster a deeper respect for the NWHI through better understanding of, and respect for, Hawaiian values and the cultural significance of the place (NHCH-5.3). Increasing the understanding and documentation of Native Hawaiian histories and culture practices through education and public outreach could have beneficial effects on the cultural and historic resources of the Monument. This would come about by recognizing and addressing the significance of the NWHI to Native Hawaiians and by preserving their traditional and familial connections to their natural environments by implementing similar resource management practices.

### *Field Activities*

The MMB would continue to support, provide, and facilitate research and educational activities on issues and priorities identified and to make opportunities available to students, teachers, and researchers in the form of grants, logistical support, and berthing space aboard research vessels (NHCH-2.3). In an effort to support access for Native Hawaiian practices and to ensure that cultural research needs are met, partnership contracts, grants, or formal agreements with Native Hawaiian organizations would be created (NHCH-2.6). Conducting and supporting cultural and historical research and facilitating access to the NWHI could have beneficial effects on cultural and historic resources by providing Native Hawaiians with the opportunity to engage in the cultural traditions, practices, and histories of the NWHI, while educating the broader public on the significance of these resources. The MMB would engage the Native Hawaiian Cultural Working group and other Native Hawaiian cultural practitioners to develop and implement the Monument's management activities (NHCH-3.2). This could have beneficial effects on cultural and historic resources by integrating the traditional ecological knowledge of Native Hawaiian practitioners and experts.

Specific preservation and access plans would be developed to further protect cultural sites on and collections from Nihoa and Mokumanamana (NHCH-4.2). The plans would address monitoring and stabilization of cultural sites and curatorship or potential return and repatriation agreements with museums and institutions that house artifact collections. A Cultural Resources Program Plan would fully integrate cultural resource protection and would be initiated and implemented by the MMB (NHCH-4.3). Planning, developing, and implementing a Monument Cultural Resources Program could have long-term beneficial effects on cultural and historic resources by protecting the cultural resources in the Monument and acknowledging and preserving their cultural significance.

## Historic Resources Action Plan

### *Planning and Administrative Activities*

Preserving historic resources, including nonmarine sites, structures, artifacts, culture, and places from the Monument's historic period, provides records of past activities and increases protection and management of the resources. Through the MMB, management plans under the different agencies would be reconciled to address Monument management needs as a whole, including the needs of the Historic Preservation Plan, Midway Visitor Service Plan and the lead paint abatement plan (HR-1.1). The consolidation of plans would allow for more effective use of facilities and equipment, while preserving the integrity of historic sites, thereby resulting in beneficial effects on historic resources.

The Midway Atoll Historic Preservation Plan and the NHL would be updated and submitted to the Advisory Council on Historic Preservation (HR-1.2, HR-3.3). Capacity would be built for a staff dedicated to implementing the Midway Atoll Historic Preservation Plan, which would include archival research and data collection on the Battle of Midway NHL and improvement of the function and capacity of the Midway Museum (HR-2.1, HR-3.1, HR-4.1). The Midway Museum collection would undergo organization and curation, and oral histories of life on Midway would be compiled, collected, curated, and published to ensure a record of alternative perspectives and unique history of life on Midway (HR-4.3, HR-5.1, HR-6.1). These efforts

would improve the understanding and interpretation of the history and natural history of Midway Atoll, possibly resulting in beneficial effects on cultural and historic resources.

Monument staff would undergo annual training on the treatments identified in the Historic Preservation Plan to be aware of the responsibilities and procedures on the atoll (HR-2.2**)**. The staff would also plan, conduct, and report on field surveys and documentation of selected sites within 15 years (HR-5.2). Standard historic archaeological practice would be exercised in this activity. Protecting and managing historic resources through staff training and planning historic resource surveys would increase historic preservation and awareness of the Monument resources. This could have beneficial effects on cultural and historic resources.

### *Field Activities*

Opportunities for visitors and volunteers would be incorporated into Midway Atoll visitor services program to implement historic preservation treatments. Volunteers, under expert supervision, would be able to maintain historic properties, such as painting, restoring windows, and landscaping (HR-2.3). The adaptive reuse of historic properties at Midway Atoll would foster increased preservation of historic sites, thereby resulting in beneficial effects on historic resources.

Selected NHL sites would be documented through field surveys, using standard historic archaeological practices (HR-3.2). Additional field surveys and documentation of selected NHL mark sites and features would be conducted, including an archaeological investigation of the Commercial Pacific Cable Station site to learn about the lifestyle of Midway's earliest permanent residents (HR-6.2). Performing field surveys and conducting archaeological investigations provides insight into the rich history of the Monument, while preserving the resources. This could have beneficial effects on cultural and historic resources.

### *Infrastructure and Development Activities*

The Midway Museum would be remodeled to meet professional curation standards, which would better preserve the artifacts and historic materials and would enhance visitors' experience with historic resources (HR-4.2). Under the Proposed Action, repair and maintenance treatments on NHL features would be accomplished through volunteer work, unskilled labor, and specially trained historic preservation architects and engineers, when required (HR-3.4). Renovating museums and visitors centers would bring heightened public awareness for historic resources within the Monument and a greater constituency base for supporting and protecting cultural resources. This could have beneficial effects on cultural and historic resources. Repairing and maintaining historic structures would maintain the integrity of these sites for longer periods, thereby having beneficial effects on the historic resources.

## Maritime Heritage Action Plan

### *Planning and Administrative Activities*

Preserving maritime heritage resources, such as submerged and beached shipwrecks, aircraft, and other sites of historical, cultural, and archaeological significance, provides records of past activities and increases protection and management of the resources. A status report would be

compiled and updated annually to document wreck sites and other debris, which represent potential environmental hazards (MH-1.3). Protecting maritime heritage resources by assessing the need for responding to or remediating potential environmental hazards would increase maritime heritage preservation. This could have beneficial effects on cultural and historic resources.

### 3.3.4.2 Conserving Wildlife and Habitats

#### Threatened and Endangered Species Action Plan

##### *Planning and Administrative Activities*

Through proper planning, implementation, and inclusion of established management practices, cultural and historic site protection could be incorporated into natural environment, cultural, and spiritual resources. Planning and administrative activities to support the recovery of the Hawaiian monk seal include evaluating the loss of critical habitat (TES-1.3); ensuring that all users of the NWHI are aware of the impacts of disturbing Hawaiian monk seals on breeding beaches and in nearshore waters to reduce the likelihood of impacts from human interaction (TES-1.4); and increasing outreach and education activities focusing on Hawaiian monk seals (TES-1.5).

These activities would protect surrounding resources and would increase species populations, thereby having beneficial effects on cultural and historic resources.

Other ways to further reduce the potential threats to threatened and endangered species are cooperating with international recovery teams and governments to increase short-tailed albatross populations by establishing one or more breeding populations on islands free of threats (TES-4.1) and disseminating public outreach information on fisheries bycatch and bycatch reduction to fisheries outside the Monument (TES-4.3). There could be beneficial effects on cultural and historic resource site integrity by increasing the awareness of irreplaceable resources in the Monument in order to provide better protection and management. This could be done by reducing negative effects on threatened and endangered species through outreach and education and by exchanging data with domestic and international groups.

##### *Field Activities*

Field activities that are carried out to conserve, manage, monitor, and document species and their natural habitats include facilitating emergency response activities for Hawaiian monk seals (TES-1.2); determining the status of cetacean populations (TES-2.1); verifying and managing potential threats to cetaceans (TES-2.3); preventing negative human-cetacean interactions (TES-2.5); ensuring that nesting populations of green turtles at source beaches are stable or increasing (TES-3.1); protecting marine habitats used by green turtles for foraging and migration routes (TES-3.3); and conducting studies to protect short-tailed albatross and contaminant loads (TES 4.2).

These activities aim to protect surrounding natural resources, increase or stabilize species populations, and protect critical habitats. This could have beneficial effects on cultural and historic resources.

Maintaining stable populations of species by relocating Laysan ducks (TES-5.2) and finches, Nihoa finches, and Nihoa millerbirds (TES-6.2) to other sites in the Monument would protect surrounding natural resources and critical habitats and would increase or stabilize species' populations. This could have beneficial effects on cultural and historic resources.

Developing ecological baselines of listed species and critical habitat (TES-8.2) would assist Monument managers, consulting agencies, and action agencies in determining whether activities may affect listed species. The activities described above would contribute to a well-informed management staff who would be better equipped to manage and protect surrounding natural resources, increase or stabilize species' populations, and protect critical habitats. This could have beneficial effects on cultural and historic resources.

### Migratory Birds Action Plan

#### *Field Activities*

Protecting the natural environment and surrounding natural resources maintains the strong cultural and spiritual values of the Native Hawaiians to the NWHI. Field activities that are carried out to conserve, manage, monitor, and document natural habitats and minimize the negative effects of threats to migratory birds include controlling or eradicating nonnative species that have a negative effect on migratory birds (MB-1.1); restoring components of the native plant communities that are important to seabird nesting (MB-1.2); and monitoring other conditions that might limit the success of existing colonies, hinder restoration efforts, or change the quantity or quality of habitat on which migratory birds depend (MB-2.2, MB-3.1, and MB-3.2, MB-3.3).

Protecting natural habitats for migratory birds and their populations could have beneficial effects on cultural and historic resource site integrity by increasing the awareness of irreplaceable resources in the Monument and by preserving the natural environment.

### Habitat Management and Conservation Action Plan

#### *Planning and Administrative Activities*

Restoring and maintaining native ecosystems supports the traditional Native Hawaiian practices of protecting and maintaining natural resources. Planning activities include identifying and prioritizing restoration needs in shallow reef habitats (HMC-1.1); evaluating the costs to ecosystem function and benefits of removing scrapped iron debris from reefs in the Monument (HMC-2.4); and conducting ecological risk assessments of lead-based paint to determine necessary cleanup levels (HMC-2.7).

These activities would increase the protection of the native ecosystems and natural resources in the Monument and therefore could have beneficial effects on cultural and historic resources.

Developing and implementing culturally appropriate and innovative remote and direct techniques and methods for monitoring plant and animal populations on cliff habitats in the Monument (HMC-9.2) could have beneficial effects by minimizing the amount of on-site management near cultural sites.

### *Field Activities*

Restoring and maintaining native ecosystems supports the traditional Native Hawaiians practices for protecting and maintaining natural resources. Changes in the species composition and structure of mixed grass and shrub plant communities would be monitored on all the coralline islands and atolls of the Monument (HMC-4.7). Increasing or stabilizing the mixed grass and shrub plant communities and protecting critical habitat could have long-term beneficial effects on cultural and historic resources through increased protection and maintenance of natural resources. Work on, near, or at cultural sites could result in a short-term minor negative effect on cultural and historic resources from site disturbance during monitoring. This could be minimized through a programmatic agreement.

Field activities to investigate and inventory known sources of contamination and to restore and maintain indigenous ecosystems include conducting remedial actions at shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls (HMC-2.3); restoring native vegetation on the 34-acre Southeast Island at Pearl and Hermes Atolls (HMC-4.5); implementing coordinated ecosystem restoration on Kure Atoll (HMC-4.6); inventorying and documenting life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana (HMC-5-1); and removing ironwood on 50-acres on Sand Island.

Investigating, inventorying, restoring, and maintaining contaminated sites could have long-term beneficial effects on cultural and historic resources by increased protection of natural resources. However, these activities could result in short-term minor negative effects on cultural and historic resources from physical disturbance during remediation. Effects could be minimized by exercising the NHPA Section 106 process.

#### 3.3.4.3 Reducing Threats to Monument Resources

#### Marine Debris Action Plan

### *Planning and Administrative Activities*

Cultural and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. Protecting the historic resources by reducing the amount of debris entering the North Pacific Ocean is critical to preserving the history of the Monument. Gaining international cooperation and involvement for the marine debris issue (MD-1.3), developing standard marine debris monitoring protocols and outreach (MD-2.2, MD-3.1, MD-1.4), and removing hazardous materials that wash ashore (MD-1.2) would further protect the cultural and historic resources that may be submerged or located on coastal sites. Destruction or desecration of known and undiscovered cultural and historic resources could be minimized by heightening awareness through working with groups at an international level, through the Monument staff gaining knowledge from investigative marine debris studies, and through continuing outreach of multiagency partnerships. This could have beneficial effects on cultural and historic resources.

### *Field Activities*

Cultural and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. Protecting the historic resources by reducing the amount of debris entering the North Pacific Ocean is critical to preserving the history of the Monument. The MMB would work with partners and with fishery management councils and other partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1, MD-1.5, MD-2.1). Removing debris, detecting and preventing incoming debris, and preventing future generations of debris entering the Monument could prevent destruction or desecration of existing and undiscovered cultural and historic resources. This could result in a beneficial effect on cultural and historic resources.

