

Proposed Compatibility Determination

- Use:** International Monitoring System installed by the Department of Defense in support of the Comprehensive Nuclear Test Ban Treaty
- Refuge Name:** Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, Papahānaumokuākea Marine National Monument
- City/County and State:** Midway Atoll is the penultimate western atoll in the Northwestern Hawaiian Islands, is an unincorporated territory of the United States, and lies outside the State of Hawaii.

Establishing and Acquisition Authority:

Midway Atoll National Wildlife Refuge (Midway Atoll Refuge) was established in 1988 as an overlay National Wildlife Refuge under a cooperative agreement with the U.S. Navy. Under this agreement, administrative responsibility for the refuge was shared by the U.S. Fish and Wildlife Service (Service) and the U.S. Navy. The Naval Air Facility at Midway was operationally closed in 1993. Facility cleanup was completed by June 30, 1997, when the Navy and its contractors departed. Custody and accountability for Midway Atoll were officially transferred from the Navy to the Service in May 1996. Executive Order 13022, signed by President Clinton on October 31, 1996, superseded earlier orders that assigned responsibility for Midway to the Navy. Secretary of Interior Babbitt signed Secretary's Order 3217 on September 13, 2000 designating Midway Atoll Refuge concurrently as the Battle of Midway National Memorial. On June 15, 2006, President Bush signed Presidential Proclamation 8031 making Midway Atoll Refuge part of the newly established Northwestern Hawaiian Islands National Marine Monument, later renamed Papahānaumokuākea Marine National Monument (Monument). Under that Proclamation, Midway has unique authority and responsibility as a Special Management Area of the Monument.

Refuge Purpose(s):

Midway Atoll Refuge was established pursuant to the Fish and Wildlife Act of 1956 and the Fish and Wildlife Coordination Act of 1934. Pertinent language in those statutes includes:

1. "... for the development, advancement, management, conservation and protection of fish and wildlife resources . . . for the benefit of the U.S. Fish and Wildlife Service, in performing its activities and services." (Fish and Wildlife Act of 1956)
2. "... shall be administered by the Secretary of the Interior directly in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife resources thereof, and its habitat thereon . . ." (Fish and Wildlife Coordination Act of 1934).

The following additional purposes were included in Executive Order 13022, dated October 31, 1996, which transferred jurisdiction and control over the Midway Islands from the U.S. Navy to the U.S. Department of the Interior:

Executive Order 13022 of October 31, 1996

Sec. 3. (a) The Secretary of the Interior, through the United States Fish and Wildlife Service, shall administer the Midway Islands as the Midway Atoll National Wildlife Refuge in a manner consistent with Executive Order 12996 of March 25, 1996 [Management and General Public Use of the National Wildlife Refuge System], for the following purposes:

- (1) maintaining and restoring natural biological diversity within the refuge;
- (2) providing for the conservation and management of fish and wildlife and their habitats within the refuge;
- (3) fulfilling the international treaty obligations of the United States with respect to fish and wildlife;
- (4) providing opportunities for scientific research, environmental education, and compatible wildlife dependent recreational activities; and
- (5) in a manner compatible with refuge purposes, shall recognize and maintain the historic significance of the Midway Islands consistent with the policy stated in Executive Order 11593 of May 13, 1971.

In addition, Presidential Proclamation 8031 established the Papahānaumokuākea Marine National Monument which covers a much larger area than the refuge, but also includes the refuge. The proclamation states it is in the public interest “to preserve the marine area of the Northwestern Hawaiian Islands and certain lands as necessary for the care and management of the historic and scientific objects therein” and the Monument was established for the purpose of “...protecting the objects described above, all lands and interest in lands owned or controlled by the Government of the United States....”

On July 30, 2010, Papahānaumokuākea Marine National Monument was inscribed as one of only 27 mixed World Heritage Sites by the United Nations Educational, Scientific and Cultural Organization, for its outstanding natural and cultural attributes.

