United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

JAN - 5 2015

The Honorable Doug Lamborn
Chairman
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Enclosed are responses prepared by the U.S. Geological Survey to the questions for the record submitted following the November 19, 2014, hearing on Volcano Hazards: Exploring the National Preparation and Response Strategy.

Thank you for the opportunity to provide this material to the Subcommittee.

Sincerely,

Christopher P. Salotti
Legislative Counsel
Office of Congressional and
Legislative Affairs

Enclosure

cc: The Honorable Rush Holt
Ranking Minority Member

Questions from Chairman Lamborn for Dr. Charles Mandeville, Volcano Hazards Program Coordinator, U.S. Geological Survey

1. ***The USGS was instrumental in determining that there would be a major eruption at Mount Pinatubo in the Philippines prior to the 1991 eruption and helped develop an alert system and evacuation scenario that saved many lives and protected the U.S. military assets at Clark Air Force Base and Subic Bay.***

   In round numbers can you give the committee an idea of the value of the U.S. assets that were moved out of harm's way and the number of people that were evacuated?

During April, May, and early June 1991, thousands of small earthquakes and other signals of an impending eruption, such as steam explosions and emissions of sulfur dioxide gas, indicated that Mount Pinatubo was reawakening. The heightened activity triggered a request for assistance from the Government of the Philippines and the U.S. Air Force at Clark Air Base. In response, the U.S. Geological Survey (USGS) deployed a team of scientists to work with Filipino colleagues to establish a monitoring network, conduct intensive studies of the volcano's past history, and evaluate the hazards. When data from these efforts indicated that a huge eruption was imminent, the USGS-Filipino team issued urgent warnings. These warnings allowed civil and military authorities to arrange the evacuation of people, aircraft and other equipment before Mount Pinatubo exploded on the morning of June 15th, in the largest volcanic eruption in more than three-quarters of a century. No eruption in the succeeding 23 years has been larger.

Several days prior to the large eruption, more than 15,000 American servicemen and their dependents were evacuated from Clark Air Base. By June 15, there were as many as 235,000 Filipino evacuees in addition to the American servicemen. Estimates by the USGS and the Philippine Institute of Volcanology and Seismology of U.S. and Filipino lives directly saved as a result of the forecasts and warnings range from 5,000 to 20,000. In addition to many lives saved, losses of U.S. property worth between $200 million and $275 million, mostly at Clark Air Base, were averted. Philippine, U.S., and other commercial airlines were able to prevent another $50 - $100 million in damage to aircraft by taking similar action. It is conservatively estimated that up to $300 million in U.S. property was saved by moving it or covering it, and that Filipino assets of at least $200 million were similarly saved.

2. ***Many of the high threat volcanos in the western United States do not yet have adequate instrumentation in place for monitoring the status of the volcano.***

   a. ***How long will it take to install instruments on the remaining high threat volcanos?***

The USGS Volcano Hazards Program (VHP) has classified 18 volcanoes within the United States and its Territories as Very-High-Threat, and another 38 as High-Threat. Of these, 12 Very-High-Threat and 20

High-Threat volcanoes remain under-monitored. We estimate that with additional resources the VHP could fully instrument all of the Very-High-Threat and High-Threat volcanoes within 7 to 12 years, including a 2 year preparatory period for planning and permitting. Generally speaking, the speed of installation scales with available resources.

b. *What is the estimated cost to acquire and deploy the instrumentation?*

The cost of the instrumentation is usually small compared to the deployment cost. The average cost for a modern geophysical monitoring instrument and its associated hardware (e.g., batteries, solar panels, radios, etc.) is about $35,000; a monitoring network for a single volcano includes a number of instruments. Average deployment cost is about $90,000 per instrument, with helicopter support being the major expense. We estimate the need for about 600 new instruments, to close significant monitoring gaps at Very-High-Threat and High-Threat volcanoes in Washington, Oregon, California, Hawaii, Alaska, Wyoming, and the Commonwealth of the Northern Mariana Islands, totaling to a $75 million capital investment in the Nation's hazards monitoring network. These new instruments will make it possible for earlier detection of eruption precursors such as increases in seismic activity beneath the volcano by more sensitive broadband seismometers, determination of more accurate earthquake locations of small magnitude earthquakes near and beneath volcanoes related to magma movement and ascent, detection of volcano surface deformation from continuous GPS instruments and tilt-meters in response to pressurization from ascending degassing magma, detection of changes in gas discharge from the volcanoes, and improved real-time situational awareness of volcanic activity through installation of visual and thermal infrared cameras. These additional instruments will allow the USGS to provide more accurate and timely forecasts and warnings of potentially hazardous activity at Very-High-Threat and High-Threat volcanoes. The emphasis will be to complete the instrument installation on Very-High-Threat volcanoes in 7 years, then move towards completion of instrument installation on High-Threat volcanoes over the following 5 years.

c. *How often does it have to be replaced?*

The expected life span for volcano monitoring instrumentation, with proper maintenance, is about a decade. After this period, and with expected advances in technology, it is generally cost effective to replace the instrumentation and associated hardware. Instrument maintenance is required about every 5 years.

d. *Is the cost of acquiring the instrumentation and installing it shared with States?*

The USGS owns and purchases most volcano monitoring instruments used by the USGS and cooperating State agencies and universities. The USGS also funds most installation costs either directly or through cooperative agreement awards made to universities and other state agencies, with USGS personnel working together with state employees to carry out the actual deployments.

