

Appendix H ESA Section 7 Consultations

DRAFT INTERAGENCY SECTION 7 BIOLOGICAL EVALUATION FORM for the Interim Visitor Services Plan for Midway Atoll National Wildlife Refuge, Battle of Midway National Memorial, and Midway Atoll Special Management Area

Originating Persons: Barry Stieglitz, Barry Christenson, John Klavitter, Barbara Maxfield
Telephone Number: 808.792.9540
Date: September 26, 2006

I. Region: 1 - Hawaiian and Pacific Islands National Wildlife Refuge Complex, Honolulu, Hawaii

II. U.S. Fish and Wildlife Service (Service) Activity:

The Service is proposing to implement an interim visitor services plan at Midway Atoll National Wildlife Refuge, Battle of Midway National Memorial, and Midway Atoll Special Management Area (Midway Atoll) to satisfy requirements of the National Wildlife Refuge System Improvement Act of 1997 and to allow the public the opportunity for education and interpretation of wildlife and historic resources and compatible wildlife-dependent recreation.

III. Species and Habitat:

A. Listed species and/or their critical habitat within the action area:

1. Green sea turtle (*Chelonia mydas*), threatened

Green sea turtles occur at Midway Atoll. They are seen in the waters of the lagoon, along certain shorelines, in and around surrounding coral reefs, and in deeper pelagic waters. No turtle nesting had been documented until successfully hatched eggs were discovered on Spit Islet in July 2006 (Service unpub. data). High surf uncovered the eggs which probably hatched the previous year.

2. Hawksbill sea turtle (*Eretmochelys imbricata*), endangered

Hawksbill sea turtles are infrequently seen in the lagoon.

3. Leatherback sea turtle (*Dermochelys coriacea*), endangered

One leatherback sea turtle washed up dead at Midway Atoll in the early 1990s (D. Williams, Service, pers. comm.).

4. Loggerhead sea turtle (*Caretta caretta*), threatened

At least one loggerhead sea turtle with a satellite tag spent time in refuge waters in 2003 (G. Balazs, National Marine Fisheries Service (NMFS), pers. comm.).

5. Hawaiian monk seals (*Monachus schauinslandi*), endangered

About 65 endangered Hawaiian monk seals are usually present at Midway Atoll at any one time, and pupping levels have increased significantly since 1996, with a record number of 17 in 2004 (L. Laniawe, NMFS, pers. comm.). However, survivorship of juveniles is low and the species is highly endangered.

Portions of Midway Atoll have been designated as critical habitat for the Hawaiian monk seal, including all beach areas, sand spits and islets, including all beach crest vegetation to its deepest extent inland, lagoon waters, inner reef waters, and ocean waters out to a depth of 20 fathoms (except for Sand Island and its harbor) (50 CFR, Part 226, Vol. 53, No. 102, May 28, 1988).

6. Humpback whale (*Megaptera novaeangliae*), endangered

Humpback whales are infrequently seen in deeper pelagic waters.

7. Sperm whale (*Physeter macrocephalus*), endangered

Only one sighting has been recorded at Midway Atoll. A sperm whale washed up dead on the surrounding coral reef in the late 1990s (N. Hoffman, Service, pers. comm.). The skeleton is currently on display outside the Service visitor center at Midway Atoll.

B. Proposed species and/or proposed critical habitat within the action area:

No proposed listed species or critical habitat occurs at Midway Atoll.

C. Candidate species within the action area:

No marine candidate species have been observed at Midway Atoll.

D. Species/habitat occurrence

1. Green sea turtle

Green sea turtles have been observed in nearshore and offshore waters of Midway Atoll, so all marine waters are potential habitat. The first and only documented nest was found on the southeastern shores of Spit Island (Fig. 1). The highest concentration of basking green sea turtles occurs on 200-m section of beach on Sand Island called "Turtle Beach." The maximum number of turtles observed at one time was 28 (J. Klavitter, Service, pers. obs.).

The following is derived from Balazs et al. (2001). Juvenile turtles regularly feed on algae such as *Spyridia filamentosa* and *Centoceras clavulatum* growing on the iron seawalls and on wind-driven pelagic invertebrates that accumulated along the seawalls. Foraging on *Codium cuneatum* by subadults and adults takes place outside the atoll along the southern side. A small seagrass foraging pasture of *Halophila hawaiiiana* occurs inside the atoll adjacent to the Cargo Pier. Turtles are routinely sighted between the Inner Harbor and the Cargo Pier. A sonic tag placed on an adult male revealed long periods of resting at 6-8 m, probably under the Fuel and Cargo Piers.

2. Hawksbill sea turtle

Hawksbill sea turtles are infrequently seen in the lagoon.

3. Leatherback sea turtle

Since only one leatherback has ever been observed at Midway Atoll, the species is most likely very uncommon within the refuge, probably only occasionally migrating through deep, pelagic waters. Recent satellite tagging studies show that leatherback turtles tagged on coast of California coast migrated through the Hawaiian archipelago on their way to an area just north of Australasia (TOPP 2006).

4. Loggerhead sea turtle

Very little information is known about loggerhead sea turtles within Midway Atoll refuge waters. Since only one loggerhead has been recorded in the vicinity of Midway Atoll through satellite tagging studies, the species is most likely very uncommon within the refuge, probably only occasionally found in deep pelagic waters.

5. Hawaiian monk seal

Hawaiian monk seals are found resting on the beaches of Sand, Eastern, and Spit Islands as well as portions of the emergent coral reef (Fig. 1). The seals forage within the atoll, near the fringing reef, and outside the reef (Stewart 2004). The majority of the pups are born on Eastern and Spit Islands, but 3 pups were born on Sand Island in 2006 (NMFS unpub. data). The births on Sand Island occurred at Frigate Point, the middle of West Beach, and at Rusty Bucket. Pups have also been born at Turtle Beach and one was born on the boat ramp in the Inner Harbor in 2002. This female had been recently attacked by a large shark and had severe gaping wounds throughout her mid section. She gave birth to a still-born pup on the boat ramp. She remained on or near the boat ramp for several weeks while she healed. Pupping on Sand Island has been rare, especially prior to 2002, and may be related to the fact that humans live on Sand Island and are not allowed access to Spit or Eastern except for scientific research. Since 2002 there have been 12 to 65 people stationed at Midway Atoll, down from approximately 150 people between 1996 and 2002.

6. Humpback whale

Very little information is known about humpback whale within Midway Atoll refuge waters. All of the infrequent sightings have been in deep pelagic waters of the refuge.

7. Sperm whale

Since only one Sperm whale has ever been recorded at Midway Atoll, they are most likely only occasional visitors as they pass through refuge waters during migration. They most likely occur in deep pelagic waters.

IV. Geographic area and location:

Midway Atoll is an insular territory of the United States administered by the Service as a National Wildlife Refuge, and is part of the Hawaiian Islands archipelago that lies to the northwest of the seven main Hawaiian Islands. The refuge encompasses a total of 235,473 ha

(581,864 acres, Fig. 3) and consists of three islands: Sand 452 ha (1,117 acres), Eastern 136 ha (336 acres), and Spit Island 6 ha (15 acres, Klavitter 2004). The total submerged area (everything underwater, including areas inside the atoll) is 234,877 ha (580,394 acres). Of this amount, approximately 245 ha (605 acres) are emergent reef. Total upland area (all the dry land inside the atoll) is 594 ha (1,468 acres). The Refuge boundaries are circular in nature and extend 22.2 km (12 nautical miles) out from the fringing coral reef. The airfield (58 ha, 143 acres) is located on Sand Island. For purposes of this assessment, the proposed action area is the entire area of Midway Atoll National Wildlife Refuge and Special Management Area, 581,864 acres, which is roughly a 12-nautical mile circle surrounding the atoll.

A. Ecoregion Number and Name:

Region 1, Pacific Islands Ecoregion.

B. County and State:

Midway Atoll is not part of any State.

C. Section, township, and range (or latitude and longitude):

Midway Atoll is at latitude 28.2° N, longitude 177.3° W.

D. Distance and direction to nearest town:

Midway Atoll is located approximately 2,012 km (1,250 miles) northwest of Honolulu, Hawaii.

V. Description of proposed action:

The Service is proposing to implement an interim visitor services plan at Midway Atoll to allow the public the opportunity for education and interpretation of wildlife and historic resources and compatible wildlife-dependent recreation.