Public Law 107-206; FY 2002 Supplemental Appropriations; August 2, 2002;

The purpose of this Congressional action was to permit the Secretary of Interior to charge reasonable fees for services provided at Midway Atoll NWR, including fuel sales, and retain those fees to be credited to the United States Fish and Wildlife Service “Resource Management” account and to remain available until expended....

National Wildlife Refuge System Mission:

The mission of the National Wildlife Refuge System is:

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Administration Act of 1966, as amended [NWR System Administration Act, 16 U.S.C. 668dd-668ee.]

Description of Use(s):

The Department of Defense (DoD) proposes to install an International Monitoring System (IMS) infrasound station on Sand Island, Midway Atoll NWR. The IMS, mandated by the Comprehensive Nuclear Test Ban Treaty (CTBT) of September 1996, is a global network of 321 seismic, hydroacoustic, infrasound and radionuclide stations used to collect data for nuclear test monitoring. The infrasound station would serve as a “backup system” to a radionuclide station, which is the primary detection system and already in place and operational inside a building at the Midway Atoll Refuge. The designated U.S. station operator for Midway Atoll Refuge is the U.S. Army Space and Missile Defense Command (SMDC) or its designated agent.

The infrasound monitoring station will consist of four infrasound elements and three communications nodes. Locations of the infrasound elements will be determined in consultation with Midway Atoll Refuge staff. Each infrasound element site will have a 1m³ equipment enclosure which will contain a micro barometer, digitizer, radio, and batteries. A GPS antenna and radio antenna will be mounted to the outside of the enclosure. Two solar panels would be mounted on brackets on the ground next to the enclosure. Four polypropylene hoses will lie on the ground radiating out from the side of the enclosure with each hose entering the enclosure. The hoses will be covered with 2 inch stones and gravel to keep the birds from them. The units will have a horizontal footprint of 60 feet² each. Final agreement was that the hoses will lie on top of the paved surface, not dug in. SMDC has no objections with USFWS placing sand piles great than 5 feet away from the infrasound hoses and equipment and planting native grasses and shrubs to help camouflage the equipment. In addition, SMDC has no objection to USFWS removing all pavement greater than 5 feet away from the infrasound hoses and equipment and planting native grasses and shrubs (Figures 1-3).