The USGS Volcano Hazards Program has long-term cooperative agreements with the University of Washington, University of Oregon, University of Alaska Fairbanks, Alaska Division of Geological and Geophysical Surveys, University of Utah, and the University of Hawaii at Hilo and at Manoa. Other state agencies and universities also operate instrumentation networks and share data useful for volcano monitoring with the USGS.

e. ***How many of the high threat volcanos are on federal land v. state land?***

Almost all of the 56 High- and Very-High-Threat Volcanoes reside on lands managed by the Federal Government, mainly the National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service. Notable exceptions to this are Mount Spurr and Augustine Volcano, which are on lands owned by the State of Alaska, and Hualalai Volcano in Hawaii, which is on privately owned land. Volcanoes in the Marianas Islands are all located on islands owned by the Commonwealth.

f. ***Are you required to get permits to place the instrumentation and if permits are required how long does it generally take to go through the process?***

The USGS is required to hold appropriate land use permits for all monitoring installations located on public lands and to make similar arrangements for instruments located on private lands.

The time required to obtain appropriate permits is variable, and often depends upon the classification of federal lands. For example, on sensitive federal lands, the time required to obtain appropriate permits can be as long as 3 years. More than half of Very-High-Threat volcanoes are located in designated wilderness areas. These sensitive areas often require thorough evaluation to ensure the protection and conservation of archeology sites, endangered species habitat, and wilderness areas. Obtaining these permits can also require several periods of public comment (typically 45 days, but up to 150 days). In less sensitive areas, permits can be obtained on a shorter time frame, sometimes as quickly as 3 to 12 months.

g. ***Is there one geographic area that should receive prioritization for installation of new or replacement instrumentation?***

Yes – the Cascades Range from Northern Washington to Northern California. This region contains 10 of the 18 Very-High-Threat volcanoes requiring major improvements to their instrumentation networks, including Glacier Peak, Mount Baker, Mount Rainer, Mount St. Helens, and Mount Adams in Washington; Mount Hood, Three Sisters, and Crater Lake in Oregon; and Mount Shasta and Lassen Peak in California. Given the many variables (e.g., the time required for permits) involved in instrument deployments however, prioritization does not always occur based strictly on threat level.

h. ***What is the threat to air traffic from the high threat volcanos and how has that changed over time?***

The threat to air traffic is airborne volcanic ash, which imperils passenger safety by damaging jet engines and critical flight control instrumentation (including altimeter, air speed indicator, and electronics) and sand-blasting cockpit windows and leading edges of wings, rudder, and rear stabilizers when encountered in flight. The presence of airborne volcanic ash can also degrade the efficiency of the air traffic control system when flights must be cancelled or re-routed. Every month, approximately 300,000 passengers on 2,200 jet flights travel through airspace threatened by the High- and Very-High-Threat volcanoes capable of producing high-altitude plumes of volcanic ash. As air travel over volcanic regions continues to grow, particularly on Pacific Rim and trans-Pacific routes, so does the risk to aviation. The USGS Volcano Hazards Program, in partnership with other Federal agencies including the Federal Aviation Administration, the National Weather Service, and the U.S. Air Force, has worked to diminish this risk through a combination of volcano monitoring, rapid data analysis, and timely communication.

Questions from Rep. Colleen Hanabusa for Dr. Charles Mandeville, Volcano Hazards Program Coordinator, U.S. Geological Survey

1. Please provide the estimated level of funding it would take to fully implement USGS' plan for a National Volcano Early Warning System (NVEWS), broken down by volcano threat level and volcano observatory region. Also please provide the estimated annual maintenance and operation costs for a fully built-out NVEWS.

The following table provides the estimated funding above the current level required to fully implement the National Volcano Early Warning System (NVEWS) for the Very-High- and High-Threat volcanoes in the United States. We do not dismiss the need for monitoring upgrades at the Moderate- to Very-Low-Threat volcanoes, but the need to close gaps is most acute at the High- and Very-High-Threat volcanoes, and thus we concentrate on them. We estimate that completion would take 7-12 years, initially focusing on the very-high threat volcanoes.

Facility	Total Installation Cost	Annual Operation and Maintenance Cost
AVO	$17,000,000	$2,500,000
CNMI	$9,000,000	$2,000,000
HVO	$7,300,000	$1,500,000
CVO	$22,000,000	$2,200,000
CalVO	$3,500,000	$765,000
YVO	$1,100,000	$250,000
Volcano Watch Office	$1,000,000	$2,610,000
Remote Sensing	$850,000	$200,000
Total (Net)	$61,750,000	$12,025,000
Total (Gross, +20%)	**$74,100,000**	**$14,430,000**

[AVO, Alaska Volcano Observatory; CNMI, Commonwealth of the Northern Marianas; HVO, Hawaiian Volcano Observatory; CVO, Cascades Volcano Observatory; CalVO, California Volcano Observatory; YVO, Yellowstone Volcano Observatory]

As installations are completed, operations and maintenance costs would begin to increase; we include in the table the estimated annual O&M costs once the build-out is complete.

We also include in the table the cost to improve and maintain our monitoring capabilities using satellite remote sensing data, a technique that spans observatory boundaries and thus is included as a separate entry. Analysis of this data is critical to early warning even at heavily instrumented volcanoes. Also, remote sensing is often the only monitoring available of moderate- and low-threat volcanoes with no instrumentation installed.

A final entry that spans across all observatories is a 24/7 Volcano Watch Office. Observatories are not normally 24/7 operations, though they will move to 24/7 operation during times of heightened activity

and risk such as just prior to an eruption of a very-high-threat volcano. Rather than each observatory going to 24/7 under a full implementation of NVEWS, a centralized Volcano Watch Office will provide this capability in support of all observatories. The Watch Office would not supplant the observatories; though first-order monitoring of the various data streams would be conducted by Watch Office staff, if unusual activity were detected or a flurry of public reports were received, the appropriate observatory would be immediately contacted to conduct more detailed analysis and manage any response.