The interim visitor services plan would be overseen by the Service. It was developed by visitor services specialists in close coordination with Refuge managers and biologists. The objective of the visitor services plan at Midway Atoll is to provide high quality, compatible wildlife or historic related education and recreational experiences. The visitor services plan would include the following activities:

- (1) Wildlife observation and photography
- (2) Participatory management/research program
- (3) Environmental education and interpretation
- (4) Airport operation (for non-administrative purposes)
- (5) Nonwildlife-dependent beach use
- (6) Nonwildlife-related sports
- (7) Amateur radio operation

In order to ensure protection of wildlife and a safe and enjoyable visitor experience, the total number of overnight visitors allowed on the refuge at any one time will be limited to 30 people in 2007 and 50 people in 2008 and beyond. This number may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events. No public use activities will extend from Midway Atoll to other nearby parts of the Monument, such as Kure or Pearl and Hermes Reef.

For the next 5 years (2007-2011), visitor programs will operate from November through July, which coincides with the albatross season on Midway Atoll. The months of August through October are reserved for planned construction activities. Very few rooms will be available during these months due to the number of contractors on island, and aircraft capacity will be needed both for contractors and supplies. To ensure the safety of visitors and enhance their experience on Midway Atoll, visitor programs will be concentrated in this 9-month time frame.

The goals and objectives for the visitor services program at Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial are summarized in the table below. More detailed information, including strategies, is discussed in the visitor services plan (Service 2006a). Unless otherwise stated, the objectives and strategies will be completed by Service staff and begin upon plan approval.

Management Goals	Objectives
<i>Goal 1.</i> Conserve and restore the natural diversity and abundance of native plants and animals, both terrestrial and marine, at Midway Atoll, emphasizing seabirds and shorebirds, threatened and endangered species, and coastal and marine communities within the Northwestern Hawaiian Islands ecosystem.	<i>Objective 1.1</i> Incorporate at least 75 percent of visitors staying 3 days or longer into the refuge volunteer program for habitat restoration.
	<i>Objective 1.2</i> Provide 30 percent of visitors staying 3 days or longer opportunities to observe wildlife population monitoring
	<i>Objective 1.3</i> Continue efforts to support the habitat restoration program sponsored by the Friends of Midway Atoll National Wildlife Refuge.
<i>Goal 2.</i> Offer visitors, residents, and people afar opportunities to discover, enjoy, and appreciate the Northwestern Hawaiian Islands ecosystem through wildlife-dependent activities.	<i>Objective 2.1</i> During 2007, provide visitor opportunities for at least 100 overnight visitors.
	<i>Objective 2.2</i> During 2008, reestablish a regularly scheduled visitor services program for at least 500 overnight visitors.
	<i>Objective 2.3</i> Provide visitor opportunities for private sailboats and up to three cruise ships per year.
	<i>Objective 2.4</i> Ensure all visitors feel welcome, enjoy a safe experience, and understand refuge rules and regulations during their stay on Midway Atoll.

	<i>Objective 2.5</i> Within 3 years, improve wildlife viewing and photography opportunities for all visitors to Midway Atoll.
	<i>Objective 2.6</i> Work with and encourage qualified groups or individuals to develop specialized programs at Midway Atoll in wildlife monitoring, photography, and art in 2008 and beyond.
	<i>Objective 2.7</i> Develop and provide biennial wildlife-dependent teacher workshops targeting a mix of science teachers and teachers who do not have a strong science background or interest.
	<i>Objective 2.8:</i> Beginning in 2008, facilitate at least two opportunities per year for accredited colleges, universities, or private/nonprofit environmental or historical organizations to conduct wildlife-dependent college level courses or administer informal educational camps.
	<i>Objective 2.9:</i> In 2008, initiate a distance learning program from Midway Atoll to bring the Northwestern Hawaiian Islands Marine National Monument to classrooms across the Nation.
	<i>Objective 2.10</i> By 2008, improve onsite interpretation and interpretive facilities to better educate visitors about Midway Atoll and the Northwestern Hawaiian Islands.
	<i>Objective 2.11</i> By 2008, develop at least two offsite exhibits and programs to educate the general public about the Northwestern Hawaiian Islands and Midway Atoll National Wildlife Refuge in particular.
	<i>Objective 2.12</i> Allow residents and visitors to engage in other recreational uses on Midway Atoll that have been determined to be compatible with the mission of the National Wildlife Refuge System and the purposes of the refuge.
	<i>Objective 2.13</i> On a continuing basis, maintain outreach efforts to Midway Atoll's diverse key publics to update them on the visitor program and wildlife-oriented news stories.
	<i>Objective 2.14</i> By November 2007, evaluate the effectiveness of the visitor program marketing effort.
<i>Goal 3.</i> Honor, maintain, and interpret the unique historical resources of Midway Atoll, with emphasis on its status as the Battle of Midway National Memorial.	<i>Objective 3.1</i> By 2008, improve onsite interpretation and interpretive facilities to better educate visitors about the Battle of Midway National Memorial and Midway Atoll's early history.
	<i>Objective 3.2</i> By 2008, develop at least two offsite exhibits to educate the general public about the Battle of Midway National Memorial.

	<i>Objective 3.3</i> Working with partners, offer special events on Midway Atoll and at other offsite locations that honor its history.
	<i>Objective 3.4</i> Seek grant funds to bring at least two groups of volunteers to Midway Atoll each year to work on historic restoration projects under the guidance of the Service’s cultural resources staff and/or historic preservation specialists.
	<i>Objective 3.5</i> Provide at least 15 percent of visitors staying 3 days or longer opportunities to assist with historic preservation tasks and activities.

VI. Explanations of impacts of Action and methods to reduce adverse effects:

A number of means to avoid adverse effects to refuge natural resources were designed into the visitor services plan. Many of these are described in the Environmental Assessment and refuge compatibility determinations (Service 2006a,b). The Service would provide the necessary resources to implement the visitor services plan and ensure that the program is environmentally sensitive and minimizes human disturbances to wildlife. This would be done by: (1) providing sufficient staffing; (2) defining permitted activities; (3) providing guidelines for uses; (4) designating open and closed areas; (5) providing a high level of public information (previsit packets, staff and visitor orientations, lectures, brochures, guided tours and static displays); (6) restricting access to and within sensitive wildlife areas; (7) systematically monitoring visitor impacts on wildlife and implementing visitor program changes as determined necessary by the refuge manager; and (8) coordinating with other natural resource agencies in the development and implementation of the visitor program.

1) Wildlife observation and photography

Hawaiian monk seals and/or green sea turtles swimming or resting on beaches may be disturbed. Visitor programs will be designed and managed to minimize or eliminate these impacts. However, even with proper management and execution of a well run program, certain behavioral responses may occur that are not easily observable.

Increased use of refuge waters also increases the potential for interaction/disturbance by boats, kayaks, or snorkelers/divers with monk seals and sea turtles. 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 animals are resting. Boats could run over turtles especially between Inner Harbor and the Fuel Pier.

Methods to reduce adverse effects

- The beaches on Spit and Eastern Island will be closed to visitors as well as the southern and western beaches on Sand Island. Boats will not be allowed to travel closer than

500 feet from these closed beaches, except for guided tours to tie up to the pier on Eastern Island.

- Visitors and residents are provided orientation materials and related information to minimize disturbance to wildlife. All visitors and new residents are required to go through orientation immediately upon arrival or immediately the next day in the case of an unusually late arrival.
- Professional photographers who desire access to areas not generally accessible to the public will be put under Special Use Permits that stipulate more detailed access restrictions and regulations to protect wildlife. At the discretion of the Refuge Manager, Service staff may be assigned to accompany professional photographers into particularly sensitive areas.
- All trips to Eastern Island for wildlife observation and/or photography will be closely supervised by Service staff or Service-approved guides. The number of visitor tours of Eastern Island will be controlled by the refuge manager (typically only one or two per week), and generally will be completed within a 2-hour period. Spit Island will be off limits for wildlife observers and photographers unless they accompany Service staff or permitted researchers during authorized project visits.
- Guided kayaking tours will be closely supervised by Service staff or Service-approved guides. Buffer zones using the NOAA Watchable Wildlife suggested distance of 50 meters will be enforced as well as closures of selected lagoon areas to minimize disturbance of marine life, for example, a monk seal with pup. Visitors will be advised of proper actions to avoid disturbance and all tours will follow planned routes designed to minimize disturbance and avoid sensitive areas. Kayak guides will be trained at estimating the 50-meter distance and will be responsible for keeping the entire group together. Since West Beach is a known pupping area, the buffer zone around known mom/pup pairs will be increased to 150 meters during the entire time the pair is on the beach. The NMFS seal biologist on Midway will keep refuge staff informed of new mom/pup pairs and their known locations. No kayaking will be allowed near Eastern or Spit Islands.
- Power boat operators will slow to allow visitor observation of monk seals and turtles, but will neither pursue nor specifically seek them out. Power boats will travel at less than 5 mph in the Inner Harbor and from the Inner Harbor to the Cargo Pier so turtles are not accidentally run over.
- Snorkel trips will be limited to 8 persons per guide and SCUBA trips to 6 persons per guide. This will help ensure that the group stays together for safety reasons and to prevent visitors from straying into sensitive areas or approaching swimming monk seals or turtles. Selected snorkel locations will be chosen to offer good wildlife viewing and a safe anchor point for the visitor boat. These sites will be marked with a buoy to ensure that boats do not stray into sensitive areas.
- Visitors and their luggage will go through an inspection for insects and plants prior to departing Honolulu, and again when leaving Midway Atoll to reduce the possibility of alien species introductions. Visitors will be asked to clean their shoes and other clothing

before coming to Midway Atoll through advance introductory materials. Anyone bringing snorkel or dive gear to Midway will be required to treat it to prevent the inadvertent introduction or transmission of alien species.