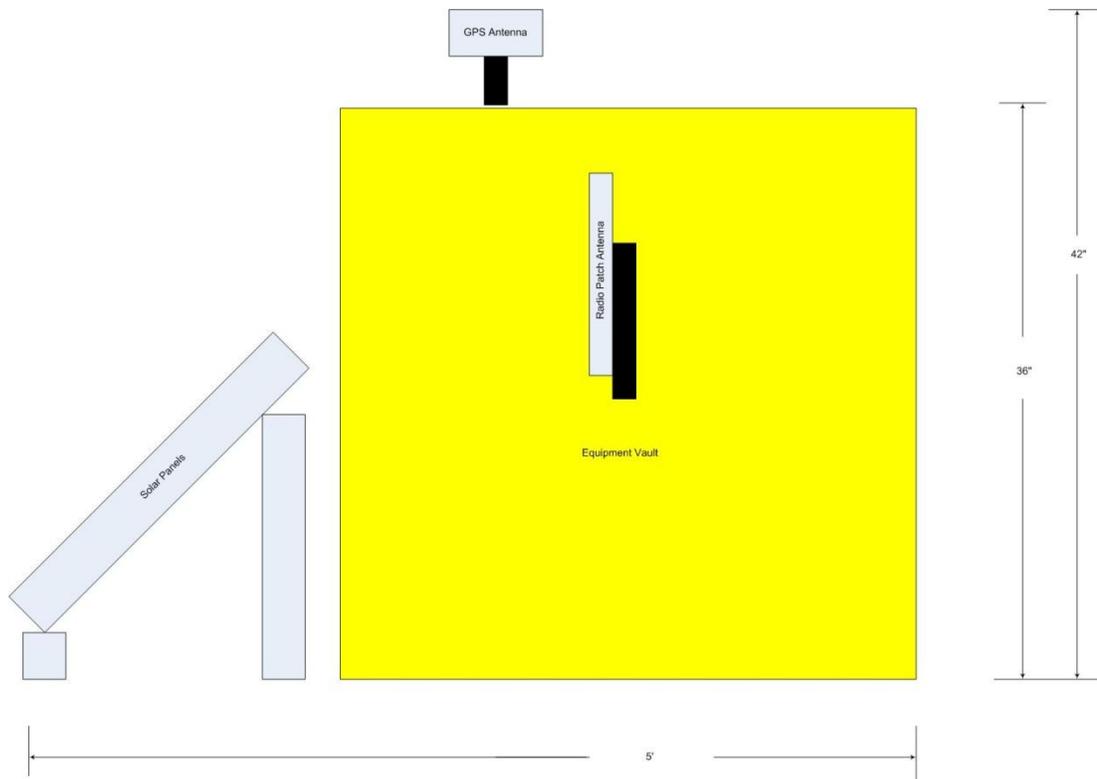


Figure 1. Each array has an instrument enclosure with approximate dimensions of 3' vertical, 5'x4' horizontal, and a wind-noise reducing system with a total horizontal footprint of 60' (Garces and Rembold 2010).

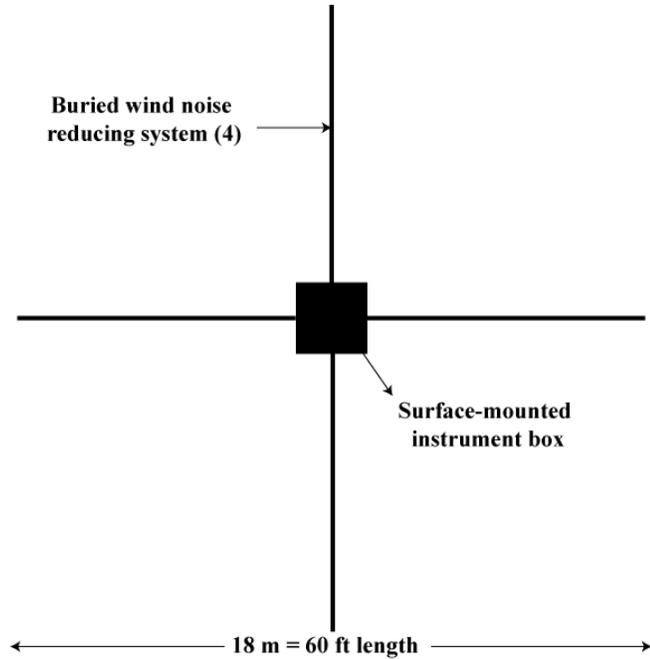


Figure 2. Prototype wind noise reducing system. Each leg would be dug into the concrete with sufficient slope and porosity for drainage, and covered with gravel/coral (Garces and Rembold 2010).

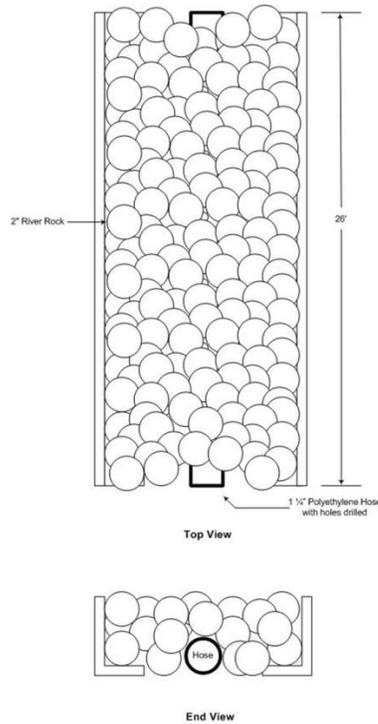


Figure 3. Top and end view of infrasound pipe surface installation (Rembold 2012).

Data from the sites will be transmitted by radio to locations where there are connections to the communications building. The three communications nodes will be installed on existing buildings as shown in figures 4-7, The Flight Operations Building (with FAA approval), the Defense Base Services, Inc. Operation Building, and the building housing the radionuclide components of the project. The data will be collected at the communications building (Central Recording Facility) and

formatted into a data frame and sent by fiber optic to the CTBT radionuclide building where it will be transmitted by satellite to Vienna. Once these data arrive in Vienna they will be available to all parties that have signed the CTBT.