## Alien Species Action Plan

### *Planning and Administrative Activities*

Detecting, controlling, eradicating, and preventing the introduction of alien species supports the traditional Native Hawaiian values for protecting and maintaining natural resources. Activities aimed at preventing, controlling, and eradicating alien species include developing management practices through integrated management plans (AS-1.2); maintaining a GIS database of marine and terrestrial alien species (AS-2.2); encouraging participation in statewide and Pacific regional alien species efforts (AS-10); and integrating alien species information into the overall outreach program for Monument permittees and outreach materials (AS-9.1, AS-9.2).

These activities to prevent alien species invasions would reduce the need to work on, near, or at cultural sites and therefore could have beneficial effects on cultural resources. While pest eradication would yield beneficial effects on cultural and historic resources, there is a potential for short-term minor negative effects through site disturbance. Activities may require work on, near, or at cultural sites. Known and yet-to-be-found cultural and historic resources could be unintentionally harmed through alien species eradication. Resource managers would be required to use BMPs while working at these sites to minimize effects.

### *Field Activities*

Detecting, controlling, and eradicating alien species supports the traditional Native Hawaiian values for protecting and maintaining natural resources. By protecting the natural environment, strong cultural and spiritual values of the Native Hawaiian culture in the NWHI may be maintained. Activities aimed at preventing, controlling and eradicating alien species include surveying distributions and populations of known alien species (AS-2.1); detecting and characterizing new infestations (AS-2.3); eradicating the house mouse (AS-4.2); conducting toxicant trials (AS-5.2); controlling and eradicating two mosquito species (AS-5.3); controlling and eradicating the gray bird locust with toxicants (AS-5.4, AS-5.5); controlling and eradicating invasive grass sandbur (AS-6.2); controlling and eradicating *Indian pluchea*, *Sporobolus pyramidatus*, and *swine cress* (AS-6.3); controlling and eradicating prioritized alien plant species (AS-6.4); mapping, controlling, and eradicating invasive red algae (AS-7.1); and conducting surveillance of snowflake coral and other incipient marine invasives (AS-7.2).

Controlling and eradicating alien species could have beneficial effects on cultural and historic resources by protecting and maintaining the natural environment and resources. While eradication of pests could yield beneficial effects on culture and historic resources, there is potential for short-term minor negative effects from the potential disturbance of cultural and historic sites while controlling alien species, such as removing vegetation and applying pesticides. Known and yet-to-be-found cultural and historic resources could be unintentionally harmed. Resource managers would be required to use BMPs while working at these sites to minimize effects.

### Maritime Transportation and Aviation Action Plan

#### *Planning and Administrative Activities*

Through proper planning, implementation, and inclusion of established management practices, cultural and historic sites would be protected. Activities aimed at reducing potential threats from maritime transportation and aviation include improving the pre-access information for inclusion on the Monument Web site and in permit application instructions (MTA-2.3) and updating nautical charts (MTA-1.3). These activities would increase Monument users' awareness and knowledge of cultural and historic sites within the Monument, reducing the potential for their activities to affect undiscovered resources. This could result in beneficial effects on cultural and historic resources.

### Permitting Action Plan

#### *Planning and Administrative Activities*

Protecting the natural environment and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI is maintained through an effective and integrated permit program to manage human access and minimize and prevent negative effects on the Monument. Implementing an effective and integrated permit program includes external review of Monument permit applications (P-1.4); investigations of individual and vessel insurance (P-1.5); analyzing permit data for management decision making and for patterns of compliance (P-2.2, P-2.3); implementing a Monument reporting process (P-2.4); developing and implementing education programs (P-3.1, P-3.2); coordinating permitting outreach (P-3.3); and developing a pre-access training and briefing program.

These activities would provide additional oversight of Monument activities, contributing to a well-informed resource management staff who would be better equipped to manage and protect cultural and historic resources and through public outreach, the public could develop a greater understanding of the values of the Monument, thereby resulting in beneficial effects on cultural and historic resources.

### Enforcement Action Plan

#### *Planning and Administrative Activities*

The natural environment and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are protected by chartering a Monument law enforcement working group (EN-1.1); developing interagency agreements (EN-1.2); developing an integrated law enforcement training program (EN-1.3); assessing law enforcement capacity and program effectiveness (EN-1.4); integrating additional automated monitoring systems and ship reporting systems (EN-2.3); and integrating regulations briefings into pre-access training (EN-3.1).

These activities would provide additional oversight of Monument activities, contributing to a well-informed resource management staff who would be better equipped to manage and protect cultural and historic resources, thereby resulting in beneficial effects on cultural and historic resources.

### Midway Atoll Visitors Service Action Plan

#### *Field Activities*

The natural environment and strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be protected by offering visitors opportunities to enhance their knowledge and appreciation of the Monument's resources. Activities to enhance the visitor's service program include providing visitors with opportunities for wildlife-dependent recreation (VS-1.1); providing opportunities to learn about cultural and historic resources (VS-1.2); monitoring impacts of visitors and other users on wildlife and historic resources (VS-1.3); and monitoring visitor satisfaction surveys (VS-2.1).

Through these activities, visitors would have the opportunity to enhance their knowledge and appreciation of the Monument's natural resources and to learn about and appreciate cultural and historic resources at the Monument. Additionally, continuous monitoring to determine effects from Monument visitors would help resource managers manage and protect cultural and historic sites. This could result in beneficial effects on cultural and historic resources.

## 3.3.4.4 Coordinating Conservation and Management Activities

### Agency Coordination Action Plan

#### *Planning and Administrative Activities*

Involving Native Hawaiian entities in the coordinated management of the Monument helps preserve and maintain the connection between cultural and conservation practices. The Proposed Action alternative includes exploring the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. (AC-2.1). The involvement of a Native Hawaiian governing entity in the management of the Monument would enhance coordinated management in the Monument by providing added authority for increased protection of cultural and historic resources, therefore having a beneficial effect.

## Constituency Building and Outreach Action Plan

### *Planning and Administrative Activities*

The following activities involve efforts to cultivate an informed constituency that supports the conservation of the natural, cultural, and historic resources of the Monument: engaging in efforts to increase ocean ecosystem literacy and conservation (CBO-1.4); establishing a Monument Web site for Monument-related information (CBO-2.1); developing and updating printed material to aid in understanding key aspects of the Monument (CBO-2.2); supporting other entities' efforts to broaden knowledge of and appreciation for Monument resources and management priorities (CBO-2.3); continuing support of the Native Hawaiian Cultural Working Group through OHA (CBO-3.6); and developing interagency Monument interpretive themes to guide all interpretive products and activities (CBO-4.1).

Through public outreach, the Monument could garner public support for the protection and proper management of cultural and historic resources. This could result in a beneficial effect by generating an increased interest in restoration and protection of cultural and historic resources in the Monument.

### *Field Activities*

The natural environment and the strong cultural and spiritual ties of Native Hawaiians to the NWHI would be protected by involving the public in the activities at the Monument. Researching and implementing new technologies and tools to increase public understanding of the NWHI ecosystems (CBO-1.5), including telepresence technology, would allow people to feel as if they were present. Through such technologies, Monument staff would be able to provide the public with an opportunity to experience the cultural and historic resources of the Monument, without risking negative effects from physical access, resulting in beneficial effects on cultural and historic resources.

### *Infrastructure and Development Activities*

Involving constituents in managing the Monument through public outreach enhances the connection between cultural and conservation practices. Initiatives to develop an engaged constituency to enhance management of the Monument include developing partnerships with the National Park Service and other key entities. These partnerships would 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 (CBO-4.5). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. Through the availability of off-site exhibits, Monument staff would be able to provide the public with an opportunity to experience the cultural and historic resources of the Monument, without risking negative effects of allowing access to the Monument. This could result in beneficial effects on cultural and historic resources.

### Native Hawaiian Community Involvement Action Plan

#### *Planning and Administrative Activities*

The Proposed Alternative includes activities that would expand and convene the Native Hawaiian Cultural Working Group (NHCI-1.1); develop and annually maintain partnerships with Native Hawaiian organizations and institutions (NHCI-1.2); establish an annual cultural resources exchange (NHCI-1.3); expand and explore opportunities to partner with institutions serving Native Hawaiians (NHCI-2.1); and use and integrate Native Hawaiian traditional knowledge in Monument management activities (NHCI-3.2).

Native Hawaiian involvement would perpetuate the relationship between their spirituality and the natural and physical elements of the NWHI, which could increase support for future protection or restoration, thereby resulting in beneficial effects on cultural and historic resources.

### Ocean Ecosystem Literacy Action Plan

#### *Field Activities*

The natural environment and the strong cultural and spiritual ties of Native Hawaiians to the NWHI would be protected by developing and implementing educational programs to increase ocean ecosystems literacy and promote stewardship values. Activities included are those that provide educational opportunities for formal and informal educators and community and conservation leaders at Midway Atoll (OEL-1.7) and using telepresence technologies for educational and outreach activities (OEL-2.2). Through public outreach, the Monument could garner public support for the protection and proper management of cultural and historic resources. Through such technologies, the public could experience cultural and historic resources of the Monument, without risking negative effects of physical access, resulting in beneficial effects on cultural and historic resources.

### 3.3.4.5 Achieving Effective Monument Operations

### Coordinated Field Operations Action Plan

#### *Infrastructure and Development Activities*

Preserving historic resources provides a record of the historical activities in the NWHI and allows increased protection and management of these resources. Activities to preserve historic structures include rehabilitating Officers Row Housing at Midway Atoll (CFO-3.4, CFO-9.4) and treating all wooden historic structures at Midway Atoll for termites (CFO-5.3). Rehabilitating historic structures would preserve the integrity of historic sites, resulting in a beneficial effect on historic resources. Known and undiscovered cultural and historic resources could be unintentionally harmed through infrastructure and development work under this or any of the other infrastructure operations called for in the sections analyzed in this chapter. Resource managers would be required to use established management practices while working at these sites to avoid such harm. Short-term minor negative effects that might result from infrastructure and development activities generally could be minimized by exercising the NHPA Section 106 process, as explained in section 3.3.2.

### 3.3.5 Summary of Effects

Table 3.3-1 summarizes the effects on cultural and historic resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and short-term minor negative effects on cultural and historic resources of the Monument. The cultural and historic resources of the Monument, includes historic properties, landscapes, cultural items, archaeological resources, sacred sites, or collections subject to protection under the NHPA, the ARPA, and the guidelines on Curation of Federally Owned and Administered Collections (36 CFR Part 79).

**Table 3.3-1**
**Summary of Effects on Cultural and Historic Resources**
**of the Proposed Action Alternative**

| **Understanding and Interpreting the Northwestern Hawaiian Islands** | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Native Hawaiian Culture and History** *(EA section 1.5.2)* *(EA section 1.6.2* | Planning/Administrative | • Beneficial effects on cultural and historic resources. |
| | Field Activities | • Beneficial effects on cultural and historic resources. |
| **Historic Resources** *(EA section 1.5.3)* *(EA section 1.6.3)* | Planning/Administrative | • Beneficial effects on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources. |
| | Infrastructure and Development | • Beneficial effects on cultural and historic resources. |
| **Maritime Heritage** *(EA section 1.5.4)* *(EA section 1.6.4)* | Planning/Administrative | • Beneficial effects on cultural and historic resources. |
| | Field Activities | • Beneficial effects on cultural and historic resources. |

| **Conserving Wildlife and Habitats** | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Threatened and Endangered Species** *(EA section 1.5.5)* *(EA section 1.6.5)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources. |
| **Migratory Birds** *(EA section 1.5.6)* *(EA section 1.6.6)* | Field Activities | • Beneficial effect on cultural and historic resources. |
| **Habitat Management and Conservation** *(EA section 1.5.7)* *(EA section 1.6.7)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources.<br>• Short-term minor negative effects on cultural |

| Conserving Wildlife and Habitats | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| | | and historic resources. |

| Reducing Threats to Monument Resources | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Marine Debris** *(EA section 1.5.8)* *(EA section 1.6.8)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources. |
| **Alien Species** *(EA section 1.5.9)* *(EA section 1.6.9)* | Planning/Administrative | • Beneficial effect on cultural and historic resources.<br>• Short-term minor negative effects on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources.<br>• Short-term minor negative effects on cultural and historic resources. |
| **Maritime Transportation and Aviation** *(EA section 1.5.10)* *(EA section 1.6.10)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |

| Managing Human Uses | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Permitting** *(EA section 1.5.12)* *(EA section 1.6.12)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| **Enforcement** *(EA section 1.5.13)* *(EA section 1.6.13)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| **Midway Atoll Visitors Services** *(EA section 1.5.14)* *(EA section 1.6.14)* | Field Activities | • Beneficial effect on cultural and historic resources. |

| Coordinating Conservation and Management Activities | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Agency Coordination** *(EA section 1.5.15)* *(EA section 1.6.15)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| **Constituency Building and Outreach** *(EA section 1.5.16)* *(EA section 1.6.16)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| | Infrastructure and Development | • Beneficial effect on cultural and historic resources. |
| | Infrastructure and Development | • Beneficial effect on cultural and historic resources. |

| Coordinating Conservation and Management Activities | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Native Hawaiian Community Involvement** *(EA section 1.5.17)* *(EA section 1.6.17)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| **Ocean Ecosystems Literacy** *(EA section 1.5.18)* *(EA section 1.6.18)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |
| | Field Activities | • Beneficial effect on cultural and historic resources. |

| Achieving Effective Monument Operations | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Evaluation** *(EA section 1.5.22)* *(EA section 1.6.22)* | Planning/Administrative | • Beneficial effect on cultural and historic resources. |