An important consideration for the future development of NVEWS is the planned conclusion of the National Science Foundation's EarthScope project in 2018. At present the USGS depends on hundreds of EarthScope-funded geophysical instruments for their volcano (and earthquake) monitoring value. If these instruments become inoperative when EarthScope ends, the USGS will have to compensate for this loss either by taking over maintenance and operational responsibility for the most important of the instruments, or by installing new instruments to take their place. Neither of these contingencies is included in the table above. For reference, the cost of taking over operation and maintenance of the 196 EarthScope stations on or near U.S. volcanoes is about $980,000 per year.

Questions from Rep. Sablan for Dr. Charles Mandeville, U.S. Geological Survey

1. Tourism is the leading industry in the Northern Mariana Islands, with almost all tourists entering the islands by airplane. Pagan volcano, which is highly active with frequent explosions, poses hazards to these aircraft due to the possibility of airborne volcanic ash. Volcanic ash can also seriously impact mariners and the communities of the Northern Mariana Islands. Pagan volcano has been monitored by the USGS and the US Army Corps of Engineers cooperatively since 2013. On September 5 this year, funding for the transmission of satellite data was exhausted. This meant monitoring was suspended, though the monitoring equipment is likely to remain operational. How is further funding for satellite transmission currently being pursued, and when is funding likely to be obtained?

The USGS, the U.S. Army Corps of Engineers – Engineering Research Development Center (USACE-ERDC) and the CNMI Homeland Security and Emergency Management (CNMI-HSEM) formed a partnership in 2013 to install conventional and experimental volcano monitoring equipment on Pagan Volcano. Funding came largely from the USACE-ERDC. The installations were successful and provided real-time data from Pagan for 14 months. Funding for this effort was exhausted on September 5, 2014, as a result of high data communication costs. All involved agencies are making efforts to develop funding sources to restore data transmission and redesign the network operations to make its continued operation more economical.

Currently the USGS, USACE-ERDC, and the CNMI-HSEM are pursuing multiple options to restore communication of monitoring data from Pagan Volcano.

1. The USGS is working with the USACE-ERDC in hopes that funding for the existing satellite telemetry system can be restored. This avenue would allow data from both the USGS monitoring instruments and the USACE Linear Seismic System to be returned to real-time operation.
2. The USGS is testing smaller and lower cost satellite communication systems that would provide for data transmission from the conventional USGS monitoring instruments on Pagan. This new equipment is being purchased and tests are planned to begin in Saipan as early as January 2015. If this system proves viable it could be installed on Pagan in March/April of 2015. This option would allow the USGS seismic, infrasound, and web cameras to be restored, but not the USACE-ERDC Linear Seismic System. Testing of this new equipment is proceeding even though the USGS does not currently have sufficient funding to make the installation on Pagan.
3. The CNMI-HSEM is seeking funding to cover ongoing data communication costs for Pagan and other volcanoes in the CNMI.

2. The risks posed by Pagan to the tourism industry mean that consistent and adequate monitoring for the level of risk is necessary and extremely important. How can we ensure that adequate monitoring is continued consistently, instead of interrupted due to funding issues?

Though USGS has been able to cooperate with other agencies such as the USACE-ERDC to fund work specifically in the CNMI, those sources tend to be for short-term projects or unstable as agencies' internal priorities change. The USGS prioritizes its efforts to upgrade and deploy monitoring networks based on threat levels. As the Very-High-Threat volcanoes are properly instrumented (or implementation is well underway) and maintenance of existing networks on High-Threat volcanoes is no longer being deferred, then new resources would be directed to unmonitored or poorly monitored High-Threat volcanoes, including those in the CNMI.

3. The National Volcano Early Warning System (NVEWS) is a national-scale plan to ensure that all active valcanoes are monitored over the lang term consistent with the threats posed. This means hazardous volcanoes such as those in the Northern Mariana Islands would be properly monitored in advance of volcanic activity, allowing improvements to hazard forecasts, and allowing time far communities and airlines operating in the area to take action to reduce risk. In the 2005 NVEWS assessment, seven volcanic islands in the Narthern Mariana Islands were found to be under-monitored for the threats posed. Since this assessment, some improvements have been made to the monitoring equipment in the Northern Mariana Islands, including upgrades to modern digital instrumentation and telemetry. What more should be dane to increase monitoring on the highest priority islands?

The 2005 NVEWS assessment considers Pagan, Anatahan, Agrigan, and Alamagan to be High-Threat volcanoes and thus should be the highest priority in the CNMI for future installation of monitoring equipment. Currently seismic monitoring equipment located on Pagan, Anatahan, and Sarigan provides the basic ability to forecast and provide warnings of hazards associated with future eruptions of those volcanoes. The existing monitoring networks on Pagan and Anatahan need to be upgraded with continuous GPS receivers. Agrigan and Alamagan have no installed monitoring network, though some indications of activity can be seen in satellite data or reported by passing aircraft; these two volcanoes need the appropriate mix of seismometers, GPS, cameras, and infrasound sensors required for a High-Threat volcano. Sarigan, Guguan, Farallon de Pajaros, and Asuncion are currently considered Moderate-Threat and should be a secondary priority, with basic seismic monitoring eventually put into place.

4. I understand that the NVEWS plan is currently 30% implemented. Full implementation of the NVEWS must be a priority to protect lives and international air travel routes over the Pacific Ocean. What is the timeline for full implementation of the plan?

Full implementation of NVEWs on the Nation's High- and Very-High-Threat volcanoes will take 7 - 12 years depending on available resources and external logistical constraints (e.g., permits).

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

JAN 1 5 2015

The Honorable Rob Bishop
Chairman
Committee on Natural Resources
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Enclosed are responses prepared by the U.S. Fish and Wildlife Service to questions submitted following the November 20, 2014, oversight hearing on the management of the Midway Atoll National Wildlife Refuge in the Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs.

Thank you for the opportunity to provide this material to the Committee.