GPS Coordinates for each infrasound array elements (4 elements total).

H1: 28.209710° - 177.381440°

H2: 28.213250° - 177.369550°

H3: 28.202890° - 177.384320°

H4: 28.212920° - 177.385410°



Figure 4. Approximate locations of proposed infrasound array locations (N = 4) and communication nodes (N = 3) on Sand Island, Midway Atoll (Garces and Rembold 2010). Yellow dots represent instrument locations, yellow dashed lines are radio links, red squares are communication nodes, and red lines are existing fiber optic links.

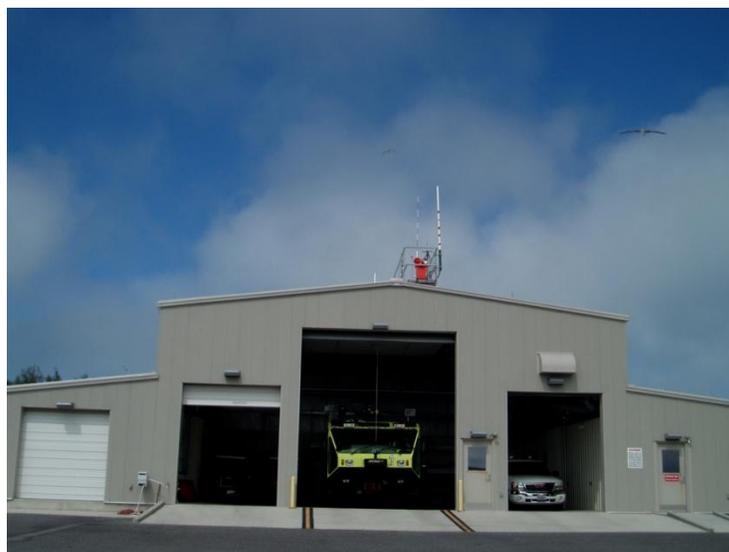


Figure 5. Proposed communication node 1 atop of the Flight Operations Building on Sand Island (Garces and Rembold 2010).



Figure 6. Proposed communication node 2 atop of the CTBT occupied building near the Cargo Pier on Sand Island (Garces and Rembold 2010).



Figure 7. Proposed communication node 3 atop of the Medical Clinic building on Sand Island (Garces and Rembold 2010). This is also where the proposed central Recording Facility (CRF) will reside.

The proposed project will take place during the 2012-2013 construction seasons. Installation will require 30 days the first year; 30 days the second year; and maintenance activities are proposed for approximately 7 days each year thereafter

Availability of Resources:

Staff time needed for installation and ongoing oversight of this project includes preparation of biological assessments and compatibility determination and coordination for transportation of personnel and materials for installation and subsequent equipment maintenance. Additional biological monitoring will be conducted under the existing memorandum of agreement. Technical maintenance needed on equipment would require that a DoD contractor come to Midway to make the

repairs. Flights by DoD personnel would be on a space available basis and all costs (flight/lodging/meals) would be covered by DoD.

The Fish and Wildlife Service has been tasked by Congress (Public Law 107-206) to fully charge all users of Midway to help offset costs of operating the island’s infrastructure. To help us meet this goal Congress has also given the refuge receipts authority which allows the refuge to keep reasonable fees collected for services provided at Midway Atoll. The SMDC and the Service have signed a Memorandum of Understanding (2006) to allow for annual funding to the Refuge to cover all costs associated with this use.

Category and Itemization	Annual (\$000/year)	One-time (\$000)
Administration and Management	\$ 7,072**	\$10,000*
Maintenance/Energy consumption	\$25,000	
Biological Monitoring	\$9,568**	
Special equipment, facilities or improvements (T-1 line)	\$39,539**	
17% Cost Recovery Assessment	\$13,874.03**	

* One time fees for PMNM permit processing and compatibility determination

**Based on % of annual costs, to be calculated yearly

The above annual cost reflects the cost to refuge staff. This cost is conservatively estimated as requiring 2% of the base cost of a GS-13 refuge manager, GS-12 deputy refuge manager, and GS-11 administrative position, based on the assumption that this activity would use that portion of the year to administer and coordinate activities conducted on the Refuge and supported by the operation of the field station.