## 3.4 SOCIOECONOMICS

### 3.4.1 Effects Analysis Methodology

In the description of the No Action and Proposed Action alternatives, activities presented in the Monument Management Plan were divided into three categories: planning and administrative, field, and infrastructure and development. Planning and administrative activities are not considered to directly affect socioeconomic resources (human use, human health, safety and hazardous materials, land use, and economics), either because they relate to the development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation 8031 or they are specifically administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately would have a direct effect and to the extent adequate information is currently available they are analyzed below. For activities proposed within the Monument or intended to improve management of the Monument, the method used to determine the effect on socioeconomic resources is as follows:

- Review and evaluate current and past activities to identify their potential effect on socioeconomic resources (human use, human health, safety and hazardous materials, land use and economics);
- Review and evaluate activities within the Monument Management Plan to identify their potential to beneficially or negatively affect socioeconomic resources (human use, human health, safety and hazardous materials, land use, and economics) and its components within the Monument; and
- Assess whether or not each activity within the Monument Management Plan is consistent with applicable federal, state, or local laws, regulations, and policies.

### 3.4.2 No Action

This section briefly describes activities that are underway in the Monument and analyzes the effects associated with these activities. Only those activities that would have an effect on human health, safety and hazardous waste, human uses and land use are included in the analysis. The analysis describes the projected beneficial and negative effects that would be expected to continue under the No Action alternative, should it be selected for implementation. The No Action alternative would not change the current situation. However, these activities would continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.4-1 at the end of this section.

#### 3.4.2.1 Understanding and Interpreting the Northwestern Hawaiian Islands

**Marine Conservation Science Action Plan**

***Planning and Administrative Activities***

*Human Uses*
Characterizing types and spatial distributions of shallow-water marine habitats (MCS-1.1) and monitoring shallow-water coral reef ecosystems (MCS-1.2) provides a framework for biogeographical assessments that would offer up-to-date research findings for the project area.

These research and monitoring activities have a beneficial effect on the use of the area by research personnel because the activities offer the opportunity for more effective use of resources while conducting research activities in the project area.

**Maritime Heritage Action Plan**

***Planning and Administrative Activities***

*Human Uses*
Field mapping surveys and status reports would continue under the Maritime Heritage Action Plan (MH-1.2). Different phases of research on Maritime Heritage include shoreline terrestrial surveys and inventories, as well as remote sensing using state of the art technology, such as sidescan sonar and magnetometers in order to locate potential heritage areas. These activities have a beneficial effect on use of the area by research personnel because they offer the opportunity for more effective use of resources while personnel are conducting continuing research activities.

### 3.4.2.2 Achieving Effective Monument Operations

**Central Operations Action Plan**

***Planning and Administrative Activities***

*Human Health, Safety, and Hazardous Materials*
There is currently coordination and implementation of an annual operating plan (CO-1.1), which includes several administrative tasks, such as budget tracking, in addition to field activity planning. Specifically, the annual plan includes functional information about emergencies to ensure staff safety. This coordination adds to the efficiency of safety operations throughout the Monument, as well as the health of staff persons. Under the No Action alternative, this coordinated plan would continue to be implemented, so this activity would have a beneficial effect on human health and safety within the Monument.

### 3.4.3 Proposed Action

The Proposed Action would expand current activities and includes new activities described in the Monument Management Plan; the effects of these activities are described below. Implementation of the Proposed Action includes continuation of those activities described for the No Action alternative described in section 3.4.2 above. The effects of these activities would also continue under the Proposed Action. Only those activities that would have an effect on human uses, human health, safety and hazardous materials, and land use are included in this analysis.

**Economics and Environmental Justice**

The economic effects of the Proposed Action alternative are analyzed based on the entire budget of all activities. This is because personnel may work on more than one activity and budget dollars may be shared between activities. Therefore, the effects by activity are not analyzed here.

### *Economics*

The Proposed Action would provide an integrated framework for Monument management among the Co-Trustees. While this coordination could save money, it is anticipated that activities needed to address priority management needs will never be fully funded. As such, savings achieved through coordination would be channeled into research and management. A few additional jobs would be generated as a result of the Proposed Action, such as facilities repair and construction at Midway. An integrated approach presented in the Monument Management Plan could result in increased funding for research and management. However, overall, the total level of funding would still be subject to annual budgetary process and would likely experience increases or decreases, depending on overall federal spending. The cost of implementing the Proposed Action is estimated to average $23 million a year over 15 years, but because funding is subject to federal and state budget and appropriations and private donations, it is not possible to determine in advance what level of funding may be available in any given year, or over the life of the plan. Overall, the Proposed Action alterative is not expected to have an effect on population, employment, industry, income or the broader Hawai‘i economy, compared to the No Action alternative.

### *Environmental Justice*

The Proposed Action would not result in a disproportionate placement of negative environmental or health effects on minority or low-income populations compared to the No Action alternative. The proposed activities in the Monument Management Plan would be conducted largely in the Northwestern Hawaiian Islands, away from human population. Since potential changes in environmental, health, or economic conditions are not expected to disproportionately affect any particular low-income or minority groups, as in accordance with EO 12898, no effects on environmental justice are anticipated from the Proposed Action compared to the No Action alternative.

## 3.4.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands

## Marine Conservation Science Action Plan

### *Field Activities*

*Human Uses*

With the establishment of data collection protocols, statistical sampling design, and site selection criteria, new research opportunities would arise for research personnel within the Monument. In establishing these new research techniques and using the shallow-water ecosystem monitoring protocols as a guide, the goal of monitoring deepwater ecosystems would be achieved (MCS-1.4). With new research activities being conducted, the opportunity to include live Web sites from research vessels using written updates, imagery, and video is possible (MCS-3.3). These activities would have beneficial effects on research personnel who could benefit from new research opportunities. The public, especially students and teachers, could benefit from new activities aboard NOAA research vessels because they would be given an inside look at up-to-date research techniques and research findings that were not previously available.

**Historic Resources Action Plan**

***Planning and Administrative Activities***

*Human Health, Safety, and Hazardous Materials*
Within the Historic Resources Action Plan, the Midway Atoll Historic Preservation Plan would be updated within one year, including reconciling it with the current lead-based paint abatement plan (HR-1.1). This activity would require consultation and coordination among refuge program specialists and Monument staff to balance the needs of each plan. The preservation efforts regarding historic resources, coupled with revitalization efforts involved with visitor service centers, would provide the impetus for increased planning for removing hazardous building materials from structures. The eventual removal of these hazardous materials would decrease the risk of human exposure and therefore could have a beneficial effect on human health and safety within the Monument.

**Maritime Heritage Action Plan**

***Planning and Administrative Activities***

*Human Health, Safety, and Hazardous Materials*
Within the Maritime Heritage Action Plan, a status report on potential environmental hazards is to be completed within one year and would be updated annually (MH-1.3). This report would identify wreck sites and other debris through field work. The report would also identify any potential hazards in order to assess the need for response and remediation. Because most accidental oil spills occur due to vessel groundings and accidents, this status report could have a beneficial effect by reducing the likelihood of hazardous materials being released from vessel groundings and accidents. The identification of hazards could also have a beneficial effect on vessel safety because operators would be able to avoid incidents with more accuracy.

**Historic Resources Action Plan**

***Field Activities***

*Human Uses*
Opportunities currently available for volunteers include assisting with historic preservation tasks, working with FWS on historic restoration projects, and, for well-qualified volunteers, assisting Monument staff with the operation of visitors services programs. With the expansion of current volunteer programs, there would be opportunities available to visitors to continue these activities and to participate in new historic preservation treatments deemed necessary by the agencies (HR-2.3). With continuing archaeological investigations throughout the Monument, new archaeological and historical research would be necessary. New research opportunities within the next 10 years could include excavation in such areas as the Commercial Pacific Cable Station (HR-6.2). These research opportunities would provide visitors and research personnel with an insight into Midway Atoll's earliest residents. These activities under the Historic Resources Action Plan could have minor beneficial effects on research personnel because they would be able to participate in new research that would help in understanding the history of the NWHI. The activities could have a minor beneficial effect on the public because, with new visitor and volunteer opportunities, the public would be given more opportunities and different reasons to

visit the Monument. These opportunities would not increase the total number of visitors and volunteers on Midway but could shift some focus from habitat restoration toward historic preservation and restoration activities.

**Native Hawaiian Culture and History Action Plan**

***Field Activities***

*Human Uses*
The expansion of current research activities in the Monument would include field research and cultural education opportunities for students, teachers, and cultural specialists. Specifically, these researchers would be provided with space aboard research vessels and logistical and technical support from personnel on the research vessels and from the agencies (NHCH-2.3). This activity would have a beneficial effect on students, teachers, and cultural specialists because new cultural education opportunities would be made available.

In support of Native Hawaiian cultural research, Activity NHCH-2.6 would offer Native Hawaiian organizations contracts, grants, or formal agreements for cultural access needs. These needs include access to Mokumanamana for cultural practices and regular access for Polynesian voyaging canoes for cultural practices training. This activity could be beneficial to the Native Hawaiian community because it would ensure that cultural practice needs were met.

In order to develop management activities for the Monument that include understanding the history of the Monument and its peoples, Activity NHCH-3.2 allows for the Native Hawaiian community and the Native Hawaiian Cultural Working Group to participate in developing these management needs. This would include engaging younger generations of Native Hawaiians in cultural research field activities. This would be beneficial to the Native Hawaiian community because it would allow them more access to preserving the cultural and historic resources of the NWHI through research opportunities and consultations with the agencies.

In developing and implementing specific preservations plans, including the Monument Cultural Resources Program, it would be possible for new sites to be listed on the NRHP on Nihoa and Mokumanamana Island (NHCH-4.2 and NHCH-4.3). This would result in no effect on human use of the area because these two islands would remain closed to general public access. Native Hawaiian use of these areas is allowed only under trip-specific permits from the MMB. Increased educational material that would result in the research of cultural resources and new historic sites could have a beneficial effect on the public, who would gain more knowledge of the history of the Monument.

### 3.4.3.2 Conserving Wildlife and Habitats

**Threatened and Endangered Species Action Plan**

***Planning and Administrative Activities***

*Human Uses*
Various practices are instituted by the agencies that work to eliminate human interactions with marine mammals, seabirds, sea turtles, and other endangered or threatened species. These

practices include "Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles," "Precautions for Minimizing Human Impacts on Endangered Land Birds in Papahānaumokuākea Marine National Monument," "Special Conditions and Rules for Moving between Islands and Atolls and Packing for Field Camps in Papahānaumokuākea," "Human Hazards to Seabirds in Papahānaumokuākea Marine National Monument" (all found in Appendix F). Other practices include "Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment, Papahānaumokuakea Marine National Monument" (PIRO 2007), "Marine Wildlife Viewing Guidelines (NOAA-NMFS, undated), and compatibility determinations for activities on the refuges. In order to reduce the likelihood and negative effect of human interactions on Hawaiian monk seals (*Monachus schauinslandi*), Activity TES-1.4 would include the extensive permit review process of any activities (including nearshore ship traffic, beach use, noise, research, and any other effect that could negatively affect the marine or terrestrial habitat of the seal) and thus could have a negative effect on human use in any areas that include the marine or terrestrial habitat of the monk seal. At the same time, to the extent these restrictions contribute to the recovery of the monk seal, these actions could result in a beneficial effect on human uses because of increased observational opportunities at Midway and the main Hawaiian Islands.