- Only four stroke outboard motors will be used for visitor program boats. These motors are quieter than two stroke motors and will not exceed the Level A or Level B acoustic threshold for disturbance to marine mammals. No other loud sounds will be associated with this program. To further minimize possible acoustic impacts, boat operators will be advised to slow when approached by dolphins and proceed without stopping via the most direct route around the main body to their destination.
- Boats taking visitors to Eastern Island or snorkeling may encounter spinner dolphins or, less frequently, green sea turtles while traversing the lagoon. Hawaiian monk seals are only rarely observed swimming in the lagoon. Boat operators will be fully briefed on known resting areas of spinner dolphins in the lagoon (figure 1) and routes to and from snorkel sites will be plotted to avoid these areas.

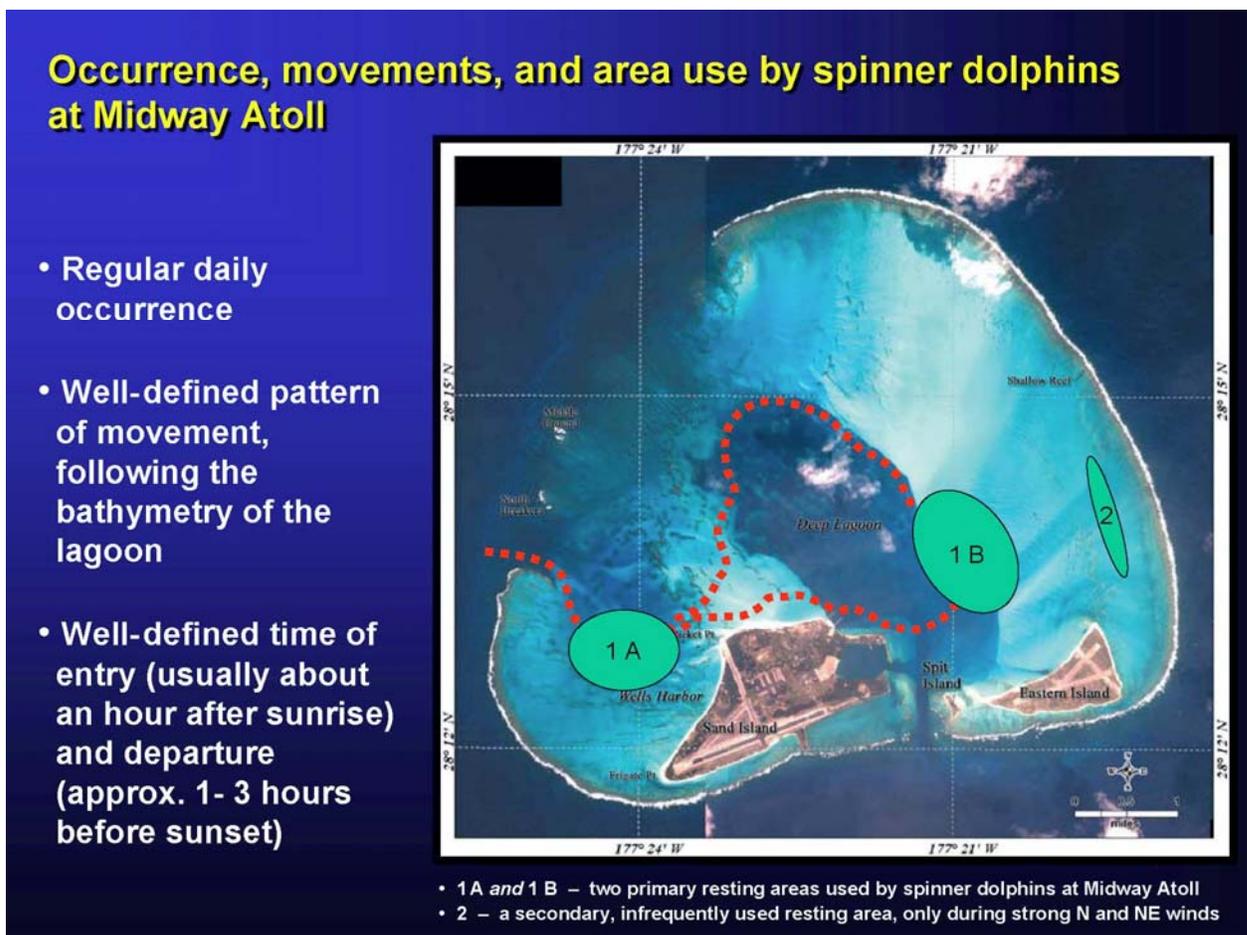


Figure 1. Occurrence, movements, and area use by Hawaiian spinner dolphins at Midway Atoll. (courtesy of Dr. Leszek Karczmarkski)

- Refuge biological staff will work with the NMFS seal biologist stationed on Midway to develop a monitoring plan to assess impacts to Hawaiian monk seals from the visitor program. This plan will be based on the existing data set of seal sightings on Sand Island over the past 10 years. Long term trend analysis of use of the Sand Island beaches by monk seals should allow the biologists to determine if there is a noticeable change in seal beach use over time.
- A review of files documenting past visitor violations of closed beaches and/or monk seal disturbance shows that many of the people had not received orientation to the refuge and closed areas. Strict compliance with the orientation policy will address many of those types of violations in the planned visitor program. Some of the documented violations were clearly due to poor or nonexistent signing. A new sign plan will be developed by refuge staff and all signs put in place prior to 2008. Temporary signs may be used during the trial period in 2007. However, records also clearly show the need for a Law Enforcement Officer who works in the field full time ensuring that refuge regulations are enforced. A full time officer will be stationed at Midway prior to implementation of the full scale visitor program. Prior to that time, law enforcement needs will be met through periodic use of officers on short-term details. Documented violations that occur during periods without an officer in place will be handled through an affidavit process by which the officer is provided specific details of the incident that are legally adequate for issuance of a Notice of Violation.

2) Participatory management/research program

This activity is planned mostly for the terrestrial environment, but some beach cleanups are planned. Seals or turtles, especially those resting in the thick vegetation, could be disturbed.

Methods to reduce adverse effects

- All participating visitors will attend the initial orientation and will be thoroughly briefed by the Service or Service-trained personnel on the approved and prohibited activities.
- Participants involved in beach cleanup will be supervised by Service personnel or Service-approved cooperators and focus on the “open” beaches. “Closed” beaches will be cleaned only when monk seals are not present and on a quarterly basis. No tow board cleanups of reefs will be done by visitor/participants.

3) Environmental education and interpretation

Environmental Education

Impacts from visitors attending scheduled workshops, participating in walking or biking interpretive tours, or self-guided tours on Sand Island will be minimal. All of these activities will occur on hard surfaced roads with very limited wildlife disturbance.

Minimal to no impact on refuge purposes is anticipated from off-site programs, since educational demonstrations will be conducted or supervised by trained Service staff or Service-approved guides.

Interpretation

Minimal impact to refuge purposes is anticipated as described in the above “guided walks and bicycle tours” section. Additional potential impact to monk seals and green sea turtles may occur if visitors and residents wander off self-guided interpretive walks.

Cruise ships that visit Midway Atoll are required to anchor outside the harbor entrance channel and to ferry their passengers to shore via ship’s tenders. Tenders could run over turtles in the Inner Harbor. Gray or blackwater discharge from cruise ships could adversely affect coral or possibly monk seals or green sea turtles.

Evening programs at various indoor locations.

No anticipated impacts are anticipated due to indoor locations.

Eastern Island tours.

Tours will be restricted to the historical runways, limiting the disturbance to seals and turtles. Impacts will also be associated with the increased number of boat landings at the Eastern Pier. Launching boats down the Sand Island boat ramp could disturb seals that often haul out and rest there.