Sincerely,

Christopher P. Salotti
Legislative Counsel
Office of Congressional and Legislative Affairs

Enclosure

cc: The Honorable Raùl Grijalva
Ranking Member

Committee on Natural Resources
Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs
Oversight Hearing
1334 Longworth House Office Building
November 20, 2014

U.S. Fish and Wildlife Service:

Question 1: On June 27, 2014, Mr. Daniel Clark, who is the new refuge manager for the Midway Atoll National Wildlife Refuge, wrote to Dr. James D'Angelo the Chairman of the International Midway Memorial Foundation. In his letter, he states that, "I am looking forward to strengthening our relationship with the IMMF. As strong supporters of World War II veterans, you and the IMMF help to ensure that their heroic courage and sacrifice will never be forgotten. I share that vision with you." Why is there a need to improve that relationship?

Response: Mr. Clark is the new manager at Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial (Midway Atoll NWR). As he noted in the referenced letter, he shares the vision of the International Midway Memorial Foundation (IMMF) and understands the privilege the Service has in honoring our veterans at Midway Atoll NWR. The Service has engaged with stakeholder groups on a periodic and sustained basis, including the IMMF, and we recognize communication among organizations can always be improved and relationships strengthened. The Service is committed to consulting with the IMMF and Mr. Clark was emphasizing his personal commitment to strengthening the relationship with them.

Question 2: During the Subcommittee hearing, in response to my question, Mr. Kevin Foerster, the Regional Refuge Chief for the Pacific Region testified that the Fish and Wildlife Service will in the future consult with the International Midway Memorial Foundation prior to the removal of any historical structures. Could you explain to the Committee why these consultations have not occurred in the past? Please also provide your definition of the word, "consult."

Response: The Service defines "consult" in this circumstance as soliciting input from stakeholders. In the past, the Service consulted with organizations with an interest in Midway Atoll NWR, including the IMMF. The Service will continue to coordinate with the IMMF, as well as other stakeholders and will strive to make those communications more deliberate, more frequent, and more fruitful. During these consultations, we will seek information and opinions from IMMF representatives.

Question 3: Will you reassure this Committee that in the future you will consult with the International Midway Memorial Foundation before any additional historic structures are destroyed?

Response: Yes. The Service appreciates our cooperative relationship with the IMMF. For future building removals, the Service will consult with the IMMF, listen to their

perspective, and weigh those views with other concerns such as safety, historic value, and costs for restoration or removal.

Question 4: Please provide the Committee with a complete list of all of the historic structures that were demolished during the past ten years. What were the reasons and the individual cost of their removal?

Response: The Service uses its 2010 Historic Preservation Plan to help guide management of Midway Atoll NWR and Battle of Midway National Memorial. The plan outlines several goals: to raise the awareness of Midway's unique history, acknowledge the funding levels and operational needs, link this plan to the other plans, laws, and mandates that Midway Atoll NWR must be managed under, and provide treatment options for the Service to meet its responsibility per the National Historic Preservation Act (16 U.S.C. 470).

The removals of the four Cable Station Buildings, the two Marine Barracks Buildings, and originally the SK1 Warehouse Building were part of the effort to implement the Comprehensive Environmental Response, Compensation, and Liability Act or CERCLA (42 U.S.C. 9601) related to lead-based paint contamination on buildings and in soil at Midway Atoll NWR. The Cable Station Buildings cost $82,500 to remove. The removals of the Marine Barracks ($350,000) and SK1 Warehouse ($233,274) were funded by the Department of the Interior's Central Hazardous Material Fund. These costs only included demolition and do not include the cost of remediating asbestos, lead-based paint, or shipping demolition material off island, etc.

Cable Station Buildings

The Service determined the Cable Station Buildings had significant levels of lead-based paint contaminating the surrounding soil and were causing high Laysan albatross and Bonin petrel chick mortality. In order to safely abate the lead and asbestos hazards from these buildings, the buildings were removed and the contaminated soil around them was remediated. The buildings were demolished in September 2013. For the Cable Station, the Service complied with Section 106 of the National Historic Preservation Act, and determined the lead paint abatement activities would have an adverse effect, therefore the 2009 Memorandum of Agreement (MOA) with the Hawaii State Historical Preservation Officer (SHPO) was amended in 2012 to accommodate this change in effects and to define stipulations that will mitigate for the loss of the historic properties.

Marine Barracks

The Marine Barracks were constructed in 1941 and used during WWII. The barracks were abandoned prior to Service ownership and had serious mold and water damage issues along with the asbestos flooring, lead paint, and transite siding. The Service determined that the Marine Barracks (Buildings 578 and 579) had significant levels of lead-based paint contaminating the surrounding soil and were causing high Laysan albatross and Bonin petrel chick mortality. In order to safely abate the lead and asbestos hazards from these buildings, the buildings were removed and the contaminated soil around them was remediated. The buildings were demolished in September 2013. The

Service consulted with the Hawaii SHPO and Historic Hawaii Foundation during an on-site visit in August 2012 and drafted an MOA in March 2013 to define stipulations that would mitigate for the loss of the buildings. The draft MOA stipulated that documentation would be compiled as a permanent record of the Marine Barracks.

SK1 Warehouse
This industrial complex warehouse (Building 393) was constructed after the Battle of Midway and had serious structural failure (roof and beams collapsing). It was demolished in October 2012 to abate lead-based paint contamination. A MOA was completed with the Hawaii SHPO and Historic Hawaii Foundation in compliance with the National Historic Preservation Act in September 2012.

Question 5: In each removal case, did the Fish and Wildlife Service alert the public as to the pending demolition? Did you utilize the provisions of the National Environmental Policy Act? If not, why not?

Response: Yes, the Service consulted with the appropriate councils, state agencies, and other interested stakeholders on the demolition of these buildings. The Service works to maintain, protect, and preserve numerous historical structures on Midway Atoll NWR. This includes complying with CERCLA, the National Environmental Policy Act (NEPA), and the National Historic Preservation Act (NHPA).