### *Field Activities*

*Human Uses*

Currently, limited entry policies, no-access areas, and BMPs (See Volume III, Appendix F) are in place for avoiding threatened and endangered species and human interactions. Most beaches on the western side of Sand Island at Midway Atoll are closed to public access to protect the Hawaiian monk seal from human disturbance. "Turtle Beach," on the east side of Sand Island, is inhabited by the endangered Laysan duck (*Anas laysanensis*) and is therefore closed to public use. Spit Island and Eastern Island at Midway are closed to visitors, with the exception of FWS-trained escorts conducting scheduled trips to Eastern Island. The critical habitat of the Hawaiian monk seal covers all beach areas, lagoon waters, and ocean waters to a depth of 20 fathoms, with the exception of Sand Island and its harbor. Therefore, these areas are strictly regulated by the agencies. Activities TES-2.5 and TES-3.3 would continue to prevent human interactions with cetaceans and sea turtle nesting habitat through controls that would make off limits such areas as sea turtle nesting areas and Monument lagoons and nearshore areas where cetaceans rest. Both of these activities would therefore increase limits on current human use. Green turtle (*Chelonia mydas*) nesting habitat occurs throughout the beaches of the NWHI. Continuing efforts do not limit human use overall, but beaches (deemed public use areas) could be temporarily closed. Because there are currently controls limiting public access, these activities could result in a long-term minor negative effect on human use.

*Human Health, Safety, and Hazardous Materials*

The Threatened and Endangered Species Action Plan includes facilitating emergency response for Hawaiian monk seals (TES-1.2). Although the response would be focused specifically on Hawaiian monk seals, the protocols include ensuring that a rapid and well-organized response is possible. Incidents that threaten Hawaiian monk seals include oil spills, disease outbreak, and ship groundings. The interagency coordination involved with improving emergency response logistical capabilities and transportation could increase the efficiency of the current emergent vessel capacity. Although instituting protocols for monk seal rescue would not directly reduce

the occurrence of the incidents described above, the coordination and planning efforts could have a beneficial effect on safety operations within the Monument.

Protecting and managing marine habitat includes identifying and mapping foraging areas and migration routes in and around the Monument (TES-3.3). By identifying and mapping turtle foraging areas, necessary information would be obtained to manage anchoring and vessel transit activities.

### Migratory Bird Action Plan

#### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*
To minimize migratory bird mortality during oil spills, the Migratory Bird Action Plan calls for adequate coverage of appropriate actions in all spill response plans (MB-2.3). This would include multiagency coordination during spill prevention planning and actual spill response actions. Although this activity is not a direct human-related emergency response, the coordination and planning efforts could have a beneficial effect on the emergency response operations and therefore safety within the Monument.

### Habitat Management and Conservation Action Plan

#### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*

The Habitat Management and Conservation Action Plan calls for a cost evaluation for the removal of iron sources, such as shipwrecks, from Monument waters (HMC-2.4). This would include cataloging all the existing sources. The plan would also build an oil sample archive from oil washed ashore, as well as wildlife affected by mystery spills (HMC-2.5). This inventory would be used to determine liability and understanding of the primary sources of oil pollution. These two activities would increase the knowledge of hazardous materials within the Monument and help decision makers determine the best course of action for their removal. The oil sample archive would also help Monument staff determine appropriate preventative measures for oil spill occurrence by discovering the key factors in mystery cases. Therefore, these two activities could have beneficial effects on hazardous material practices within the Monument.

#### *Field Activities*

*Human Health, Safety, and Hazardous Materials*
There are several activities in the Habitat Management and Conservation Action Plan focused on reducing the effects of human actions. The first activity is to evaluate the effects of contamination from shoreline dumps and landfills at French Frigate Shoals, Kure Atoll, Midway Atoll, and Pearl and Hermes Atolls and to prioritize cleanup action based on risk assessments (HMC-2.1). The risk assessments would evaluate the effects of runoff, erosion, and seepage from hazardous waste sites. The plan would also work to verify the integrity of known landfills and to conduct additional remediation where necessary (HMC-2.2). This activity would occur at the old bulky waste landfill and the "Rusty Bucket" at Midway. The dump site material would continue to be removed from Tern Island and French Frigate Shoals. The investigations and

cleanup efforts would target PCB contamination. Finally, under the plan, historic disposal sites would be located at FFS and Kure, Midway, Pearl, and Hermes Atolls, the sites would be investigated for contamination (HMC-2.3).

These assessment activities could help characterize the nature and extent of contamination within the Monument. Appropriate cleanup and remediation actions could then be determined from information obtained through these studies. These activities could increase compliance with regulations and could reduce the likelihood of further contamination or release. There could be a benefit to human health because of the decreased risk of human exposure to and release of potentially hazardous materials within the Monument.

There would also be an ecological risk assessment performed at Midway to determine the levels of lead in the soil for possible removal. Field activities include removing flaking lead-based paint from buildings and effectively removing lead-contaminated soils on Midway Atoll (HMC 2.7). This includes conducting an ecological risk assessment to determine the allowable lead levels in the soils. Paint removed from buildings is stored short term in sealed 55-gallon barrels in a secure, dry storage area on Sand Island. Due to the extremely high cost of transporting these materials off island, current plans call for storing the barrels at Midway until all lead-based paint is removed. At that time, a fully licensed hazardous waste contractor would be hired to repack if necessary and then ship all wastes to a licensed disposal site on the mainland.

While the ecological risk assessment to determine soil lead-based paint cleanup levels at Midway would not be affected under the No Action alternative, the proposed activity under the Proposed Action alternative could result in a faster clean up and therefore could reduce the long-term exposure time. Except for a few employees that have lived at Midway for 10 to 25 years, most staff members do not live at Midway for more than three to five years, and most visitors and researchers stay for only a few weeks to months. This could help bring the Monument into compliance with hazardous waste regulations and could decrease the risk of human exposure; therefore, it could have a long-term beneficial effect on human health and safety within the Monument.

### 3.4.3.3 Reducing Threats to Monument Resources

#### Marine Debris Action Plan

##### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*

The Marine Debris Action Plan includes an activity to catalog, secure, contain, and properly remove hazardous materials that wash ashore (MD-1.2). These materials include unidentified chemical containers, unexploded ordnance, oceanographic instruments, and objects that regularly wash ashore. The items would be documented, identified, and secured until removed and disposed of by approved contractors. The proper handling of hazardous materials within the Monument would increase compliance with hazardous materials regulations. It would also decrease the likelihood of threats to human health. Therefore, this activity could have a beneficial effect on hazardous materials and human health within the Monument.

## Alien Species Action Plan

### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*
There are several activities within the Alien Species Action Plan that aim to eradicate pests and alien species. The eradication of the house mouse would require treatment with rodenticide, which falls under the Federal Insecticide, Fungicide, and Rodenticide Act (PL 95-516; U.S.C. 136-136y) (AS-4.2). Toxicants would be used on invasive species of ants and wasps (AS-5.2) and gray bird locusts (AS-5.5). Glyphosate would be applied to reduce and eradicate various invasive plant species (AS-6.1, AS-6.2); Garlon (AS-6.3) and Garlon 4 (AS-6.4) would be painted on stumps to prevent further growth of additional invasive species. These hazardous chemicals would be applied in accordance with the Alien Species Management Plan and therefore would comply with all applicable local, state, and federal laws. Although the use of toxic chemicals could have short-term minor negative effects on human health and safety from an increased risk of exposure or spills, all applicable rules and procedures, including use of personal protective clothing, would be followed to safeguard the health of the person applying them. The use of toxicant applications to eradicate pests and alien species could have beneficial effects on species and humans by reducing future threats from invasive species (such as wasps, mosquitoes, and ants).

The Alien Species Action Plan also calls for controlling and possibly eradicating two introduced mosquito species that pose risks to humans and special status species health (AS-5.3). This activity could decrease threats to human health by minimizing mosquito breeding habitat and killing larvae in freshwater ponds. Therefore, this activity could have a beneficial effect on human health within the Monument.

### *Field Activities*

*Human Uses*
The Alien Species Action Plan includes a field activity to control and, if possible, eradicate the two mosquito species that were introduced to Midway Atoll (AS-5.3). In order to eradicate these insects, staff members would kill mosquito larvae in freshwater ponds and would eliminate mosquito breeding habitat by getting rid of standing water sources where possible and appropriate. The eradication measures that would generally be used are draining standing water, stocking mosquito-eating fish, and using biological controls. If chemical agents are used in the eradication process, staff members would be properly trained and would be provided with appropriate protective gear; thus there would be no effect on staff members from this activity. Human visitors and staff living on the island could benefit from this activity because it could minimize the possibility of mosquito-vector diseases, such as West Nile virus and avian pox. Therefore, controlling and possibly eradicating the two mosquito species at Midway Atoll could result in a beneficial effect on human uses by protecting public health.

## Maritime Transportation and Aviation Action Plan

### *Planning and Administrative Activities*

*Human Uses*
Developing boundary and zoning information tools (MTA-1.2), including updates to nautical charts and Notices to Mariners (MTA-1.3), would provide Monument permittees with up-to-date information on vessel and airplane allowances in the Monument. Pre-access information would be improved, and these informational materials would be provided to Monument users and vessel operators in trip training (MTA-2.3). Informational materials provided and trip training exercises include waste discharge locations and types, preventing the introduction of nonnative species and preventing and reporting interactions with federally and state protected species, as well as other wildlife. Providing updates to navigational charts, informational materials, and notices to mariners is a beneficial effect because it enhances public safety and awareness of the environment. These activities are proposed in order to reduce the effects of marine and air traffic on the Monument, but, because these are planning activities, they would not create new limits on use of the Monument in relation to permittees.

*Human Health, Safety, and Hazardous Materials*
The Maritime Transportation and Aviation Action Plan would improve pre-access information including pre-trip training that would cover regulations and compliance, navigation hazards, zoning designations, including waste discharge locations and types, preventing light and noise pollution, and preventing anchor damage to coral reefs and other benthic (bottom-dwelling) organisms and their habitats (MTA-2.3). All vessel operators, captains, crews, and trip participants would have access to this information. The Monument staff would work with the ICC to convene a group of vessel and aircraft personnel to discuss safety for boating and flight operations (MTA-2.2). These suggestions would be incorporated into the pre-trip training. By increasing access and training opportunities concerning hazards and potential pollution pathways, the likelihood of accidental vessel groundings and hazardous waste discharge could decrease. The MMB would benefit from expert experience by convening a group of seasoned operators, thus further improving the communication and implementation of Monument regulations for safety and spill prevention. Therefore, this plan could have a beneficial effect on hazardous materials and safety within the Monument.

### *Field Activities*

*Human Health, Safety, and Hazardous Materials*
The Maritime Transportation and Aviation Action Plan outlines several activities to assess potential aircraft and vessel hazards and effects (MTA-2.1). There are many research studies, including an assessment of how discharge from vessels affects the environment. If needed, protocols and restrictions would be modified. The research conducted for this study may decrease the likelihood of effects from discharge by discovering where current practices can be improved. Therefore, these activities could have a beneficial effect on human health and safety by implementing practices to reduce the potential release of hazardous materials from vessels within the Monument.

### Emergency Response and Natural Resource Damage Assessment Action Plan

#### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*
The Emergency Response and Natural Resource Damage Assessment Action Plan includes activities to plan for and respond to an emergency within the ICS for the region, or other unanticipated events that fall outside the scope of the Area Contingency Plan for the Hawaiian Islands. The plan would create an ERAT for ICS responses (ERDA-1.1). ERAT members would be required to acquire and maintain training and certifications appropriate for response preparedness (ERDA-1.2, ERDA-2.3), to participate in emergency response drills (ERDA-1.3), and to participate in damage assessment programs and training (ERDA-1.4). These activities would properly prepare the ERAT for emergencies and disasters within the ICS.

In the second year of the plan, the appropriate type and response to non-ICS emergencies would be determined (ERDA-2.1). Monument staff would be designated for each non-ICS response team, including species experts for protected species incidents (ERDA-2.2). The plan would require an update and, if needed, improvement of the Area Contingency Plan and the Environmental Sensitivity Indexes (ERDA-3.1). Finally, within three years, the ERAT would create damage assessment criteria and protocols for non-ICS incidents.

These activities could not only increase the efficiency of response to special status species incidents but increase response efficiency to emergency and safety hazard occurrences as well. This could increase the speed of emergency vehicle response time by streamlining protocols and adequately training team members. The ERAT would be well qualified to assist region-wide incidents as well as local emergencies. Therefore, the plan could have a beneficial effect on safety, human health, and hazardous materials practices within the Monument.