Methods to reduce adverse effects

- All onsite environmental education will be closely supervised by Service staff and Service-approved guides, as well as by accompanying teachers.
- All students will be subject to the same restrictions (e.g., beach closures, distances from monk seals, etc.) as other visitors.
- All guided Sand Island tours will be led by Service or Service-approved interpreters and will be adjusted on the spot to avoid disturbance of seals and turtles.
- No more than 25 people will be led at one time on guided walks and bicycle tours, except during cruise ship visits. Cruise ship visitors are accompanied by chaperones and guided along well-marked paved roads, primarily in the historic part of town.
- All visitors will attend an orientation upon (or before) arrival and be given appropriate narrative and graphic material to clearly indicate which areas are open for visitor use and to clarify regulations in force to protect wildlife and habitat. Cruise ship visitors receive an orientation from a Service representative onboard ship or by handouts specific to their visit to Midway Atoll.

- Signing along self-guided trails will identify approved areas for beach access, wildlife observation, etc. Service and cooperators staff will monitor visitor use to assess and respond to incidents of noncompliance with refuge regulations. Vegetative screening will be used to ensure that visitors do not walk off trails.
- Interpreters will clearly explain the rationale for access restrictions and the actions that will be taken to enforce regulations.
- The frequency, duration, and route of guided Eastern Island tours will be modified, as needed, to avoid disturbance to seals and turtles.
- Boats will not be launched on the Sand Island ramp if an injured seal or pup is present or if a seal is in the middle of the ramp.
- Cruise ships will be given a specific location for safe anchorage outside the channel entrance. Service personnel will work with NOAA to identify the best location for this anchorage prior to the first cruise ship arrival under the new monument regulations. Shuttle boats will be instructed to drive 15 mph or less in the Inner Harbor and watch for turtles and seals.
- Cruise ships will be prohibited from discharging of any gray or black water during their anchorage period and for the entire period they are within monument waters. They will be advised of this requirement during event planning and reminded again just prior to arrival. Any detected violation of this requirement will be cause for barring of this cruise line from any future stops at Midway Atoll NWR and will be pursued as a violation of refuge regulations. Refuge staff will seek assistance from NOAA to use currently available sonar or other technology to assess the suitability for anchoring cruise ships just out from the harbor channel entrance. Sites determined to be suitable will be marked by GPS and that site transmitted to visiting ships. Cruise ships will also be advised that due to possible impacts to whales, the speed limit within the monument as they approach Midway is 10 knots.
- Due to concern over the introduction of invasive marine species into Midway Atoll and the monument, refuge staff will work with NOAA Oceans Service to develop a protocol for hull cleanliness requirements for cruise ships and sailboats.

4) Airport operation (for non-administrative purposes)

Seals located at Frigate Point have been observed to lift their heads and look up when airplanes fly over just before landing or take off. The seals return to their previous behavior (mostly resting) within minutes. This effect seems minimal and would be difficult to totally reduce. No other species listed above are affected.

5) Nonwildlife-dependent beach use

Minimal to no negative impacts to refuge resources are expected from this activity. Visitors could displace resting monk seals from preferred beach areas if refuge visitor guidelines regarding beach use are not followed.

Methods to reduce adverse effects

- Beach areas occupied by resting monk seals will be signed with small portable seal shaped placards placed 50 m from the seals to advise visitors of the seals presence so they do not inadvertently cause disturbance.
- Swimmers will be advised to leave the water if a monk seal approaches them in the water.

6) Nonwildlife-related sports

These activities include swimming, biking, jogging, volleyball, tennis, and other sports inside of the gym. These activities will present little or no impact to listed species. Swimmers could accidentally swim close to monk seals and turtles.

Methods to reduce adverse effects

- Closed areas will be posted and regulations strictly enforced. Residents and visitors will be informed about closed area restrictions through orientation sessions and posted notices.
- Bicycling and jogging will be limited to paved and gravel roads and trails during daylight hours only (sunrise to sunset).
- A 50 m approach restriction for seals and turtles will be strictly enforced. If a seal moved to within this distance of the volleyball court, the area would not be used (or the game stopped) until the seal voluntarily left the area.

7) Ham radio operation

Ham radio operation will not occur on the beaches or in the marine environment, so need species listed in this document should be affected.

VII.Literature Cited

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U.S. Fish and Wildlife Service (Service). 2006b. Environmental Assessment for the interim visitor services plan for Midway Atoll National Wildlife Refuge and the Battle of Midway National Memorial. U.S. Fish and Wildlife Service Report. September 2006. Honolulu, HI.

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Stewart, B. 2004. Geographic patterns of foraging dispersion of the Hawaiian monk seals (*Monachus schauinslandi*) in the Northwestern Hawaiian Islands. Administrative report. Hubbs-SeaWorld Research Institute. San Diego, CA.

VIII. Effect determination and response requested: [* = optional]

A. Listed species/designated critical habitat:

<u>Determination</u>	<u>Response requested</u>
no effect/no adverse modification (species: _____)	____ *Concurrence
may affect, but is not likely to adversely affect species/adversely modify critical habitat (species: threatened green sea turtle; endangered hawksbill sea turtle, endangered leatherback sea turtle, threatened loggerhead sea turtle, endangered Hawaiian monk seal, endangered humpback whale, endangered sperm whale)	<u>_X_</u> Concurrence
may affect, and is likely to adversely affect species/adversely modify critical habitat (species: _____)	____ Formal Consultation

B. Proposed species/proposed critical habitat:

<u>Determination</u>	<u>Response requested</u>
Not applicable	
no effect on proposed species/no adverse modification of proposed critical habitat (species: _____)	____ *Concurrence
is likely to jeopardize proposed species/adversely modify proposed critical habitat (species: _____)	____ Conference

C. Candidate species:

Determination

Response requested

Not applicable

no effect

(species: _____)

____ *Concurrence

is likely to jeopardize candidate species

(species: _____)

____ Conference

Initiating Office:

Project Leader, Hawaiian and Pacific Islands
National Wildlife Refuge Complex

Date

Deputy Project Leader, Hawaiian and Pacific Islands
National Wildlife Refuge Complex

Date

Attachments

Reviewing ESO Evaluation:

A. Concurrence _____ Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

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DRAFT INTRA-AGENCY SECTION 7 BIOLOGICAL EVALUATION FORM
for
the Interim Visitor Services Plan for Midway Atoll National Wildlife Refuge,
Battle of Midway National Memorial,
and Midway Atoll Special Management Area

Originating Persons: Barry Stieglitz, Barry Christenson, John Klavitter, Barbara Maxfield
Telephone Number: 808.792.9540
Date: August 28, 2006

I. Region: 1 - Hawaiian and Pacific Islands National Wildlife Refuge Complex, Honolulu, Hawaii

II. U.S. Fish and Wildlife Service (Service) Activity:

The Service is proposing to implement an interim visitor services plan at Midway Atoll National Wildlife Refuge, Battle of Midway National Memorial, and Midway Atoll Special Management Area (Midway Atoll) to satisfy requirements of the National Wildlife Refuge System Improvement Act of 1997 and to allow the public the opportunity for education and interpretation of wildlife and historic resources and compatible wildlife-dependent recreation.

III. Species and Habitat:

A. Listed species and/or their critical habitat within the action area, habitat, and occurrence:

1. Short-tailed albatross (*Phoebastria albatrus*), endangered

Short-tailed albatross are migratory, so they only occur/would occur at Midway Atoll from late October to early August to nest or to attempt to establish a pair bond. In 2003-2004 albatross breeding season, two, adult short-tailed albatross were observed at Midway Atoll, one on Sand Island near the Frigate Point end of the runway and one on Eastern Island on the northeastern end of the island (Fig. 1). One juvenile short-tailed albatross (nearly all dark feathers) was observed briefly (a few minutes) at Bulky Dump in January 2004 (Fig. 1). During the 2004-2005 and 2005-2006 breeding seasons, only one adult short-tailed albatross has been observed, the one on Eastern Island. In March 2006, one juvenile short-tailed albatross was observed at the southeastern end of the runway (Fig. 1). The last pair of short-tailed albatross to successfully fledge a chick at Midway Atoll was in 1962 on Sand Island near the runway, but the nesting area was paved over by the U.S. Navy in the subsequent year (USFWS unpub. data).

No critical habitat occurs for short-tailed albatross at Midway Atoll.

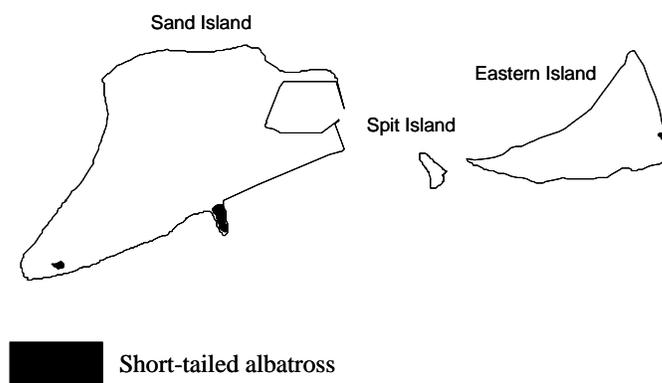


Figure 1. Distribution of short-tailed albatross at Midway Atoll.