Anticipated Impacts of the Use(s):

The IMS arrays have been installed worldwide and their design includes measures to minimize impacts to wildlife. An Impact Assessment for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) proposed Infrasound Project at the Midway Atoll National Wildlife Refuge (Garces and Rembold., 2010) was completed on March 12, 2007 (Klavitter, 2007). The Impact Assessment concluded that the proposed CTBTO Infrasound Project as designed would cause substantial negative biological effects. The Refuge Manager subsequently concluded that the project was not an appropriate use of the Midway Atoll National Wildlife Refuge. The Infrasound Project components were redesigned and the proposal was resubmitted to the Service. The redesigned project appears to have a lower level of biological impacts than the original submission according to a Second Impact Assessment completed in May 2011 (Klavitter and Leary, 2011).

To the extent possible the installations will be placed on existing concrete or asphalt to minimize habitat loss for breeding seabirds, overwintering migratory birds, Laysan ducks and potential future translocated native birds. Although the habitat loss may not be immediate, the use will prevent the Service from restoring these areas to nesting habitat during the life of the project.

The Second Impact Assessment: 1) Identified a potential bird strike hazard to albatross, estimating a loss of about three albatross per year from collisions with equipment, and 2) Estimated habitat would be lost for approximately 20 pairs of birds.

Disturbance to nesting seabirds would be minimized by scheduling installation and site visits when the fewest seabirds are nesting.

There is some risk of invasive species introduction if care is not taken to make sure equipment and supplies sent to Midway are free of non-native seeds, insects, etc. during installation and maintenance checks.

The Pacific Islands Fish and Wildlife Service Office has completed an informal consultation for this project as it relates to Laysan ducks (*Anas laysanensis*) and seabirds protected under the Migratory Bird Treaty Act. [16 U.S.C. 703-712]. Three conservation measures were identified to avoid minimize impacts to these birds. The Finding was that the proposed project may affect, but is not likely to adversely affect, the Laysan duck based on the conservation measures.

A comprehensive cumulative impacts study was not undertaken, but Midway Atoll Refuge has many competing uses including an emergency airfield, a harbor, a visitor program, 65 residents, a radionuclide station, tide station, greenhouse gas study, seismic station, and various research projects. Each of the uses appears to have low impacts on the refuge when considered alone, but when all uses are added together, they may begin to cause significant impacts because of the relatively small land area (595 ha) in the Refuge and abundance (3 million seabirds) of wildlife.

The infrasound station elements are automated; therefore, no personnel will be stationed on Midway to maintain them. The impacts from annual or infrequent visits by DoD contractors to inspect and/or repair the infrasound stations are deemed to be insignificant as the addition of one or two people to the island population will not have a measurable impact on our logistical supply nor will they impair our normal work on refuge resources and programs.

Public Review and Comment:

This compatibility determination has been issued for public review and comment as part of the permit review process for Papahānaumokuākea Marine National Monument. The compatibility determination and associated PMNM Permit 2012-021 are also made available through printed copies upon request and through the Monument Web sites at <http://www.fws.gov/Midway/aboutus.html> and <http://www.papahanaumokuakea.gov/resource/permits.html> . This level of review and comment was selected to meet FWS requirements under the National Wildlife Refuge System Administration Act of 1966, as amended, the FWS compatibility policy 603 FW 2, and as determined by the Co-Trustees of the Monument. The Monument is of national interest; therefore, the availability of the CDs and related permits will be advertised at the national level via the web based notifications identified above. The 14 day public comment period will be held from June 22, 2012 through July 6, 2012. To provide comments please email Permit Manager Ray Born at ray_born@fws.gov with SMDC-CD in the subject line. Comments are due back to July 6, 2012. The final Compatibility Determination will be posted on the Midway and Papahānaumokuākea MNM web sites listed above.