## 3.4.3.4 Managing Human Uses

### Permitting Action Plan

#### *Planning and Administrative Activities*

*Human Health, Safety, and Hazardous Materials*
The Permitting Action Plan outlines several activities that develop tracking, evaluation, and outreach components. A GIS-based permit tracking system would allow each agency to input and track activities within the Monument that pertain to individual requirements (P-2.1). A system would then be instituted to analyze this data to inform management decisions (P-2.2) and discover patterns of compliance (P-2.3). In conjunction, a Monument reporting process would be developed to ensure adherence to regulations and, if necessary, issue compliance visits from enforcement agents (P-2.4). A permit and regulatory education program would be required for all permit applicants (P-3.1). Outreach efforts would be coordinated between agencies to avoid delays and to ensure the highest level of regulatory understanding by permittees (P-3.3). Finally, pre-access training for first time Monument visitors to communicate regulations, permit requirements, and best conduct would be implemented (P-3.4).

These activities could increase accountability and compliance with permits required to enter the Monument. The outreach component would integrate understanding of regulations by all Monument users, which could decrease the likelihood of accidents and hazardous waste spills. This could decrease the demand on emergency response, as well as risks to human health from vessel groundings and hazardous material exposure. Therefore, this plan could have a beneficial effect on human health, safety, and hazardous materials practices within the Monument.

### *Field Activities*

*Human Uses*
Midway Atoll is the main gateway to the Monument. Because it is outside the State of Hawai‘i, regulations at 50 CFR Part 38 were put in place to provide for public safety at Midway. Increased law enforcement capacity on Midway Atoll would include the presence of credentialed officers (EN-1.5) in order to develop means of understanding enforcement and to share resources between the different enforcement agencies. These officers would ensure safety, regulatory compliance, and enforcement, which could benefit Monument visitors and staff because of the assurance of their safety while visiting or living at Midway.

## Midway Visitors Services Action Plan

### *Planning and Administrative Activities*

*Human Uses*
With the current, expanded, and new activities that are possible through this management plan for visitors to come to the Monument, it becomes necessary to have a way to assess the visitor programs in order to provide the most beneficial services to the public. Activities VS-2.2 and VS-2.3 would create a team of visitors services members at Midway Atoll who would review the visitors program every other year and would use the results from these reviews to improve the visitors programs. These activities could have a beneficial effect on visitors to the Monument because of the assurance that Monument staff are providing and offering the most beneficial programs and activities in the NWHI.

### *Field Activities*

*Human Uses*
Activity VS-1.1 would provide opportunities for additional visitors to enjoy wildlife-dependent recreation. These opportunities include guided interpretive tours, wildlife photography, snorkeling, diving, kayaking, and self-guided walks. Currently, 25 percent of visitors staying three days or longer are given the opportunity to assist with wildlife population monitoring as volunteers. Seven compatibility determinations are in place that allow activities on Midway. The covered activities are allowed under agreed-on terms and conditions that comply with state and federal policies. Additional compatibility determinations allow for other beach use activities for visitors, such as swimming, volleyball, nonadministrative airport operations, bicycling, jogging, and amateur radio use. While most of these activities are currently available to Midway Atoll visitors, this activity in the Monument Management Plan outlines opportunities for additional recreational activities for a slightly greater number of visitors. These activities would be evaluated, monitored, and implemented in accordance with the preservation and conservation of the Monument’s biological, cultural, and historic resources. The goal of this activity is to

provide recreation for visitors that would educate them about the environment and would allow them to gain knowledge of all of the resources the Monument has to offer. This activity could be beneficial to visitors by providing them with a variety of opportunities to experience the resources of Midway Atoll and the Monument.

Visitors' effects on the various resources of the Monument are being monitored through the MVSP. In addition to a visitors services review team outlined in planning Activity VS-2.2, Activity VS-2.1 would monitor visitor satisfaction surveys completed by visitors leaving Midway Atoll. Based on these satisfaction surveys, in addition to monitoring Monument resources, this activity also includes the monthly adjustment of activities, facilities, and maintenance schedules to provide the best possible visitor services. While continuing to comply with the preservation and protection of Monument resources, this activity could be beneficial to visitors because it would provide assurance that they were given the best possible experiences while visiting Midway.

### 3.4.3.5 Coordinating Conservation and Management Activities

#### Ocean Ecosystems Literacy Action Plan

##### *Field Activities*

*Human Uses*
The "Navigating Change" program is an educational program that focuses on raising awareness of marine ecosystems and their conservation in the Hawaiian Islands. Over the past few years, over 15 workshops have been conducted throughout the Hawaiian Islands to provide teachers with the educational materials and methods for effectively teaching this material. The Navigation Change Curricula would provide wildlife-dependent educator workshops at Midway Atoll, targeting a mix of formal and informal educators and community and conservation leaders (OEL-1.7). These annual workshops would provide teachers with major themes of the ocean ecosystem-based curriculum. Moreover, teaching materials, such as telepresence and ocean stewardship programs, would be developed. These workshops could be beneficial to the teachers of the Hawaiian Islands, who would be given hands-on experience and the opportunity to learn the most effective way of presenting this material to their students.

### 3.4.3.6 Achieving Effective Monument Operations

#### Central Operations Action Plan

##### *Planning and Administrative Activities*

*Human Uses*
Regularly assessing the current status and future needs for human resources (CO-2.1) would enhance human resources and organizational capacity in the Monument. Currently, human resources capacities are examined regularly in order to organize and make better use of current staff. Alternative human resources capacity-building activities could include internships, volunteer programs, and partnerships, all of which could benefit researchers and the public because they would be given additional opportunities for helping to conserve Monument resources.

## Coordinated Field Operations Action Plan

### *Planning and Administrative Activities*

*Human Uses*

Originally, Midway's infrastructure was built to service a population of up to 5,000 individuals. The current population of Sand Island is less than 100 people, with future projections of no more than 200 individuals. This includes interagency personnel, volunteers, researchers, and visitors. In order to be efficient for this population, FWS has allotted the time, money, and resources to downsizing the infrastructure on Sand Island. In order to meet this downsizing goal, such activities as developing a strategy for long-term sustainability for operations throughout the Monument using alternative energy systems and waste reduction would be implemented within two years (CFO-1.3) and would benefit those researchers and visitors. Also, sustainability activities would help keep the human presence in the Monument at the levels anticipated under either alternative. The facilities on Midway would require less energy, would grow limited amounts of produce (at Midway only), and perhaps would use sustainable fuel types, in addition to other sustainable efforts. This could require fewer shipments of fuel and materials to and from the main Hawaiian Islands. Thus, these activities could have a beneficial effect on sustaining the human presence within the Monument for management, research, and visitation purposes.

*Human Health and Hazardous Materials*

Planning and administrative activities in the Coordinated Field Operations Action Plan include the integration of alternative energy systems and waste reduction strategies within two years (CFO-1.3) and the use of sustainable engineering, technology, and landscape architecture throughout the Monument (CFO-1.4). These sustainable development activities could decrease the likelihood of hazardous materials release and subsequent human exposure by integrating nontoxic building materials and lubricants for Monument building and operations. Thus, this plan could have a beneficial effect on human health and hazardous materials practices within the Monument.

### *Infrastructure Development Activities*

*Human Uses*

In relation to the downsizing plan described above, several infrastructure activities in the Proposed Action would help in achieving this goal. These activities include rehabilitating "Officer's Row" Housing at Midway Atoll (CFO-3.4), which would increase the housing capacity for increased agency and partner personnel; maintaining and enhancing the infrastructure at Kure Atoll (CFO-3.5), which would maintain, expand, or replace communications equipment, solar and water power equipment, sewage treatment, and buildings and facilities on Green Island; and completing Phase I rehabilitation of Midway Mall and Commissary (CFO-9.4), which would offer space for Monument staff and partner offices, classrooms, storage, visitor services, and laboratories. These activities could benefit management, research, and visitation in the Monument by providing sufficient housing for an increased number of staff and visitors. Researchers at Kure Atoll who rely on housing and facilities for permanent biological monitoring and restoration programs would be provided with these necessities. The Visitors Services Program could benefit from a better and well-maintained space to hold such events as lectures and training.

In order to improve transportation, education, evacuation, research, surveillance, management, and enforcement within the Monument, it is necessary to have improved aircraft services, perhaps including an aircraft dedicated to Monument purposes. Activity CFO-7.3 proposes to acquire an aircraft dedicated to these activities within 15 years following the implementation of the Monument Management Plan. This activity could benefit the human presence within the Monument for research and management purposes, as well as visitors, because it would allow more frequent and perhaps less expensive access to Midway, including transport of people, equipment, and supplies necessary for activities outlined in the Monument Management Plan.

*Human Health and Hazardous Materials*

Infrastructure Development activities in the Coordinated Field Operations Action Plan include replacing Bravo Barracks and Charlie Barracks at Midway Atoll (CFO-3.2 and CFO-3.3), rehabilitating the Officers Row Housing at Midway (CFO-3.4), maintaining infrastructure at Kure Atoll (CFO-3.5), and rehabilitating the Midway mall and commissary building (CFO-9.4). Replacing Bravo and Charlie Barracks would include demolition and facilities construction to provide safe housing for island visitors and transient personnel and housing for operations and maintenance personnel. Rehabilitation at Midway would result in increased housing capacity to accommodate increased agency and partner personnel. At Kure Atoll, this would apply to the ongoing need to maintain, expand, or replace communications equipment, solar power and water units, sewage treatment infrastructure, buildings, and equipment. Because the structures at both Midway and Kure Atolls were built with materials that may contain hazardous materials, these activities increase the likelihood of release and subsequent human exposure. However, structures would be demolished or rehabilitated in accordance with Monument regulations and protocols, including the handling of PCB-containing materials, lead-based paint, and other such toxic substances. Disposal of hazardous materials through proper EPA and Hawai‘i Department of Health protocols could decrease the overall quantity of hazardous materials within the Monument and, thus, the risk of human exposure. Therefore, these activities could have a beneficial effect on hazardous materials and human health within the Monument.

With the increased number of research activities that would be taking place according to this Monument Management Plan, the opportunities for new vessels to operate in the Monument would be addressed by activities in the Coordinated Field Operations Action Plan. One or possibly more new vessels would be stationed at Midway Atoll for expanded or new field activities and to act as a stepping stone to establish research and monitoring programs in the northern end of the Monument (CFO-6.2). A new, small research vessel would be stationed at Midway to service field activities from French Frigate Shoals to Kure Atoll (CFO-6.3). This new vessel would expand research, education, enforcement, and emergency response capabilities. These activities could be beneficial to the current and projected future human presence in the Monument for management and research purposes because they could provide equipment for carrying out new and expanded field activities outlined in this Monument Management Plan and emergency and law enforcement response capabilities that do not currently exist.

Currently, nonintrusive research diving is allowed within the Monument. Activities CFO-8.1, CFO-8.2, and CFO-8.3 include replacing the dive recompression chamber at Midway Atoll, investigating the acquisition of a portable dive recompression chamber, and incorporating a dive

operations center at Midway Atoll. Developing a comprehensive dive program to carry out marine research, emergency response, and management of dive operations could benefit researchers and diving visitors by providing a more effective and better managed program. This includes having additional safety equipment available to effectively perform dive operations.

Currently at Midway, humans living and working in buildings are potentially exposed to lead-based paint. Under the No Action alternative, replacing Bravo (CFO-3.2) and Charlie (CFO-3.3) barracks, rehabilitating Officer's Row at Midway Atoll (CFO-3.4), and rehabilitating Midway Mall (CFO-9.4) would take many more years than it would under the Proposed Action alternative, so the risk to humans would last longer. Except for a few employees that have lived at Midway for 10 to 25 years, most staff members do not live there for more than three to five years, and most visitors and researchers stay for only a few weeks to months. Therefore, this extension of the time to replace or rehabilitate the buildings would not prolong exposure to most individuals, but it could expose more individuals.

### 3.4.4 Summary of Effects

Table 3.4-1 summarizes the effects on socioeconomic resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and minor negative effects on socioeconomic resources (human uses, human health, safety and hazardous materials, land use, and economics) of the Monument. The socioeconomic resources of the Monument includes historical uses, current human uses and activities, activities within marine areas in and adjacent to the Monument, activities in land areas within the Monument, current land uses, population, employment and industry, and income.