2. Laysan duck (*Anas laysanensis*), endangered

In 2004, 20 endangered Laysan ducks were translocated to Midway Atoll from their only extant population on Laysan Island in the Hawaiian Islands National Wildlife Refuge. Biologists hope to establish a second “insurance” population of this endemic duck at Midway Atoll. The birds adapted well to Sand Island, and surprised biologists by breeding during their first year on Midway, with 12 ducklings successfully fledging. An additional 22 ducks were transported to Midway in 2005, most of which were introduced to Eastern Island. So far in 2006, 17 ducklings have fledged increasing the total population at Midway to 65 (Sand Island, 51; Eastern, 14). Laysan Ducks were originally released at the Aviary and Mauka Seeps on Sand Island and the Monument and Rolando Seeps on Eastern Island. Since their release the ducks have expanded their range on both islands (Fig. 2, 3).

Laysan ducks are year round residents at Midway Atoll. No critical habitat occurs at Midway Atoll.

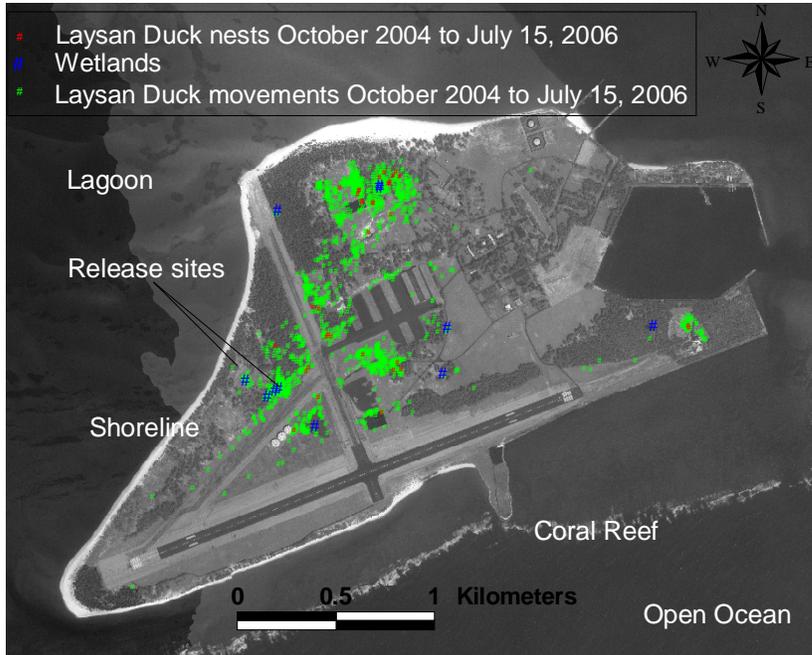


Figure 2. Laysan duck wetlands, release sites, movements, and nesting locations on Sand Island from October 2004 to July 2006.

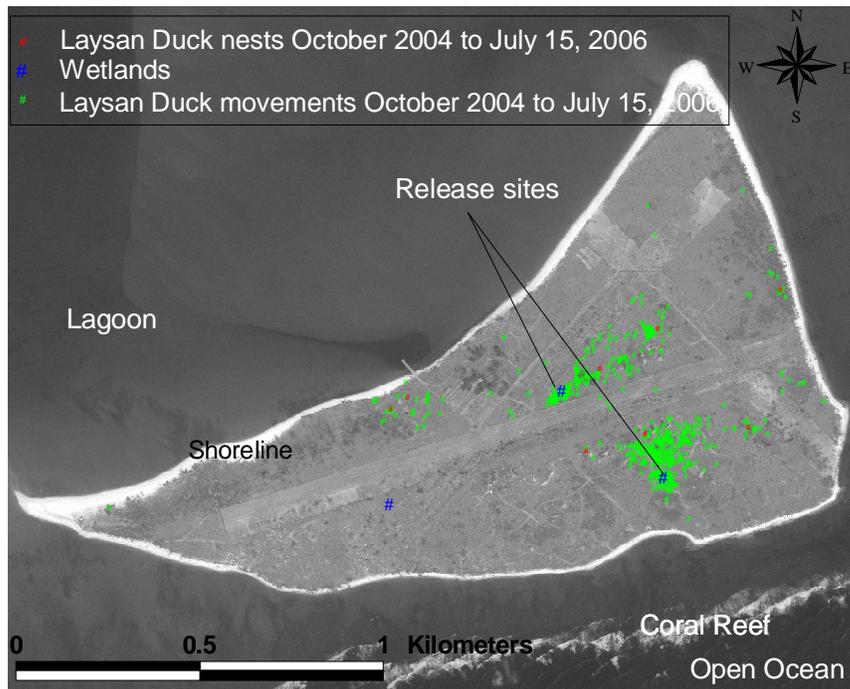


Figure 3. Laysan duck wetlands, release sites, movements, and nesting locations on Eastern Island from October 2004 to July 2006.

3. Green sea turtle (*Chelonia mydas*), threatened

Green sea turtles occur at Midway Atoll. They are seen in the waters of the lagoon, along certain shorelines, in and around surrounding coral reefs, and in deeper pelagic waters. No turtle nesting had been documented until successfully hatched eggs were discovered on Spit Islet in July 2006 (Service unpub. data). High surf uncovered the eggs which probably hatched the previous year. The highest concentration of basking green sea turtles occurs on 200-m section of beach on Sand Island called "Turtle Beach". The maximum number of turtles observed at one time was 28 (J. Klavitter, Service, pers. obs.).

4. *Cenchrus agriminoides* var. *laysanensis*, endangered plant

Cenchrus agriminoides var. *laysanensis* was originally found at Midway Atoll, although it has not been observed at Midway in recent times (Starr and Martz 1999). Scarce information exists for this species at Midway Atoll, including the location where it was last observed.

No critical habitat has not been designated at Midway Atoll for *Cenchrus agriminoides*.

B. Proposed species and/or proposed critical habitat within the action area:

No proposed listed species or critical habitat occurs at Midway Atoll.

C. Candidate species within the action area, habitat, and occurrence:

1. Popolo (*Solanum nelsonii*), plant

Popolo was thought to be extirpated at Midway Atoll, but a small population was discovered on Spit Island in 1996 by the Service (Starr and Martz 1999). Seeds were taken from the plants, propagated in the greenhouse on Sand Island, and outplanted in and around wetlands on Sand and Eastern Islands. Survivorship of the outplantings has been encouraging, and seed has been obtained for current propagation from these sites as well.

IV. Geographic area and location:

Midway Atoll is an insular territory of the United States administered by the Service as a National Wildlife Refuge, and is part of the Hawaiian Islands archipelago that lies to the northwest of the seven main Hawaiian Islands (Fig. 7). The refuge encompasses a total of 235,473 ha (581,864 acres, Fig. 8) and consists of three islands: Sand 452 ha (1,117 acres), Eastern 136 ha (336 acres), and Spit Island 6 ha (15 acres, Klavitter 2004). The total submerged area (everything underwater, including areas inside the atoll) is 234,877 ha (580,394 acres). Of this amount, approximately 245 ha (605 acres) are emergent reef. Total upland area (all the dry land inside the atoll) is 594 ha (1,468 acres). The refuge boundaries are circular in nature and extend 22.2 km (12 nautical miles) out from the fringing coral reef. The airfield (58 ha, 143 acres) is located on Sand Island.

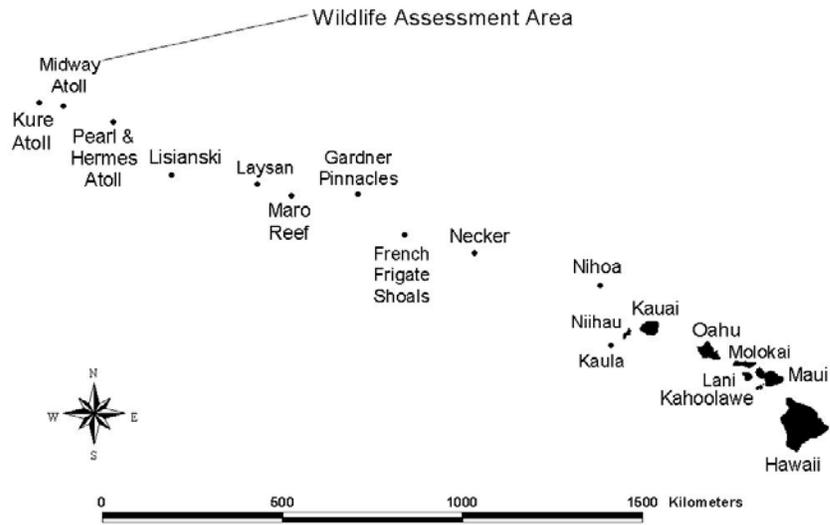


Figure 7. Hawaiian Islands archipelago with reference to Midway Atoll.