Stipulations Necessary to Ensure Compatibility:

GENERAL TERMS AND CONDITIONS:

Permittee would be required to adhere to all general conditions specified in the PMNM Management Plan. The general conditions are attached (Attachment 1).

CONSERVATION MEASURES IDENTIFIED BY PACIFIC ISLANDS FISH AND WILDLIFE FIELD OFFICE

1. All Refuge guidelines to avoid and minimize impacts to wildlife will be followed. The guidelines re intended to minimize human impacts to all Refuge wildlife, including Laysan ducks. The guidelines include maintaining buffer distances between people and endangered species, driving vehicles safely and slowly around the Refuge, and staying on designated trails and roadways.
2. Laysan ducks are found throughout Sand Island, and it is possible that a duck could be found at a project construction site. Refuge guidelines will be followed to carefully relocate any Laysan duck at a construction site out of harm's way. If a Laysan duck does enter a site, construction will be halted and the bird is safely relocated.
3. If possible construction activities will be conducted during the seabird non-nesting season (July to October) to minimize disturbance to nesting seabirds.

Terms and Conditions of Department of Defense/U.S. Fish and Wildlife Service MOU:

The MOU terms and are incorporated in this document as a special condition.

1. DoD SMDC must provide annual funding to ensure that all costs borne by the refuge are fully compensated.
2. If the infrasound stations become an albatross strike hazard, the SMDC must agree to alter or them to eliminate that hazard.
3. If SMDC requires more than 4 seats on any FWS/FAA charter, they will be required to charter a separate plane to avoid negative impacts to our logistical supply chain.
4. SMDC has no objections with USFWS placing sand piles greater than 5 feet away from the infrasound hoses and equipment and planting native grasses and shrubs to help camouflage the equipment.
5. SMDC has no objection to USFWS removing all pavement greater than 5 feet away from the infrasound hoses and equipment and planting native grasses and shrubs.
6. SMDC agrees to pay for the cost of removing one or more concrete slabs totaling approximately 2,000 square meters for partial mitigation of the amount of habitat that will be taken up by the four infrasound stations.
7. FWS agrees to allowing SMDC to utilize an unused fiber optic pair on island to transmit data with the understanding the if in the future FWS needs to use the pair in the future, SMDC will share a fiber pair with the FWS/DBSI.
8. SMDC must following all FWS and PMNM invasive species prevention protocols when shipping equipment to Midway including but not limited to putting a rodent bait station in each 20' shipping containing baited with rodenticide and a peanut butter flavored sticky trap. All materials must be clean, free of insects, seeds, rodents, etc., and stored only on paved surfaces.

Justification:

In 1996 the Comprehensive Test Ban Treaty was adopted by the United Nations. The treaty, which prohibits all nuclear test explosions, was signed by 71 states including the United States. Currently there are 177 states that have signed the treaty. To monitor the treaty the International Monitoring System (IMS) was designed. The IMS consists of 337 monitoring facilities all over the globe, comprised of seismic, infrasound, hydroacoustic and radionuclide monitoring stations as well as radionuclide laboratories. The locations of these stations were agreed upon by scientific experts to ensure that a nuclear detonation could be detected anywhere on the globe and are included in the

treaty text. As part of the IMS, the United States is responsible for the installation of 17 seismic stations, 8 infrasound stations and 11 radionuclide stations. Midway Atoll was chosen as the location of one of the U.S radionuclide stations based on its location in the mid-north Pacific and its relationship to other sites such as Wake which makes triangulation of detected events possible. No other site in this part of the Pacific offers the infrastructure to support this activity. This station, along with stations already installed in Hawaii, Wake Island, and Guam, will perform a vital role in monitoring the South Pacific Ocean for nuclear explosions.

This activity is not wildlife dependent; however, installation of this station will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of Midway Atoll National Wildlife Refuge.

References Cited:

Memorandum of Understanding between the Department of Defense and Fish and Wildlife Service Concerning Cooperation on Matters Pertaining to the International Monitoring System. 2006