**Table 3.4-1**
**Summary of Effects on Socioeconomic Resources of the Proposed Action Alternative**

| Economics and Environmental Justice | | |
|---|---|---|
| **Resource Area** | **Action Areas** | **Proposed Action** |
| **Economics and Environmental Justice** | All | • Minor beneficial effect on population, employment, industry, or income<br>• No effect on environmental justice |

| Understanding and Interpreting the Northwestern Hawaiian Islands | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Marine Conservation Science**<br>*(EA section 1.5.1)*<br>*(EA section 1.6.1)* | Field Activities | • Beneficial effects on human uses |
| **Native Hawaiian Culture and History**<br>*(EA section 1.5.2)*<br>*(EA section 1.6.2* | Field Activities | • Beneficial effect on human uses |
| **Historic Resources** | Planning/Administrative | • Beneficial effects on human health, safety, and |

| Understanding and Interpreting the Northwestern Hawaiian Islands | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| *(EA section 1.5.3)*<br>*(EA section 1.6.3)* | | hazardous materials |
| | Field Activities | • Minor beneficial effects on human uses |
| **Maritime Heritage**<br>*(EA section 1.5.4)*<br>*(EA section 1.6.4)* | Planning/Administrative | • Beneficial effects on human health, safety, and hazardous materials |

| Conserving Wildlife and Habitats | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Threatened and Endangered Species**<br>*(EA section 1.5.5)*<br>*(EA section 1.6.5)* | Planning/Administrative | • Beneficial effect on human uses |
| | Field Activities | • Beneficial effect on human health, safety, and hazardous materials<br>• Long-term minor negative effect on human uses |
| **Migratory Birds**<br>*(EA section 1.5.6)*<br>*(EA section 1.6.6)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials |
| **Habitat Management and Conservation**<br>*(EA section 1.5.7)*<br>*(EA section 1.6.7)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials |
| | Field Activities | • Beneficial effect on human health, safety, and hazardous materials |

| Reducing Threats to Monument Resources | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Marine Debris**<br>*(EA section 1.5.8)*<br>*(EA section 1.6.8)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials |
| **Alien Species**<br>*(EA section 1.5.9)*<br>*(EA section 1.6.9)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials<br>• Short-term minor negative effect on human health, safety, and hazardous materials |
| | Field Activities | • Beneficial effect on human uses |
| **Maritime Transportation and Aviation**<br>*(EA section 1.5.10)*<br>*(EA section 1.6.10)* | Planning/Administrative | • Beneficial effect on human uses<br>• Beneficial effect on human health, safety, and hazardous materials |
| | Field Activities | • Beneficial effect on human health, safety, and hazardous materials |
| **Emergency Response and Natural Resource Damage Assessment**<br>*(EA section 1.5.11)*<br>*(EA section 1.6.11)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials |

| Managing Human Uses | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Permitting**<br>*(EA section 1.5.12)*<br>*(EA section 1.6.12)* | Planning/Administrative | • Beneficial effect on human health, safety, and hazardous materials |
| **Enforcement**<br>*(EA section 1.5.13)*<br>*(EA section 1.6.13)* | Field Activities | • Beneficial effect on human uses |
| **Midway Atoll Visitors Services**<br>*(EA section 1.5.14)*<br>*(EA section 1.6.14)* | Planning/Administrative | • Beneficial effect on human uses |
| | Field Activities | • Beneficial effect on human uses |

| Coordinating Conservation and Management Activities | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Ocean Ecosystems Literacy**<br>*(EA section 1.5.18)*<br>*(EA section 1.6.18)* | Field Activities | • Beneficial effect on human uses |

| Achieving Effective Monument Operations | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Proposed Action** |
| **Central Operations**<br>*(EA section 1.5.19)*<br>*(EA section 1.6.19)* | Planning/Administrative | • Beneficial effect on human uses |
| **Coordinated Field Operations**<br>*(EA section 1.5.21)*<br>*(EA section 1.6.21)* | Planning/Administrative | • Beneficial effect on human uses |
| | Infrastructure and Development | • Beneficial effect on human health, safety, and hazardous materials<br>• Beneficial effect on human uses |

## 3.5 OTHER RESOURCES

### 3.5.1 Effects Analysis Methodology

In the description of the No Action and Proposed Action alternatives, activities presented in the plan were divided into three categories: 1) Planning and Administrative, 2) Field, and 3) Infrastructure and Development. Planning and administrative activities are not considered to directly affect water quality, transportation, and utilities either because they relate to development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation 8031, or because they are solely administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately will have a direct effect and to the extent adequate information is currently available are analyzed below. For activities proposed within or intended to improve management of the Monument, the methodology used to determine whether effects on water quality, transportation, and utilities would occur is as follows:

- Review and evaluate ongoing and past activities to identify the action's potential effect on water quality, transportation, and utilities;
- Review and evaluate activities within the plan to identify their potential to beneficially or negatively affect the ecosystem and its component parts within the Monument; and
- Assess the compliance of each activity within the plan with applicable federal, state, or local regulations.

In addition, all proposed activities that may affect water quality under the Clean Water Act or other federal or state law will only proceed after compliance with applicable laws, including, as necessary, consultation, receipt of permits, and compliance with all permit terms and conditions.

### 3.5.2 Effects Common to Human Interactions on Water Quality, Transportation, and Communications and Utilities in the Monument

Possible effects from increased air, marine, and terrestrial transportation traffic associated with the Monument to general transportation within and to the Monument include: 1) potential effects from delays to transiting vessels, 2) infrastructure improvements to accommodate increased traffic within the Monument, 3) potential conflicts between research vessels, cruise ships, and transiting vessels, and 4) effects of increased air traffic to and from Midway Atoll. All activities would be designed and managed using BMPs to avoid or minimize these effects, as analyzed below.

### 3.5.3 No Action

This section briefly describes activities that are underway in the Monument and provides analysis of the effects associated with these activities. Only those activities that would have an effect on water quality, transportation, and utilities are included in the analysis. The analysis describes the projected beneficial and negative effects that would be expected to continue under the No Action alternative, should this alternative be selected for implementation. Implementing the No Action alternative would result in no change to the current situation. However, these

activities would continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.5-1 at the end of this section.

### 3.5.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands

#### Maritime Heritage Action Plan

***Field Activities***

*Transportation*
Efforts to monitor, map, and characterize maritime heritage and biological and ecological resources are ongoing (MH-1-2). Shoreline terrestrial surveys and inventories, marine remote sensing using magnetometer, and side-scan sonar would continue to be used to locate potential maritime heritage targets, and noninvasive diving surveys would continue to assess and inventory sites. Field activities may require a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### 3.5.3.2 Conserving Wildlife and Habitats

#### Threatened and Endangered Species Action Plan

***Field Activities***

*Transportation*
Efforts to reduce marine debris within the Monument also continue, along with large-scale efforts to remove debris from sensitive aquatic habitats (TES-1.1). Sites would continue to be prepared for establishing a self-sustaining *Pritchardia remota* population on Laysan Island, including eliminating alien species and ensuring the purity of seed stocks (TES-7.3). To protect *Pritchardia remota* from catastrophic events and to achieve recovery objectives, this species is being established outside its known native range on Laysan Island and on Eastern and Sand Islands at Midway Atoll NWR (TES-7.5). These activities may require a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument.

#### Habitat Management and Conservation Action Plan

***Field Activities***

*Transportation*
The Habitat Management and Conservation Action Plan includes the following field activities: 1) Continue collecting and fingerprinting 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 (HMC-2.5); 2) Continue monitoring the area at Laysan Island that was contaminated by the insecticide Carbofuran (HMC-2.6); 3) Propagate and outplant native species (HMC-4.1); 4) Continue efforts to reestablish 60 acres of native shrub community on Laysan

Island (HMC-4.3); and 5) Monitor changes in species composition and structure of the coastal shrub and mixed grass communities on basaltic islands in the Monument (HMC-4.7). The general effects of these field activities on transportation would be a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### 3.5.3.3 Reducing Threats to Monument Resources

#### Alien Species Action Plan

##### *Field Activities*

*Transportation*
The Alien Species Action Plan includes the following continuing field activities: 1) Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument (AS-3.2); and 2) Enforce the use of current quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument (AS-3.1). These activities may generate a slight inconvenience to vessels harboring within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

#### Maritime Transportation and Aviation Action Plan

##### *Infrastructure Development Activities*

*Transportation*
Efforts would continue to encourage the energy and water efficiency of vessels operating in the Monument (MTA-2.4). For example, the NOAA ship *Hi'ialakai* began a recycling program and installed water-saving devices to reduce effects on the Monument. Plans are in place to test the use of biofuels and nonpetroleum-based hydraulic fluid. Increased efficiency would not have a direct beneficial effect on transportation but would create a benefit as resources are conserved. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### 3.5.3.4 Achieving Effective Monument Operations

#### Central Operations Action Plan

##### *Planning and Administrative Activities*

*Utilities*
As part of the No Action alternative, coordination and implementation of annual operating plans would continue (CO-1.1). Annual operating plans are guided by site-specific needs and are

designed to increase efficiencies and establish standard operating procedures, where possible. The administrative procedures and functions included in the annual operating plans address required maintenance of communication equipment, including telephones, cellular phones, satellite phones and connections, and radios in the Monument. The Monuments' staffs continued coordination and implementation of annual operating plans provides beneficial effects on Monument communications by extending the life of the communications systems, identifying system deficiencies and identifying needs for system upgrades.

**Coordinated Field Operations Action Plan**

***Infrastructure and Development Activities***

*Utilities*

As part of the No Action alternative, maintenance of the fuel farm at Midway would continue (CFO-4.1). The recent replacement fuel farm constructed at Midway Atoll was designed to meet current FWS, FAA, and USCG needs. Efforts are underway to increase the capacity of gasoline and biodiesel or other sustainable fuel types available to multi-agency partners. The new fuel farm provides beneficial effects on the environment at Midway by eliminating the threats of spills associated with the aging system, including storing the fuel in multiple smaller tanks rather than one or two extremely large tanks and providing new easily maintained tanks and infrastructure. The new fuel farm also contributes to the overall beneficial effects of Monument management activities under both alternatives by supporting the current scale of human presence at Midway, including operation of the airfield and refueling capacity, while being capable of ready expansion, as needed.

### 3.5.4 Proposed Action

The Proposed Action would expand current activities described above under the No Action alternative, while implementing the new activities described in the Monument Management Plan. The effects of these activities on water quality, transportation, and utilities are described below.

#### 3.5.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands

**Marine Conservation Science Action Plan**

***Field Activities***

*Transportation*

The Marine Conservation Science Action Plan would implement management-driven research priorities identified in the Monument Natural Resources Science Plan (MCS-2.4), including implementing monitoring activities. The effect of increased science-based activities may result in a minor increase in the number of research cruises. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

**Native Hawaiian Culture and History Action Plan**

***Field Activities***

*Transportation*
Within the Native Hawaiian Culture and History Action Plan, one activity provides for regular access for Polynesian voyaging canoes for wayfinding and navigational training (NHCH-2.6). The trips would likely occur once or twice per year and would include a canoe and support vessel. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

**Maritime Heritage Action Plan**

***Planning and Administrative Activities***

*Water Quality*
Wreck sites and other debris can represent potential hazards that may contribute hydrocarbons, chemicals, or iron to the marine ecosystem. Iron has been shown to be a limiting nutrient and may cause increased growth of algae or corallomorphs that smother surrounding reefs. The MMB would be informed of any discovered potential hazards in order to assess the need for response or remediation (refer to section 3.3.4 of the Monument Management Plan). A status report on potential environmental hazards would be completed within one year and would be updated annually thereafter (MH-1.3). While planning and administrative activities would not directly affect physical water quality changes, there could be beneficial effects on water quality by removing debris that could contain hazardous materials and could have a negative effect on water quality.

**3.5.4.2 Conserving Wildlife and Habitats**

**Threatened and Endangered Action Plan**

***Planning and Administrative Activities***

*Transportation*
Activities proposed under the Threatened and Endangered Action Plan include planning activities designed to conserve Hawaiian monk seal habitat (TES-1.3) and to reduce the likelihood and effects of human interactions on Hawaiian monk seals (TES-1.4). The plan also would support outreach and education on Hawaiian monk seals (TES-1.5). Under activity TES-4.1, Monument staff would work with Japanese ornithologists to establish one or more breeding populations of the endangered short-tailed albatrosses on Midway Atoll NWR. To protect *Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota* from catastrophic events and to achieve recovery objectives, the potential for establishing these species outside their known native range on Mokumanamana (Necker Island), Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll is being assessed (TES-7.5). This could result in a minor increase in small vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

### *Field Activities*

*Transportation*
Supporting and facilitating emergency response for the endangered Hawaiian monk seal would put into place standardized protocols that would ensure a rapid and well-organized response to situations in the Monument that threaten Hawaiian monk seals (TES-1.2). Although the response would be focused specifically on Hawaiian monk seals, the protocols include ensuring that a rapid and well-organized response to groundings and oil spills is possible. The interagency coordination involved with improving emergency response logistical capabilities and transportation would increase the efficiency of the existing emergency vessel capacity. Although instituting protocols for Hawaiian monk seal rescue would not directly reduce the occurrence of the incidents described above, the coordination and planning efforts could reduce the number of vessel trips required. Therefore, this could have a beneficial effect on vessel operations and transportation within the Monument.