Question 6: What is the status of the two large fuel tanks on Midway? What is their current condition, how often are they maintained, when was the last time they were used, when was the last time a tank integrity inspection was performed on them, what were the results of that inspection and what is their status for the future?

Response: There are two fuel farms on Midway Atoll NWR. One is a modern, 9-tank farm with a total capacity of 450,000 gallons. This fuel farm is inspected, maintained, and in use today by the Service, Federal Aviation Administration (FAA), and Coast Guard. The other fuel farm is a 4.2 million gallon, 2-tank system located near the fuel pier. This fuel farm is no longer in use and has been included on the National Priorities List by the Environmental Protection Agency (EPA) under CERCLA and is slated for clean-up (remediation) related to lead-based paint contamination. It is also listed on the Service's deferred maintenance list, as infrastructure to be removed. Additionally, the tanks are not required to support the operations at Midway Atoll NWR. The tanks have not been used since 2009 when the last tank inspection failed.

Question 7: Are there any plans now or in the next ten years to remove one or both of those 2,000 million gallon fuel tanks? If they are removed, will they be replaced with comparable fuel tanks?

Response: The 2 million gallon fuel tanks on Midway Atoll NWR are no longer necessary to support operations and have been identified under CERCLA to be removed in 2018. These two tanks have already been replaced with new, above ground fuel tanks that meet the operational needs of Midway Atoll NWR.

Question 8: Since 1997, what percentage of time has the refuge been open to the public? Please provide a breakdown on a month by month basis of visitation to the island. This should not include those individuals utilizing a Special Use Permit.

Response: From 1997 through December 2014, 19,800 people visited Midway Atoll NWR. During that time, Midway Atoll NWR has been open to public visitation approximately 88% of that time or for 190 of the total 216 months. It has been closed November 2012 to present.

Visitation by year (month-by-month visitation numbers are noted when available):

1997: 1,539
1998: 2,031
1999: 2,301
2000: 3,900
2001: 2,391
2002: 1,740
2003: 25
2004: 1,780
2005: 610
2006: 250
2007: 1,861
2008: 280
2009: 291
2010: 344
2011: 146 (January 25, February 6, March 31, April 50, May 6, June 28)
2012: 311 (January 54, February 36, March 63, April 43, May 15, June 100)
2013: 0
2014: 0

Question 9: Please explain why it will cost $1.5 million to operate a 6-month visitors program. How did you arrive at that figure? Please provide a complete breakdown of costs.

Response: The Service prepared a draft estimate of the costs for implementing a new visitor services program. Because of Midway's remoteness, we estimate that it would cost the Service $1.2 million/year, plus an additional start-up cost of $65K. We anticipate that some of those funds would be recouped through entrance fees and payment of food and lodging. Even charging visitors between $1,000-1,500 per person, the Service would only be able to offset one-third of the cost of the program.

Question 10: What was the cost to the taxpayers for the visitation program that the Midway Phoenix Corporation operated between 1996 and 2002?

Response: The Service does not have this information because in accordance with the National Archives and Records Administration (NARA) requirements and U.S. Fish and Wildlife Service policy (283 FW 2 Disposition Schedules), documentation related to the Midway Phoenix Corporation was retained for six years and three months after final payment by the Service. After this time the Service was no longer required to retain the documentation. Therefore, we do not have records regarding the costs of the visitation program that the Midway Phoenix Corporation operated between 1996 and 2002.

The Service did provide resources to support the visitation program while operated by Midway Phoenix Corporation.

The visitation program operated by the Midway Phoenix Corporation ended in 2002 when both parties agreed that it was in the best interest of both parties to sign a no cost settlement agreement, terminating the cooperative agreement for support of a public use program and fuel delivery contract at Midway Atoll NWR.

Question 11: Please provide the Committee with a complete list of Special Use Permits that have been issued to individuals and companies who have visited Midway for the past ten years. This list should include the name of the permit holder, the length of the permit, whether it has been renewed and for how long and the purpose for the permit. In other words, why these individuals were permitted to travel to Midway when it was closed to the general public?

Response: Between 2004-2006, the issuance of Service Special Use Permits (SUP) was conducted at Midway Atoll NWR. Permits were issued based on the Service Appropriate Use Findings (pursuant to Service policy 603 FW 1) and Compatibility Determinations (pursuant to the National Wildlife Refuge System Administration Act 16 U.S.C. 668dd-668ee). All SUPs for the period 2004-2006 are listed in the attached spreadsheet.

In 2007, Midway Atoll NWR and later, the Battle of Midway National Memorial, were designated the Papahānaumokuākea Marine National Monument. The Service SUP issuance process was changed at that time and permitting was conducted through Service participation on the Monument Management Board Permits Committee. Following the 2006 SUPs, the attached spreadsheet lists permits issued for activities on Midway Atoll NWR from 2007-2014 as issued by the co-managers of the Papahānaumokuākea Marine National Monument.

Individuals were not permitted to "visit" (i.e. recreational or tourism related visits) Midway Atoll NWR during periods where visitation was closed to the public. During those periods, and as a cost saving measure, only those conducting essential activities in support of the purposes for which the refuge/memorial was created were permitted. This includes employees, contractors, and those continuing previously permitted work at Midway Atoll NWR.

Question 12: If a veteran of the Battle of Midway was to travel to the island in early December 2014 on their own plane or boat would they be permitted to land or enter the harbor? In this hypothetical question, they are interesting in visiting the Memorial and not asking permission because of any emergency.

Response: Due to funding and capacity shortages, Midway Atoll NWR is currently closed to the public. Running a visitor services program at Midway Atoll NWR and Battle of Midway National Memorial is uniquely challenging due to its remote location, the cost to run the program, the difficult travel required to reach the refuge, and the sparse

facilities. Refuge and supporting staff stationed on the atoll, in addition to facilities, are minimal.

Question 13: What other national memorials within a refuge does the Service manage? Do these refuges allow public visitation?