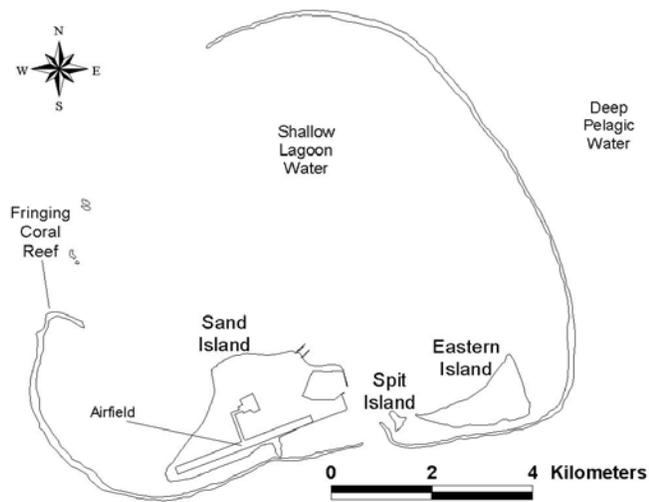


Figure 8. Sand, Eastern, and Spit Islands within Midway Atoll.

A. Ecoregion Number and Name:

Region 1, Pacific Islands Ecoregion.

B. County and State:

Midway Atoll is not part of any State.

C. Section, township, and range (or latitude and longitude):

Midway Atoll is at latitude 28.2° N, longitude 177.3° W.

D. Distance and direction to nearest town:

Midway Atoll is located approximately 2,012 km (1,250 miles) northwest of Honolulu, Hawaii.

V. Description of proposed action:

The Service is proposing to implement an interim visitor services plan at Midway Atoll to allow the public the opportunity for education and interpretation of wildlife and historic resources and compatible wildlife-dependent recreation.

The interim visitor services plan would be overseen by the Service. It was developed by visitor services specialists in close coordination with refuge managers and biologists. The objective of the visitor services plan at Midway Atoll is to provide high quality, compatible wildlife or historic related education and recreational experiences. The visitor services plan would include the following activities:

- (1) Wildlife observation and photography
- (2) Participatory management/research program
- (3) Environmental education and interpretation
- (4) Airport operation (for non-administrative purposes)
- (5) Nonwildlife-dependent beach use
- (6) Nonwildlife-related sports
- (7) Amateur radio operation

In order to ensure protection of wildlife and a safe and enjoyable visitor experience, the total number of overnight visitors allowed on the refuge at any one time will be limited to 30 people in 2007 and 50 people in 2008 and beyond. This number may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events.

For the next 5 years (2007-2011), visitor programs will operate from November through July, which coincides with the albatross season on Midway Atoll. The months of August through October are reserved for planned construction activities. Very few rooms will be available during these months due to the number of contractors on island, and aircraft capacity will be needed both for contractors and supplies. To ensure the safety of visitors and enhance their experience on Midway Atoll, visitor programs will be concentrated in this 9-month time frame.

The goals and objectives for the visitor services program at Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial are summarized in the table below. More detailed information, including strategies, is discussed in the visitor services plan (Service 2006a). Unless otherwise stated, the objectives and strategies will be completed by Service staff and begin upon plan approval.

Management Goals	Objectives
<p><i>Goal 1.</i> Conserve and restore the natural diversity and abundance of native plants and animals, both terrestrial and marine, at Midway Atoll, emphasizing seabirds and shorebirds, threatened and endangered species, and coastal and marine communities within the Northwestern Hawaiian Islands ecosystem.</p>	<p><i>Objective 1.1</i> Incorporate at least 75 percent of visitors staying 3 days or longer into the refuge volunteer program for habitat restoration.</p>
	<p><i>Objective 1.2</i> Provide 30 percent of visitors staying 3 days or longer opportunities to observe wildlife population monitoring</p>
	<p><i>Objective 1.3</i> Continue efforts to support the habitat restoration program sponsored by the Friends of Midway Atoll National Wildlife Refuge.</p>
<p><i>Goal 2.</i> Offer visitors, residents, and people afar opportunities to discover, enjoy, and appreciate the Northwestern Hawaiian Islands ecosystem through wildlife-dependent activities.</p>	<p><i>Objective 2.1</i> During 2007, provide visitor opportunities for at least 100 overnight visitors.</p>
	<p><i>Objective 2.2</i> During 2008, reestablish a regularly scheduled visitor services program for at least 500 overnight visitors.</p>
	<p><i>Objective 2.3</i> Provide visitor opportunities for private sailboats and up to three cruise ships per year.</p>
	<p><i>Objective 2.4</i> Ensure all visitors feel welcome, enjoy a safe experience, and understand refuge rules and regulations during their stay on Midway Atoll.</p>
	<p><i>Objective 2.5</i> Within 3 years, improve wildlife viewing and photography opportunities for all visitors to Midway Atoll.</p>
	<p><i>Objective 2.6</i> Work with and encourage qualified groups or individuals to develop specialized programs at Midway Atoll in wildlife monitoring, photography, and art in 2008 and beyond.</p>
	<p><i>Objective 2.7</i> Develop and provide biennial wildlife-dependent teacher workshops targeting a mix of science teachers and teachers who do not have a strong science background or interest.</p>

	<p><i>Objective 2.8:</i> Beginning in 2008, facilitate at least two opportunities per year for accredited colleges, universities, or private/nonprofit environmental or historical organizations to conduct wildlife-dependent college level courses or administer informal educational camps.</p>
	<p><i>Objective 2.9:</i> In 2008, initiate a distance learning program from Midway Atoll to bring the Northwestern Hawaiian Islands Marine National Monument to classrooms across the Nation.</p>
	<p><i>Objective 2.10</i> By 2008, improve onsite interpretation and interpretive facilities to better educate visitors about Midway Atoll and the Northwestern Hawaiian Islands.</p>
	<p><i>Objective 2.11</i> By 2008, develop at least two offsite exhibits and programs to educate the general public about the Northwestern Hawaiian Islands and Midway Atoll National Wildlife Refuge in particular.</p>
	<p><i>Objective 2.12</i> Allow residents and visitors to engage in other recreational uses on Midway Atoll that have been determined to be compatible with the mission of the National Wildlife Refuge System and the purposes of the refuge.</p>
	<p><i>Objective 2.13</i> On a continuing basis, maintain outreach efforts to Midway Atoll’s diverse key publics to update them on the visitor program and wildlife-oriented news stories.</p>
	<p><i>Objective 2.14</i> By November 2007, evaluate the effectiveness of the visitor program marketing effort.</p>
<p><i>Goal 3.</i> Honor, maintain, and interpret the unique historical resources of Midway Atoll, with emphasis on its status as the Battle of Midway National Memorial.</p>	<p><i>Objective 3.1</i> By 2008, improve onsite interpretation and interpretive facilities to better educate visitors about the Battle of Midway National Memorial and Midway Atoll’s early history.</p>
	<p><i>Objective 3.2</i> By 2008, develop at least two offsite exhibits to educate the general public about the Battle of Midway National Memorial.</p>
	<p><i>Objective 3.3</i> Working with partners, offer special events on Midway Atoll and at other offsite locations that honor its history.</p>
	<p><i>Objective 3.4</i> Seek grant funds to bring at least two groups of volunteers to Midway Atoll each year to work on historic restoration projects under the guidance of the Service’s cultural resources staff and/or historic preservation specialists.</p>
	<p><i>Objective 3.5</i> Provide at least 15 percent of visitors staying 3 days or longer opportunities to assist with historic preservation tasks and activities.</p>

VI. Explanations of impacts of Action and methods to reduce adverse effects:

A number of means to avoid adverse effects to refuge natural resources were designed into the visitor services plan. Many of these are described in the Environmental Assessment and refuge compatibility determinations (Service 2006a,b). The Service would provide adequate resources to implement the visitor services plan and ensure that the program is environmentally sensitive and minimizes human disturbances to wildlife. This would be done by: (1) providing sufficient staffing; (2) defining permitted activities; (3) providing guidelines for uses; (4) designating open and closed areas; (5) providing a high level of public information (pre-visit packets, staff and visitor orientations, lectures, brochures, guided tours and static displays); (6) restricting access to and within sensitive wildlife areas; (7) systematically monitoring visitor impacts on wildlife and implementing visitor program changes as determined necessary by the refuge manager; and (8) coordinating with other natural resource agencies in the development and implementation of the visitor program.