To reduce the potential for cetaceans to be negatively affected by marine debris, the MMB would monitor, characterize, and address the effects of marine debris on cetaceans (TES-2.3). This measure would augment the activities within the Marine Debris Action Plan that are aimed at reducing the quantity of marine debris introduced into the Monument. The overall effects of proposed marine debris activities would result in a minor increase in vessel trips within the Monument to collect the debris. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

Protecting and managing marine habitat, including foraging areas and migration routes (TES 3.2), would manage activities such as anchoring and vessel traffic within the Monument to minimize disturbance to foraging areas, reduce potential exposure to hazardous materials, and minimize vessel hazards to turtles in open waters. This activity would have a negligible effect on transportation.

## Habitat Management and Conservation Action Plan

### *Planning and Administrative Activities*

*Water Quality*
Planning and administrative activities would 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 (HMC-2.4). An ecological risk assessment would be conducted to determine allowable lead levels in soils at Midway and lead-based paint would be removed from buildings and soils to nonrisk levels (HMC-2.7). Ecological risk assessments, cost evaluation efforts, and other planning activities would work to improve water quality and thus could have a beneficial effect on water quality.

*Transportation*
The Habitat Management and Conservation Action Plan would identify and prioritize restoration needs in shallow-water reef habitats affected by anthropogenic disturbances within five years (HMC-1.1) and would evaluate the costs to ecosystem function and the benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument (HMC-2.4). Managers would investigate opportunities for restoration

and would prioritize actions so that funds and resources would be focused to address the most important needs. The activity also calls for an ecological risk assessment to determine allowable lead levels in soils at Sand Island on Midway Atoll NWR and removing lead from buildings and soils to nonrisk levels (HMC-2.7); an ecological risk assessment to determine the cleanup level necessary to reduce risks to human and wildlife health; formulating and implementing a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island (HMC-4.4); and evaluating the potential to restore, and create as needed, freshwater sources at proposed translocation sites for Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird (HMC-7.2). Implementing these planning activities may involve field activities that could result in a minor increase in vessel and air traffic. Considering the current low levels of vessel and air traffic, this minor increase would not have an effect on transportation.

An effort to educate other federal and state agencies about overflight rules and to promote compliance regarding overflights and close approaches (HMC-9.1) would increase safety awareness and may reduce the potential for aircraft collisions with birds, thus resulting in a beneficial effect on air traffic.

### *Field Activities*

*Water Quality*

Field activities would include efforts to evaluate the effects of contamination in terrestrial and nearshore areas from shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls and to prioritize cleanup action based on risk assessments (HMC-2.1); to work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation, if necessary (HMC-2.2); and to locate historic disposal sites at FFS and at Kure, Midway, and Pearl and Hermes Atolls and investigate them for contamination (HMC-2.3). Contamination evaluation, risk assessment, and remediation efforts would work to remove or encapsulate contaminants, thereby improving water quality and resulting in a beneficial effect on water quality.

Additional field activities would include efforts to monitor salinity, parasites, contaminants, and native arthropods associated with groundwater, freshwater seeps, and ponds (HMC-7.1) and to evaluate the potential for developing and creating additional freshwater sources at potential translocation sites for avifauna species, as needed (HMC-7.2). These field activities would provide data to support improvement to terrestrial water and groundwater quality; therefore, there could be a beneficial effect on water quality.

*Transportation*

The Habitat Management and Conservation Action Plan includes field activities to evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls and prioritize cleanup action based on risk assessments (HMC-2.1) and work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation, if necessary (HMC-2.2). These activities would investigate the extent of contamination at these sites and would assess their integrity, containment effectiveness, and hazard potential. Based on this information, the highest priority sites would be removed, remediated, or sealed. Monitoring would continue to assess if further action is needed. Coordinated ecosystem restoration activities on Kure Atoll

would be implemented (HMC-4.6), as would inventorying and documenting the life histories of endemic terrestrial invertebrates on Nihoa and Mokumanamana (HMC-5.1). The effects of these activities would be minor increase in vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

### 3.5.4.3 Reducing Threats to Monument Resources

#### Marine Debris Action Plan

##### *Planning and Administrative Activities*

*Water Quality*
Activities proposed under the Marine Debris Action Plan include planning activities to develop and implement a five-year marine debris removal and prevention strategy for the Monument (MD-1.3); working with the U.S. Department of State to gain international cooperation and involvement for marine debris issues (MD-1.4); developing and standardizing marine debris monitoring protocols for marine and terrestrial habitats (MD-2.2); and working with partners to continue to develop and implement an outreach strategy for marine debris (MD-3.1). These activities would work to improve water quality and to prevent potential degradation to water quality; therefore, these activities would have a beneficial effect.

##### *Field Activities*

*Water Quality*
Activities that are proposed under the Marine Debris Action Plan include field activities that would allow Monument staff to continue working to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1); catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and work with partners on marine debris studies (MD-2.1). These activities would work to improve water quality and to prevent potential degradation to water quality; therefore, these activities would have a beneficial effect.

*Transportation*
Activities to institute measures for preventing marine debris from entering the Monument include gear modifications, gear loss reporting requirements, dockside gear accountability inspections of vessels prior to their departure on fishing trips and upon their return, working with the fishery and management councils to reduce illegal fishing and destructive fishing practices, and pursuing technological means to detect and retrieve lost gear (MD-1.1). The MMB would continue to participate in multiagency cleanup efforts of current infrastructure, protocols, and experience and would work with fishery management councils, including the Western Pacific and North Pacific Fishery Management Councils, to assess and address fishing practices and gear that contribute to marine debris (MD-1.4). This collaborative effort may include inspections, technological requirements, and implementing incentive programs. In addition, the MMB would work with the Marine Debris Program to determine the sources of marine debris and to support studies that determine economical and biological effects of marine debris. Finally, the MMB would continue working with partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1), catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and

work with partners on marine debris studies (MD-2.1). These activities may result in a minor increase in vessel traffic and prolong their duration of stay in the Monument, but the effects on transportation would be negligible. Removing marine debris may benefit vessel traffic by reducing the potential of prop fouling from nets and other debris.

*Utilities*
Under the Proposed Action, expanded marine debris removal activities would include retrieving existing debris at sea and continuing reef and beach cleanup efforts. The MMB would continue working with partners to remove marine debris and reduce additional debris from entering the Monument (MD 1.1). Currently, a small quantity of the collected marine debris is burned in the incinerator at Midway Atoll, and the remaining marine debris is stored for eventual shipping and disposal in the Main Hawaiian Islands. The limited capacity of the existing landfill on Sand Island precludes its use for disposal of marine debris; therefore, no marine debris is deposited in the landfill at Midway. No effects on the landfill in Midway Atoll are expected from waste collected during marine debris removal activities; however, long-term minor negative effects from increased solid waste are expected at the respective disposal sites in the main Hawaiian Islands.

**Alien Species Action Plan**

***Field Activities***

*Transportation*
The Alien Species Action Plan contains a number of actions to reduce the presence of alien species in the NWHI, including surveying distributions and populations of known alien species at regular intervals (AS-2.1); developing and implementing monitoring protocols for early detection and characterization of new infestations (AS-2.3); implementing and completing house mouse eradication (AS-4.2); conducting toxicant trials to evaluate their efficacy and documenting ecological effects at selected islands on highest-priority invasive species of ants and wasps (AS-5.2); controlling, and, if possible, eradicating the two introduced mosquito species at Midway Atoll NWR within 10 years using methods prescribed in the Integrated Pest Management Plan (AS-5.3); and developing and implementing a plan to control and, if possible, eradicate the invasive gray bird locust on Nihoa, Mokumanamana (Necker Island), FFS, and Lisianski Island (AS-5.4).

Additionally, the plan would protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites (AS-5.5) and would control and eventually eradicate golden crownbeard (AS-6.1) and co-occurring weedy shrubs on Kure, Midway, and Pearl and Hermes Atolls. In all areas where they occur, the plan would control and eradicate the invasive grass sandbur from Kure, Midway, and Pearl and Hermes Atolls, Lisianski Island, and FFS (AS-6.2); Indian pluchea, *Sporobolus pyramidatus*, and swine cress from Laysan Island (AS-6-3); and prioritized alien plant species from Kure Atoll (AS-6.4).

The plan would map, control, and eventually eradicate invasive red algae where it occurs (AS-7.1); conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives (AS-7.2); support and conduct research on alien species detection and effects of

invasive species on native ecosystems (AS-8.1); and support and conduct research on invasive species prevention, control methods, and eradication techniques (AS-8.2). Research regarding the introduction, control, and eradication of species under the Alien Species Action Plan would focus on determining the likely introduction patterns to aid prioritization of control and eradication efforts (AS-7.1, AS-7.2, and AS-8.1). Specifically, research documenting the effectiveness of preventative methods would aid decision makers in quarantine protocol choices (AS-8.2).

Activities under the Alien Species Action Plan would result in an increase in vessel traffic and would extend the duration of time vessels that would stay in the Monument to conduct invasive species removal and associated activities. Considering the current low levels of vessel traffic, this increase could have a minor negative effect on transportation.

**Maritime Transportation and Aviation Action Plan**

***Planning and Administrative Activities***

*Water Quality*
Activities proposed under the Maritime Transportation and Aviation Action Plan include planning activities that would develop protocols and practices as needed and that would integrate with current protocols for safe aircraft and vessel operations (MTA-2.2). Providing pretrip training and implementing standard protocols would work to prevent potential degradation to water quality by reducing the likelihood of incidence occurring during flight and boat operations; therefore, these activities would have a beneficial effect.

*Transportation*
The Maritime Transportation and Aviation Action Plan is aimed at establishing a framework for evaluating the effects of various activities conducted by ships and aircraft. There are several planning activities within the plan that would have a beneficial effect on transportation within the Monument. The MMB would develop boundaries and zoning information tools to help all Monument users comply with maritime transportation requirements (MTA-1.2). The MMB would also provide updates to nautical charts and Notice to Mariners to reflect Monument boundaries, zones, and other pertinent designations (MTA-1.3). These updates may require coordination with research vessels already conducting other research within the Monument. This would be accomplished through dual-purpose surveying and cost-sharing, which would increase the efficiency of current research ventures in addition to the maritime and aircraft benefits from such research.

The plan would also improve pre-access information, including a pre-trip training that would cover regulations and compliance; navigational hazards; zoning designations, including waste discharge locations and types; and information on preventing the introduction of alien species, preventing and reporting interactions with protected species and other wildlife, preventing light and noise pollution, and preventing anchor damage to coral reefs and other benthic habitats and organisms (MTA-2.3). All vessel operators, captains, crews, and trip participants would have access to this information. The MMB would work with the International Code Council to convene a group of vessel and aircraft personnel to discuss safety for boating and flight operations (MTA-2.2). These suggestions would be incorporated into the pre-trip training.

The activities would address aircraft and airfield equipment hazards to wildlife and would minimize these hazards at Midway Atoll and Tern Island. At Midway, actions taken to minimize hazards include reducing the height of airport signs to prevent bird collisions, using striped painting and lighting to make airport equipment more visible to birds, scheduling nighttime flights during albatross nesting season, and turning off unnecessary lighting around the airfield that disorients seabirds. At Tern Island, wildlife hazards are minimized for take-offs and landings by maintaining small wildlife exclusion areas at the ends of the runway and removing birds from the runway before aircraft take-offs or landings. Contracted pilots must follow strict flight guidelines for minimizing impacts on wildlife. Using these BMPs to minimize hazards could have a minor negative effect on transportation activities from increased constraints on aircraft timing and loads.

The coordination and outreach efforts within the Maritime Transportation and Aviation Action Plan would increase the efficiency and effectiveness of current and future transportation needs. Combining research efforts, costs, and beneficial knowledge will benefit vessel and aircraft operations. The outreach components will also improve compliance with Monument transportation guidelines. Therefore, these activities could have a beneficial effect on transportation within the Monument.

### *Field Activities*

*Water Quality*
Activities that are proposed under the Maritime Transportation and Aviation Action Plan include field activities that would conduct studies on potential aircraft and vessel hazards and effects (MTA-2.1). These activities would work to prevent potential degradation to water quality; therefore, these activities could have a beneficial effect.