Response: Midway Atoll NWR is the only refuge in the National Wildlife Refuge System (Refuge System) that is also a National Memorial.

Question 14: Please provide to the Committee a list of wildlife refuges that are closed to the public because the Fish and Wildlife Service lacks the financial resources to have a visitation program.

Response: 125 National Wildlife Refuges are unavailable to the public for visitation. Please see attachment for a list of these refuges. These 125 refuges are unavailable for a variety of reasons including that the refuge:

- is geographically inaccessible;
- has shared ownership of the lands with a private party;
- cannot ensure a safe visitation environment;
- is newly established and is in the process of building its visitor program;
- is managed for highly endangered or sensitive species that would be easily disturbed by visitation; and,
- is closed for safety and security reasons.

Many of these refuge units included in the attached spreadsheet do offer opportunities for the public to visit via seasonal tours, special events, special use permits, etc.

Question 15: Do you still have an operations and maintenance service contract with Chugach McKinley? What services do they provide and what is the cost of their work to the taxpayers? Please provide a complete cost breakdown for the past ten years.

Response: More than 1,000 miles from the nearest population center, the remote Midway Atoll NWR and Battle of Midway National Memorial has unique funding challenges. For example, all goods, from food to project supplies, must be transported from the mainland to Hawaii and then out to Midway Atoll NWR. The Base Operating Support System (BOSS) contract with Defense Base Services, Inc. (DBSI), a subsidiary of Chugach McKinley, supports both the operation of Midway Atoll NWR, the Battle of Midway National Memorial, and the emergency airfield. The Service shares costs for running Midway Atoll NWR with the FAA.

The services provided by the DBSI BOSS contract cover everything from utilities such as electricity, water, waste management, and communications services to human welfare, fuel services, and airport support. They also cover the cost of the containers required to ship items to and from Midway Atoll NWR. Month to month these services vary.

Below is a breakdown of the contract costs over the last ten years*.

Contract No.	Vendor	Period of Performance	Total
101813C009	Chugach McKinley Inc.	05/01/2003-09/30/2005	$13,282,617
101815C417	Chugach Industries Inc.	10/01/2005-03/31/2011	$31,208,613
	Funding Sources		
	Service	$20,556,174	
	FAA	$10,587,707	
	USCG	$64,732	
	Total	$31,208,613	
F11PC00083	Defense Base Services Inc.	01/01/2011-09/30/2014**	$17,012,409
	Funding Sources		
	Service	$10,515,876	
	FAA	$6,445,965	
	USCG	$50,569	
	Total	$17,012,409	

*Please note:

- The funding sources for 101813C009 are outside the records retention schedule but are primarily FWS and FAA.
- The scope of the base operations support services (BOSS) contract has changed over time.
- This report contains contract obligations.
- 101815C417 includes FWS FY2009 ARRA funding in the amount of $2,284,000.
- Both FWS and FAA funding includes Midway Receipts funding which is collected fees for services.

**F11PC00083 is the current BOSS contract due to expire 03/31/2016. Note that the contract year does not coincide with the federal fiscal year.

<u>Question 16</u>: According to documents you provided, in FY'14 $3.6 million was spent on the operations on Midway Island. How much did you pay Chugach this year and what is the source of those funds? These seems to be a huge discrepancy between what you claim was spent on operating the refuge and what was paid to this private company. Please clarify.

<u>Response</u>: In FY 2014, the base Service allocated funding for Midway Atoll NWR was $3,692,155. Of this, $2,935,091 was spent on the DBSI BOSS contract, which pays for the routine costs of running the infrastructure of the extremely remote Refuge and Memorial. Examples of current projects supported under this contract include:

- Control of golden crown beard (*Verbesina encelioides*), which is an invasive plant that outcompetes and chokes out native vegetation and severely degrades seabird nesting habitat. The invasive plant also poses a danger to fledgling chicks by causing them to overheat due to limited airflow or become entangled.
- Preventing avian botulism from impacting the endangered Laysan duck. A self-sustaining population at Midway Atoll NWR is one of the important recovery goals of the species and served as a source population for ducks that were translocated and restored to Kure Atoll within their historic range.

- Lead abatement and clean-up project management. Lead-based paint is a significant hazard for both people and seabirds. The Service also received funding from the CERCLA to remove the lead-based paint hazards from the highest priority areas.
- Supporting the emergency runway and emergency landings. In the past few years, Midway Atoll NWR has had several emergency airplane landings, the most recent a United Airlines flight with over 300 people en route to Guam.

Question 17: After examining your expenditures on the Atoll in FY'14, I have a few questions. What kind of contractual services did you receive last year and why did it cost $2.3 million? What did you receive from Hawaii or the U. S. mainland, which costs the taxpayers $197,000?

Response: At Midway Atoll NWR the Service utilizes a variety of contractual services which include a contract with Defense Base Services, Inc. (DBSI). In FY2014, the base, Service allocated funding for Midway Atoll NWR was $3,692,155. Of this, $2,935,091 was spent on the DBSI Base Operating Support System (DBSI BOSS) contract. The DBSI BOSS contract covers everything from utilities such as electricity, water, waste management, and communications services to human welfare to fuel services and airport support. They also cover the cost of the containers required to ship items to and from Midway.

The $197,000 referenced in the question appears to relate to the $197,129 FY2014 Base Funding expenditure for the transportation of items to and from Midway Atoll NWR. This number does not fully capture the costs associated with transportation of items and below is a breakdown of the major infrastructure contracts at Midway Atoll NWR for more information:

FY2014 major infrastructure contracts, all funding sources:

Vendor	Contract No.	Purpose	Amount
DBSI*	F11PC00083	BOSS Contract	$4,760,273
Office of the Secretary	125204A001	flights	$1,271,580
Honolulu Marine	F09PX76901,F14PD01733	ocean cargo transport - March & Sept 2014	$456,873
E&E Enterprises	F10PX80522	satellite communications	$158,277
Defense Logistics Agency	F13PG00090	JP-5 aviation fuel	$200,503

These are estimated amounts, not all the billing has been received.