1) Wildlife observation and photography

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 and Kataysky *et al.*, 2003). Studies, however, have not been conducted to document long-term cumulative effects of human disturbance. Albatross in the developed part of Sand Island are clearly acclimated to the presence of people, but may still have elevated stress hormone levels. When visitors are observing albatrosses, Laysan ducks, bristle-thighed curlews, Pacific golden plovers, and Christmas shearwaters in the less visited areas, they will have the potential of greatly elevating stress hormone levels if the duration of the disturbance is excessive. Studies have shown (Kitaysky, *et al.*, 2003) that short term disturbance, however, has only minor, short term effects. Observation periods for any particular bird or group of birds away from the town area of Sand Island will be kept to 15 minutes or less and only infrequently for this reason.

Green sea turtles resting on beaches may be disturbed. Visitor programs will be designed and managed to minimize or eliminate these impacts. However, even with proper management and execution of a well run program, certain behavioral responses may occur that are not easily observable.

Visitors may accidentally trample rare plants and insects (Fullaway's seed bug, *Laysan oodemas* weevil, *Obscure pentarthrum* weevil, *Achyranthes atollensis*, pua pilo, anaunau, *Phyllostegia variabilis*, and popolo) as they observe wildlife and photograph.

Methods to reduce adverse effects

- Visitors and residents are provided orientation materials and related information to minimize disturbance to wildlife. Specific restrictions (e.g., 50 m approach distance for short-tailed albatross and Laysan duck seeps, prohibition of access to heavily burrowed areas, etc.) are strictly enforced. Information on the nesting locations of particularly rare species may be withheld to protect these birds from disturbance. All visitors and new

residents are required to go through orientation immediately upon arrival or early the next day in the case of an unusually late arrival.

- Professional photographers who desire access to areas not generally accessible to the public will be put under Special Use Permits that stipulate more detailed access restrictions and regulations to protect wildlife. At the discretion of the refuge manager, Service staff may be assigned to accompany professional photographers into particularly sensitive areas.
- The beaches on Spit and Eastern Island will be closed to visitor as well as the southern and western beaches on Sand Island. Boats will not be allowed to travel closer than 500 feet from these closed beaches, except for guided tours to tie up to the pier on Eastern Island.
- All trips to Eastern Island for wildlife observation and/or photography will be closely supervised by Service staff or Service-approved guides. The number of visitor tours of Eastern Island will be controlled by the refuge manager (typically only one or two per week), and generally will be completed within a 2-hour period. Spit Island will be off limits for wildlife observers and photographers unless they accompany Service staff or permitted researchers during authorized project visits.
- Visitors will not be allowed to approach closer than 50 m to Laysan duck seeps. This will prevent visitors from impacting Laysan ducks are the rare plants that have been outplanted near them. The blind at the water catchment basin will allow visitors to see the species without disturbing the Laysan ducks, curlews, plovers, as well as other migratory birds.
- Kayaking tours will be closely supervised by Service staff, Service-trained volunteers, or cooperators. Buffer zones using the NOAA Watchable Wildlife suggested distance of 50 m will be enforced as well as closures of selected lagoon areas to minimize disturbance of wildlife. Visitors will be advised of proper actions to avoid disturbance and all tours will follow planned routes designed to minimize disturbance and avoid sensitive areas.
- Visitors and their luggage will go through an inspection for insects and plants prior to departing Honolulu, and again when leaving Midway to reduce the possibility of alien species introductions. Visitors will be asked to clean their shoes and other clothing before coming to Midway through advance introductory materials. Visitors will be asked to check their gear for mice before proceeding to Eastern to prevent accidental introductions. Visitors will be asked to clean their shoes and clothing before proceeding to Eastern to prevent accidentally introducing invasive plants to Eastern from Sand Island. Just before returning to Sand Island from Eastern, visitors will be asked to once again clean their shoes, clothing, and gear to prevent spread of invasive black mustard (*Brassica nigra*) on Sand Island.
- Additional surveys will be conducted for rare plants and insects (Fullaway's seed bug, *Laysan oodemas* weevil, *Obscure pentarthrum* weevil, *Achyranthes atollensis*, pua pilo, anaunau, *Phyllostegia variabilis*, and popolo). Populations will be mapped out and signs

effected to prevent visitors from impacting these species. Future propagation of these rare species can occur on the refuge and progeny released or outplanted at protected sites.

2) Participatory management/research program

Seabird population monitoring. Minimal impact is anticipated from activity of participatory research volunteers within nesting seabird colonies. Potential impacts include crushing nesting Christmas shearwaters and Laysan ducks and temporary disturbance to nesting Laysan and black-footed albatrosses. 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, and Nimon *et al.* 1995). Studies, however, have not been conducted to document the long-term cumulative effects of this human disturbance. Another study on murrelets documented an increased stress response when birds were handled for a longer period during research activities (Newman *et al.* 1997). Short-term participatory research volunteers will be working at a slower pace than a trained Service biologist or volunteer, potentially increasing the amount of disturbance to nesting seabirds involved in the study or in the area.

Habitat restoration. Minimal to no impact to terrestrial species found within the targeted habitat restoration area is anticipated. Potential impacts include crushing nesting Christmas shearwaters and Laysan ducks and temporary disturbance to nesting Laysan and black-footed albatrosses.

Historic site preservation. Minimal to no impact on terrestrial species from actions to stabilize historical structures or to remove invasive trees and shrubs. Potential impacts include crushing nesting Christmas shearwaters and Laysan ducks and temporary disturbance to nesting Laysan and black-footed albatrosses.

Methods to reduce adverse effects

- All participating visitors will attend the initial orientation and will be thoroughly briefed by the Service or Service-trained personnel on the approved and prohibited activities.
- Participants involved in seabird projects will be shown how to collect data to avoid or minimize nesting bird disturbance, including Laysan ducks and Christmas shearwaters.
- Participants in habitat restoration projects will be supervised by Service personnel or Service-trained cooperators. They will avoid areas where nesting (including burrowing) birds will be disturbed.
- Participants involved in beach cleanup will be supervised by Service personnel or Service-approved cooperators and focus on the “open” beaches. “Closed” beaches will be cleaned only when monk seals are not present and on a quarterly basis.

3) Environmental education and interpretation

Environmental Education

Impacts from visitors attending scheduled workshops, participating in walking or biking interpretive tours, or self-guided tours on Sand Island will be minimal. All of these activities will occur on hard surfaced roads with very limited wildlife disturbance.

Minimal to no impact on refuge purposes is anticipated from off-site programs, since educational demonstrations will be conducted or supervised by trained Service staff.

Interpretation

Minimal impact to refuge purposes is anticipated as described in the above “guided walks and bicycle tours” section. Additional potential impact to rare terrestrial species may occur if visitors and residents wander off self-guiding interpretive walks. Impacts include crushing nesting Christmas shearwaters and Laysan ducks and temporary disturbance to nesting Laysan and black-footed albatrosses. Studies conducted in seabird colonies with ecotourism operations have documented that birds located away from frequently visited areas react strongly to any human activity. Birds were observed to habituate to high levels of constant visitation, but not to less constant (although regular) visitation (Fowler 1995). Therefore, birds located far from trails are most likely to be disturbed from wandering visitors or residents. Disturbance of resting green sea turtles could occur if visitors and residents wander off self-guided interpretive walks.

Cruise ships that visit Midway Atoll are required to anchor outside the harbor entrance channel and to ferry their passengers to shore via ship’s tenders. New invasive species could arrive to the refuge as hitchhikers aboard visitors’ clothing and gear.

Regularly scheduled “field talks” at selected locations by Service interpreters or cooperators

There will be minimal to no anticipated impacts on refuges purposes associated with regularly scheduled “field talks”. Talks will be located near seabird colonies, but leaders and participants will not enter into the main area of the colony for these talks. Keeping the group at the edge of the colony will limit stress to the few birds actually closest to the group. Studies have shown that birds can adapt to repeated disturbance, so selection of an area where the birds are regularly passed by residents and visitors on town roads will minimize the impact of this activity.

Potential impacts include brief disturbance to nesting seabirds when entering colonies and handling of birds for demonstrations. Only trained Service interpreters or cooperators conducting the talk will be entering nesting colonies or handling birds for demonstrations.

Evening programs at various indoor locations.

No anticipated impacts are anticipated due to indoor locations.

Eastern Island tours.

Minimal impacts include disturbance to nesting Laysan and black-footed albatrosses along tour routes or resting green sea turtles near the dock. Tours will be restricted to the historical runways, limiting the disturbance to rare terrestrial species.