*Transportation*
The Maritime Transportation and Aviation Action Plan outlines several field activities aimed at studies of potential aircraft and vessel hazards and effects (MTA-2.1). The studies include anchoring and mooring location feasibility, hull inspections, alien species introduction pathways, wildlife strikes by aircraft, and the effects of permit reporting requirements on protected species, light and noise, and discharge. These assessments will determine transportation effects on resources within the Monument and suggest possible improvements to be implemented. The research conducted for these studies will increase the efficiency and effectiveness of many transportation activities within the Monument, including alien species introduction prevention, minimizing bird strikes by aircraft anchoring locations and practices, hull inspections, and light and noise regulations. The effectiveness of current practices will be evaluated and improved upon, thus increasing the ease and efficiency of vessel and aircraft traffic within the Monument. Therefore, the plan could have a beneficial effect on transportation within the Monument.

## Emergency Response and Natural Resource Damage Assessment Action Plan

### *Planning and Administrative Activities*

*Water Quality*
Activities proposed under the Maritime Transportation and Aviation Action Plan include creating a Monument Emergency Response and Assessment Team for ICS responses (ERDA-

1.1); acquiring and maintaining training and certification to complement and support the Regional Response Team (ERDA-1.2); participating in emergency response and preparedness drills and meetings (ERDA-1.3), and implementing damage assessment programs and training throughout the life of the plan (ERDA-1.4); in the second year, determining the non-ICS emergencies and the necessary type and scope of responses (ERDA-2.1); designating appropriate Monument personnel for each non-ICS response team (ERDA-2.2); ensuring that appointed personnel acquire and maintain training and certifications throughout the life of this plan (ERDA-2.3); updating and improving upon the Area Contingency Plan and the Environmental Sensitivity Indices (ERDA-3.1); and within three years, creating damage assessment criteria and protocols (ERDA-3.2). While these planning and administrative activities would have no direct and immediate effect on water quality, they would work to prevent potential degradation to water quality by improving emergency response to water quality threats. This improved response could reduce the duration of and level of potential degradation of water quality and would therefore have an overall beneficial effect.

*Transportation*
Damage assessment is an important component of any emergency response (ERDA-1.4). The Monument Emergency Response and Assessment Team would coordinate with the appropriate agencies to ensure that appropriate response, injury assessment, and restoration activities take place for any given emergency throughout the Monument, including an Unusual Mortality Event in Hawaiian monk seals or other species. The effects of these activities would be a minor increase in vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation. However, there would be beneficial effects on transportation safety and emergency response to vessel, aircraft, or vehicle accidents.

### 3.5.4.4 Managing Human Uses

**Permitting Action Plan**

***Planning and Administrative Activities***

*Transportation*
The Permitting Action Plan outlines several activities that develop tracking, evaluation, and outreach components. A GIS-based permit tracking system would allow each agency to input and track activities within the Monument that pertain to individual requirements (P-2.1). A system would then be instituted to analyze these data to inform management decisions (P-2.2) and discover patterns of compliance (P-2.3). In conjunction, a Monument reporting process would be developed to ensure adherence to regulations and, if necessary, issue compliance visits from enforcement agents (P-2.4). A permit and regulatory education program would be required for all permit applicants (P-3.1). Outreach efforts would be coordinated between agencies to avoid delays and to ensure the highest level of regulatory understanding by permittees (P-3.3). Finally, pre-access training for first-time Monument visitors to communicate regulations, permit requirements, and best conduct would be implemented (P-3.4).

These activities would increase accountability and compliance with permits required to enter the Monument. The outreach component would integrate understanding of regulations by all Monument users, which would decrease the likelihood of accidents. It would also familiarize

Monument users with quarantine protocols, hull inspection regulations, and alien species introduction prevention methods. In turn, vessel operators would not be delayed, disrupted, or displaced by noncompliance with regulations. Therefore, this plan would have a beneficial effect on transportation within the Monument.

**Enforcement Action Plan**

***Planning and Administrative Activities***

*Water Quality*
Planning and administrative activities would include creating a Monument law enforcement working group (EN-1.1); developing an integrated law enforcement training program (EN-1.3); assessing Monument law enforcement capacity and program effectiveness (EN-1.4); and integrating additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument (EN-2.3). While these planning and administrative activities would have no direct and immediate effects on water quality, they would work to improve water quality by improving enforcement to prevent anthropogenic water quality threats, resulting in an overall beneficial effect.

*Transportation*
One tenant of the Enforcement Action Plan is to integrate briefings into pre-access training of Monument users that would inform users of regulations, permit requirements, and best management practices (EN-3.1). Similar to the outreach component of the Permitting Action Plan, this activity would increase compliance with regulations and thus have a beneficial effect on transportation within the Monument.

**Midway Atoll Visitor Services Action Plan**

***Field Activities***

*Transportation*
The Midway Atoll Visitor Services Action Plan would provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources (VS-1.1). Visitors would be given the opportunity to view wildlife on Midway Atoll NWR only, and the effects of visitors and other users on wildlife and historic resources would be continuously monitored to ensure their protection (VS-1.3). The indirect effects of these activities may be a minor increase in vessel and air traffic as a result of improving the visitor experience and potentially attracting more visitors to the Midway Atoll NWR. Considering the current low levels of vessel and air traffic and planned improvements for mooring and to the airport, this increase could have a minor negative effect on transportation.

More specific descriptions of the effects of visitors at Midway Atoll are contained in the Environmental Assessment for the Interim Midway Visitors Service Plan and in relevant compatibility determinations.

### 3.5.4.5 Achieving Effective Monument Operations

#### Coordinated Field Operations Action Plan

***Planning and Administrative Activities***

*Transportation*
The Coordinated Field Operations Action Plan calls for developing interagency agreements to facilitate effective field coordination throughout the Monument (CFO-2.1). It also calls for the inventory, maintenance, and coordinated use of small boats and related field resources (CFO-6.1). Generally, this activity would increase transportation efficiency by increasing communication between agencies that use and manage the Monument. The coordination of field resources would also logistically improve transportation operations. Therefore, this activity could have a beneficial effect on transportation.

This plan outlines the development of an aircraft capacity within the Monument. The USFWS charters a twin-engine aircraft (Gulf Stream 1 or G-1) to transport people and supplies to Midway. The G-1 would continue to provide service through fiscal year 2008 (CFO-7.1). Within five years, an inter-island aircraft transportation carrier would be identified to deliver passengers and cargo between Honolulu and Midway (CFO-7.1), followed by an evaluation of the need for a dedicated aircraft for transportation, management, research, evacuation, education, surveillance, and enforcement (CFO-7.2). These planning mechanisms would increase the capacity of aircraft transportation within the Monument incrementally. The ability of staff to accomplish many of the tasks outlined within this document, such as emergency response improvements, data collection, and research, would be augmented by this new aircraft capacity. Therefore, these activities could have beneficial effects on transportation within the Monument.

*Utilities*
Planning and administrative activities would include initiating and completing necessary planning for implementing the draft Midway Atoll Conceptual Site Plan (CFO-1.1); developing conceptual site plans for the Hawaiian Island National Wildlife Refuge and the State Seabird Sanctuary at Kure Atoll (CFO-1.2); developing alternative energy systems and waste reduction strategies for the Monument within two years (CFO-1.3); and planning for sustainable engineering, technology, and landscape architecture throughout the Monument (CFO-1.4). While these planning and administrative activities would have no direct and immediate effects on utilities, they would work to improve the utilities services in the Monument by conducting necessary site planning and infrastructure development and could therefore have an overall beneficial effect.

***Infrastructure Development Activities***

*Transportation*
The Coordinated Field Operations Action Plan outlines infrastructure improvements in the future. These improvements include additional vessels at Midway for summer marine research (CFO-6.2), a small research/enforcement vessel at Midway (CFO-6.3), and an appropriate aircraft to service the Monument and Pacific region (CFO-7.3). The plan would also improve dive capabilities by acquiring a portable dive recompression chamber for a research vessel (CFO-8.2) and incorporating a dive operations center at a boathouse at Midway (CFO-8.3). The

plan also provides for improved logistical, infrastructure, and transportation support for endangered species recovery actions (CFO-9.3). Finally, there are provisions for the construction of an airport welcome center on Sand Island within two years, including capacity to handle passenger arrival and departures from Midway Atoll NWR.

These infrastructure developments will increase the efficiency of many current and future transportation demands within the Monument. The ability of staff to accomplish many of the tasks outlined within this document, including emergency response improvements, data collection, and research, would be augmented by these new vessels and facilities. Therefore, these activities would have a beneficial effect on transportation within the Monument.

*Utilities*
Restoration activities would include rehabilitating "Officers Row" Housing at Midway Atoll (CFO-3.4) and existing housing and facilities on Green Island at Kure Atoll (CFO-3.5). These activities would increase the housing capacity and would provide maintenance, expansion, or replacement of existing utility systems. Additional demands on utilities, including electricity, wastewater, potable water supply, solid waste and communications, would result from increased housing capacity. The current utilities are adequate for the existing demands at Midway Atoll, but expanded operations and housing that is currently planned will require additional analysis to determine which system upgrades are necessary. Additional compliance associated with Midway site infrastructure improvements may be required as planning and design details are developed.

Minor negative effects are expected from increased demands on utilities but would be offset by rehabilitation and replacement of existing infrastructure with more sustainable and efficient systems, having beneficial effects overall.

Constructing an airport welcome center on Sand Island (CFO-9.5) would include restroom facilities construction. The current utilities are adequate for the existing demands at Midway Atoll, but planned expanded operations would require additional analysis to determine which system upgrades are necessary. Additional compliance associated with Midway site infrastructure improvements may be required as planning and design details are developed.

### 3.5.5 Summary of Effects

Table 3.5-1 summarizes the effects on other resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and negative effects on other resources (water quality, transportation and communications, and utilities) of the Monument. The other resources of the Monument includes: the water quality conditions of marine, terrestrial and potable water resources; sources of marine pollution; vessel and aircraft activity; communications infrastructure; terrestrial transportation; potable water supply and fire protection; wastewater management; stormwater management; energy; communication systems; solid waste management; and management of fueling facilities in the Monument.

## Table 3.5-1
## Summary of Effects on Other Resources (Water Quality, Transportation, and Communications Infrastructure and Utilities) of the Proposed Action Alternative

| Understanding and Interpreting the Northwestern Hawaiian Islands | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Maritime Heritage**<br>*(EA section 1.5.4)*<br>*(EA section 1.6.4)* | Planning/Administrative | • Beneficial effects on water quality. |

| Conserving Wildlife and Habitats | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Threatened and Endangered Species**<br>*(EA section 1.5.5)*<br>*(EA section 1.6.5)* | Field Activities | • Beneficial effects on transportation. |
| **Habitat Management and Conservation**<br>*(EA section 1.5.7)*<br>*(EA section 1.6.7)* | Planning/Administrative | • Beneficial effects on water quality.<br>• Beneficial effects on transportation. |
| | Field Activities | • Beneficial effects on water quality. |

| Reducing Threats to Monument Resources | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Marine Debris**<br>*(EA section 1.5.8)*<br>*(EA section 1.6.8)* | Planning/Administrative | • Beneficial effects on water quality. |
| | Field Activities | • Beneficial effects on water quality.<br>• Beneficial effects on transportation.<br>• Long-term minor negative effects on utilities. |
| **Alien Species**<br>*(EA section 1.5.9)*<br>*(EA section 1.6.9)* | Field Activities | • Minor negative effects on transportation. |
| **Maritime Transportation and Aviation**<br>*(EA section 1.5.10)*<br>*(EA section 1.6.10)* | Planning/Administrative | • Beneficial effects on water quality.<br>• Beneficial effects on transportation. |
| | Field Activities | • Beneficial effects on water quality.<br>• Beneficial effects on transportation. |
| **Emergency Response and Natural Resource Damage Assessment**<br>*(EA section 1.5.11)*<br>*(EA section 1.6.11)* | Planning/Administrative | • Beneficial effects on water quality.<br>• Beneficial effects on transportation. |

| Managing Human Uses | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Permitting**<br>*(EA section 1.5.12)*<br>*(EA section 1.6.12)* | Planning/Administrative | • Beneficial effects on transportation. |

| Managing Human Uses | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Enforcement**<br>*(EA section 1.5.13)*<br>*(EA section 1.6.13)* | Planning/Administrative | • Beneficial effects on water quality.<br>• Beneficial effects on transportation. |
| **Midway Atoll Visitors Services**<br>*(EA section 1.5.14)*<br>*(EA section 1.6.14)* | Field Activities | • Minor negative effects on transportation. |

| Achieving Effective Monument Operations | | |
|---|---|---|
| **Action Plan** | **Action Areas** | **Effects** |
| **Coordinated Field Operations**<br>*(EA section 1.5.21)*<br>*(EA section 1.6.21)* | Planning/Administrative | • Beneficial effects on transportation.<br>• Beneficial effects on utilities. |
| | Infrastructure and Development | • Beneficial effects on transportation.<br>• Beneficial effects on utilities. |

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