*In FY2014, $4,760,273 was obligated to the BOSS contract F11PC00083, of which $2,935,091 was Service allocated funding.

Question 18: Do you have a maintenance backlog on the island? Please provide a complete breakdown of the maintenance backlog.

Response: The current reported deferred maintenance is $115 million. That is from 245 assets at Midway Atoll NWR with a total current replacement value of nearly $1.5 billion.

Question 19: Is the Service currently maintaining the Bachelor Officer Quarters, Bachelor Enlisted Quarters, the main fuel farm and the station theater?

Response: The Service is providing maintenance and minor repairs of the following buildings/properties in question through a BOSS contractor.

1. Asset ID# 4204 (Bachelor Officers Quarters also known as "Charlie Barracks")
2. Asset ID#s 311, 312, 313 and 314 (Fuel Tank, Storage Tank, Line Oil Storage Tank, MoGas Storage Tank). These assets comprise the actively used 450K-gallon capacity fuel storage/operations farm owned by the Service. No other "fuel farms" are in service or being maintained by the Service. Asset ID#s D1, D2 and S32 (and associated infrastructure) comprise fuel storage tanks and pump station no longer in service which the Service does not maintain.

The Service is not providing maintenance or minor repairs for the following buildings/properties in question.

1. Asset ID#s 2076, 2077, and 2099 (Bachelor Enlisted Quarters "Charlie" and "Delta" and Bachelor Officers Quarters "Bravo" respectively)
2. Asset ID# 295A (Station Theater). However, the Service has engaged in efforts to preserve the murals that adorned the theater walls by working with the Pacific Aviation Museum in Honolulu, Hawaii (http://usfwspacific.tumblr.com/post/55039880702/stemming-the-tide-of-time-and-saving-murals-at).

Question 20: Isn't it true that these buildings have been marked as "Abandoned" and that you have plans to demolish them?

Response: The buildings/properties from Question #19 being maintained are not marked as "abandoned." The Bachelor Enlisted Quarters and the Station Theater are not marked "abandoned" although they are not being maintained and access to them is restricted. Assets 4204, 311, 312, 313 and 314 are in use and there are no plans to demolish them.

Assets D1, D2 and S32 (and associated infrastructure) are marked "abandoned" and the Service has identified them for potential demolition. The above ground storage tanks (Assets D1 and D2) are scheduled to be removed as part of the Decision Unit 8 actions scheduled for 2016 funded by DOI Central Hazmat Fund to implement CERCLA removal actions related to lead-based paint contamination.

Assets 2076, 2077 and 2099 (Bachelor Enlisted Quarters "Charlie" and "Delta" and Bachelor Officers Quarters "Bravo" respectively) are not marked "abandoned" and the Service has identified them for potential demolition. There are no specific plans associated with proposed demolition of assets 2076, 2077 or 2099 nor is there sufficient Service funding authorized or appropriated to conduct the same.

Asset 295A (Station Theater) is not marked as "abandoned" and the Service has not identified it for potential demolition.

Question 21: At the oversight hearing, the witness for the Fish and Wildlife Service testified that lead-based paint was a huge problem on the island. If you regularly painted and properly maintained the historic structures, wouldn't this eliminate much of the problem that birds are experiencing by ingesting lead-based paint particles?

Response: The 2010 Midway Atoll NWR Historic Preservation Plan identifies 60 historic properties on the atoll with 32 of those being "buildings" and none of those buildings having any additional regulatory protection other than the Service's statutory responsibilities for site protection and management provided by the Archaeological Resources Protection Act (16 U.S.C. 470aa-11), the Archaeological and Historic Preservation Act (16 U.S.C. 469), and NHPA (16 U.S.C. 470).

Six properties are currently protected under the National Historic Landmarks Program and more are eligible. The majority of buildings on Midway Atoll NWR were constructed and finished prior to the transfer of the administration of the atoll from the U.S. Navy to the Service. Much of the construction of the time and on the atoll included the use of hazardous materials such as lead-based paint. As a result, the structures contain lead-based paint, and over time the lead contaminated not only the structures but also the soil surrounding the affected structures.

Since the Service has administered Midway Atoll NWR, buildings have and continue to be painted as part of maintenance and minor repair. Until the last decade, the extent of the lead contamination and the effect on wildlife on Midway Atoll NWR was not fully understood. General and routine painting of buildings can help to prevent paint peeling/flaking and subsequent entry into the environment; however we now know it is necessary to use special encapsulation paints on surfaces prior to standard paint treatment as well as special chemicals in the soil to make the lead biologically unavailable to living organisms. Routine painting will help but not fully prevent the lead contamination so general maintenance is not adequate to resolve the issue.

Question 22: In March 2002, a spokesman for the Service was quoted in the *Washington Times* that, "the agency is looking for another private company to resume the operations of the island." It is now 12 years later, is the Service still looking? Why has a new Cooperative Agreement not been implemented during this time?

Response: Though the Service has not entered into a new cooperative agreement, the Service has operated its visitor services program in cooperation with several non-governmental organizations and private entities since the Midway Phoenix Corporation agreed to leave Midway Atoll NWR.

Running a cooperative visitor program could be associated with significant costs, critical wildlife protections, and health and safety issues. As required in the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, appropriateness and compatibility determinations that align with the refuge purposes must also be considered and evaluated in conjunction with the refuge system mission and the Service mission at large before restarting any visitor program at Midway Atoll NWR.

Question 23: During the past 12 years has the Service been approached by any private companies interested in operating a visitors program on the island? If such a company came forward would the Service be willing to discuss such a proposal?