Methods to reduce adverse effects

- All onsite environmental education will be closely supervised by Service staff and Service-trained volunteers and cooperators, as well as by accompanying teachers.
- All students will be subject to the same restrictions (e.g., beach closures, distances from short-tailed albatrosses and Laysan ducks, etc.) as other visitors.
- All guided Sand Island tours will be led by Service, Service-trained, or cooperator-trained interpreters and will be adjusted on the spot to avoid disturbance of short-tailed albatrosses, Laysan ducks, curlews, plovers, and Christmas shearwaters, and trampling of rare plants and insects.
- No more than 25 people will be led at one time on guided walks and bicycle tours, except during cruise ship visits. Cruise ship visitors are accompanied by chaperones and guided along well-marked paved roads, primarily in the historic part of town.
- All visitors will attend an orientation upon (or before) arrival and be given appropriate narrative and graphic material to clearly indicate which areas are open for public use and to clarify regulations in force to protect wildlife and habitat. Cruise ship visitors receive an orientation from a Service representative onboard ship or by handouts specific to their visit to Midway Atoll.
- Signing along self-guided trails will identify approved areas for beach access, wildlife observation, *etc.* Service and cooperator staff will monitor public use to assess and respond to incidents of noncompliance with refuge regulations. Vegetative screening will be used to ensure that visitors do not walk off trails.
- “Field talks” will be located outside, on roads or trails along the edge of nesting seabird colonies. Only trained Service interpreters or cooperators conducting the talk will be entering nesting colonies or handling birds for demonstrations for brief periods.
- Interpreters will clearly explain the rationale for access restrictions and the actions that will be taken to enforce regulations.
- The frequency, duration, and route of guided Eastern Island tours will be modified, as needed, to avoid disturbance to green sea turtles, short-tailed albatrosses, Laysan ducks, curlews, plovers, and Christmas shearwaters.
- Cruise ships will be prohibited from discharging of any gray or black water during their anchorage period and for the entire period they are within monument waters. Visitors will inspect clothing and equipment for seeds and insects before arriving to the refuge.

4) Airport operation (for nonadministrative purposes)

Laysan and black-footed albatross use the airport runway as a soaring area as they travel on feeding forays during the day and could be struck by aircraft landing or taking off. Laysan ducks

have been observed walking on the runway and taxiway during the day and night, so could be struck by an aircraft landing or taking off or airport vehicles that are inspecting the runway or preparing for airport operations.

Extensive use of lights at the airport hangar causes problems for seabirds and potentially Laysan ducks in the future. These birds are disoriented by the bright flood lights at the hangar and as a result frequently fly into the side of the building and roof.

Proper operation of the fuel truck presents no hazards to refuge resources. In the event of a spill, fuel containment supplies and equipment are stored at the airport hangar for immediate response.

Methods to reduce adverse effects

- Except for emergency landings, flights will be required to land and depart during the dark from November through July. Airport vehicles will travel at modest speeds so they do not accidentally run over Laysan ducks on the runway and taxiways. If Laysan ducks are observed on the runway or taxiway immediately preceding an aircraft operation, they will slowly approach the animal until it moves out of the danger area.
- To reduce the time during which aircraft fly at heights used most frequently by albatrosses and other rare birds (one thousand feet or less), aircraft will be advised to use steeper than normal landing and take-off flight paths. For landings, pilots will be advised to use a 1500' displaced threshold and then descend at a 5 degree glide slope. For take-offs, pilots will be advised to be airborne by midfield and then to climb out at a path of 10-11 degrees pitch up for first 1000 feet of elevation.
- Lights used to illuminate airport passenger and baggage handling areas must be designed and installed to reduce impacts to albatrosses, Laysan ducks, and other birds that are negatively affected by artificial light.

5) Nonwildlife-dependent beach use

Minimal to no negative impacts to refuge resources are expected from this activity. Visitors could displace resting green sea turtles or bristle-thighed curlews from preferred beach areas if refuge visitor guidelines regarding beach use are not followed. Since no seabird or Laysan duck nesting occurs in the areas used for this activity, no impacts to albatross, shearwaters, Laysan ducks or other birds are expected.

Methods to reduce adverse effects

- Visitors will be advised not to trample native vegetation and avoid approaching bristle-thighed curlews.
- Closed beach areas will be posted and regulations strictly enforced. Residents and visitors will be informed about closed area restrictions through orientation sessions and posted notices. A 50 m approach restriction for sea turtles will be strictly enforced.

6) Nonwildlife-related sports

These activities include swimming, biking, jogging, volleyball, tennis, and other sports inside of the gym. These activities will present little or no impact to listed species. Visitors could accidentally run over a Laysan duck or short-tailed albatross with a bicycle. This is more likely to occur with ducks at night, when they freeze when a light is shown on them.

Occasional disturbance to nesting albatross or albatross chicks may occur around the outdoor volleyball court, but the court has a nest-free margin of 10 m giving the birds an adequate buffer from court activity and stray balls. The court area is free of petrel or shearwater burrows, so no impacts will occur to those ground nesting birds. Bicycling and jogging will also result in little or no impact on wildlife because bikers and joggers will remain on paved roads or marked trails. Joggers will be directed to stay on the paved/gravel roads due to the high risk of stepping on a duck, seabird, nest or burrow.

Methods to reduce adverse effects

- Closed areas will be posted and regulations strictly enforced. Residents and visitors will be informed about closed area restrictions through orientation sessions and posted notices.
- Bicycling and jogging will be limited to paved and gravel roads and trails during daylight hours only (sunrise to sunset). Bicycles will stay at least 50-m away from Laysan ducks, short-tailed albatross, and will not enter the 50-m buffer areas around the wetlands. A stationary bike and treadmill will be installed in the gym so visitors can exercise during nighttime hours.
- A 50 m approach restriction for short-tailed albatross will be strictly enforced. If a Laysan duck or short-tailed albatross moved to within this distance of the volleyball court, the area would not be used (or the game stopped) until the animal voluntarily left the area.
- The volleyball net will be taken down and stored when not in use to eliminate the threat of injuring a bird in flight.

7) Amateur radio operation

Amateur radio operation will not occur near areas used by Laysan ducks, short-tailed albatrosses, or green sea turtles. Antennas will be flexible in nature and less than 2-m in length so a bird will not be injured if they collide with it. In August 2006 a Laysan duck was killed after it crashed into power lines on the refuge (Service, unpub. data).

The antennae for transmitting the radio signal is the only aspect of this use that has potential for impacting refuge resources. The high density of nesting seabirds on Sand Island makes installation of additional tall antennae, even for a short period, a concern as they are a strike hazard for flying birds. Shorter antennae, locations away from primary flight lanes, attachment to large objects avoided by the birds (e.g., the water tower) and time of year are all means to

reduce this impact. With proper use of the above techniques, minimal or no impacts are expected to refuge resources.

Methods to reduce adverse effects

- Use of freestanding antennae greater than 2 m will be allowed only during the months of August, September, and October when albatross are off-island. Even during this period, location must be approved by the refuge manager to ensure that other species (curlews, Laysan ducks, plovers, and Christmas shearwaters) are not affected.
- Use of freestanding antennae during the period from November through July will be allowed only if advance discussion with the refuge manager has clearly shown that the location and antennae type will not be a flight obstacle to birds.

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VIII. Effect determination and response requested:

A. Listed species/designated critical habitat:

<u>Determination</u>	<u>Response requested</u>
no effect/no adverse modification (species: _____)	___ Concurrence
may affect, but is not likely to adversely affect: (species: short-tailed albatross, Laysan duck, green sea turtle, <i>Cenchrus agriminoides</i> var. <i>laysanensis</i>)	<u>X</u> Concurrence
may affect, and is likely to adversely affect species/ adversely modify critical habitat (species: _____)	___ Formal Consultation

B. Proposed species/proposed critical habitat:

<u>Determination</u>	<u>Response requested</u>
Not applicable	
no effect on proposed species/no adverse modification of proposed critical habitat (species: _____)	___ Concurrence
is likely to jeopardize proposed species/ adversely modify proposed critical habitat (species: _____)	___ Conference

C. Candidate species:

<u>Determination</u>	<u>Response requested</u>
no effect/no adverse modification (species: _____)	____ Concurrence
may affect, but is not likely to adversely affect (species:, popolo,)	__X__ Concurrence
is likely to jeopardize candidate species (species: _____)	____ Conference

Initiating Office:

Refuge Manager
Midway Atoll National Wildlife Refuge

Date

Attachments

Reviewing Evaluation:

- A. Concurrence _____ Nonconcurrency _____
- C. Formal consultation required _____
- F. Conference required _____
- G. Informal conference required _____
- H. Remarks (attach additional pages as needed):

Project Leader, Hawaiian and Pacific Islands
National Wildlife Refuge Complex

Date