Response: Yes, the Service has been approached by private companies interested in providing services for a visitors program at Midway Atoll NWR. The Service has worked cooperatively with non-governmental and private companies to provide services related to visitation. The Service would welcome discussions of a new cooperative agreement to run the visitor program on the Midway Atoll NWR that met the management goals of the Refuge and the Memorial.

Question 24: On July 12, 2014, a United Airlines Flight from Honolulu to Guam with 335 passengers and 13 crew members were forced to make an emergency landing on Sand Island. What would have happened if the Midway runway had not been available?

Response: When a United Airlines flight made an emergency landing at Midway Atoll NWR on July 12, 2014, Service staff provided management capacity, food, and other items to care for the presence of the hundreds of passengers and crew and also provided fuel and mechanical support for the plane. If there was no runway at Midway Atoll NWR, the United Airlines plane would have been unable to land at Midway.

Question 25: Did United Airlines provide any financial compensation to the Fish and Wildlife Service for its emergency landing? If yes, how much was paid?

Response: United Airlines reimbursed the Service, through our DBSI Boss contract, for the approximately $86,000 in extra costs incurred by the emergency landing and the required support activities not anticipated for in the Service's budget.

Question 26: Are you familiar with Executive Order 11593 dealing with the Protection and Enhancement of the Cultural Environment? A key component of that Executive Order is for the federal government to, "initiate measures necessary to direct these policies, plans and programs in such a way to preserve, restore, and

maintain for the inspection and benefit of the people." As I am sure you know this language was included in the Executive Order establishing the Midway Atoll NWR. Would you consider neglect and lack of care an effective strategy to preserve historic structures?

Response: The Service has worked collaboratively with a host of partners to protect and maintain the historical significance of Midway Atoll since 1996 when the management of the atoll was transferred from the Navy to the Service. Specifically, the Service maintains memorials, conducts outreach efforts and arranges commemorative ceremonies to honor the Battle of Midway both on and off the atoll. The Service maintains a visitor center highlighting the history of Midway, the importance of the Battle of Midway, and the significant wildlife resources of the atoll. The Service is continually seeking ways to recognize and maintain the historical significance of Midway Atoll NWR, including looking at new ways to bring Midway Atoll NWR to Americans who, even with an active restored visitor's services program, may not be able to afford to visit the remote atoll. This includes finding partnership opportunities with museums in large cities and investigating online visitor's services so that any American anywhere has the opportunity to visit Midway Atoll NWR.

Question 27: In April of this year, the Department's Principal Deputy Assistant Secretary for Fish and Wildlife and Parks promised Congressman Duncan that it would provide him with a copy of a summary report on the preservation of World War II structure. Has that report been provided? Please provide a copy to the Committee.

Response: The Service is preparing a letter to IMMF that will provide a summary report on the World War II era building removal activities at Midway Atoll NWR. The Service anticipates having the letter and summary report prepared in early 2015 and will concurrently send a copy of the letter and summary report to Congressman Duncan.

Question 28: During the past 20 years has the Fish and Wildlife Service ever conducted a financial audit of the management of the Midway Atoll National Wildlife Refuge? If not, why not?

Response: The National Wildlife Refuge System administers more than 560 refuges, 38 wetland management districts and other protected areas encompassing 150 million acres of land and water from the Caribbean to the remote Pacific. As such, the Service uses a random sample of all stations for an annual audit conducted by KPMG LLP (KPMG). Midway Atoll NWR has not been one of those randomly sampled stations since 1996, when the Service assumed administration of the site.

Question 29: Since the Fish and Wildlife Service obtain title to the refuge has the Service ever considered closing the airport runways to large commercial jets that utilize the facilities for emergency landings?

Response: Henderson Field on Midway Atoll NWR is also a FAA designated Extended Twin-engine Operations Site providing an emergency landing site cooperatively operated by the Service and FAA for nearly 35,000 jet aircraft transiting the Pacific Ocean. The Service has an agreement in place with the FAA to keep the runway open for emergency landings and has not considered closing it.

Midway Atoll National Wildlife Refuge / Battle of Midway National Memorial Special Use Permits 2004 through 2014

Year	Permit #	Permitee	Duration
2004	04002	Missle Defense Agency	24April-04May, 2004
2004	04003	Bishop Museum	01Aug-01Oct, 2004
2004	4004	University of Miami	17 May, 2004-17May, 2005
2004	04004B	NASA Aeronet	17 May, 2004-17May, 2005
2004	04005	National Marine Fisheries Service	17 May, 2004-17May, 2005
2004	04006	Bishop Museum	17Apr-17May, 2004
2004	04007	National Geographic	01May, 2004-01May, 2005
2004	04008	Deering	25May, 2004-25May, 2005
2004	04009	MIT and US Army	22Apr-04May, 2004
2004	04012	Univ of Santa Cruz	01Jun-01Dec, 2004
2004	04033	Friends of Midway Atoll NWR	01Aug-30Dec, 2004
2004	04011	US Fish and Wildlife Service	26Oct-31Dec, 2004
2004	04042	NOAA R/V Hi'ialakai	24Sep-10Oct, 2004

Renewed	Purpose	Fee
No	Receive telemetry data from an aircraft flying off Midway	5,000.00
No	Transport biological specimens via air from Midwa Atoll to Honolulu	0.00
No	Study impact of Asian sources of atmospheric aerosol particles at Midway Atoll	5,000.00
No	Same as 04004 - Sun Photometer equipment	0.00
Yes - 31Dec, 2005	Conduct Hawaiian monk seal research and collect shallow water prey species	5,000.00
No	collect, transport and identify a sponge collected at Midway Atoll	0.00
No	Photograph flora, fauna, and habitat at Midway for various uses	768.00
No	sailboat moorage	0.00
No	Test HAM radio equipment at Midway Atoll	0.00
No	Collect albatross boluses for education purposes	0.00
Yes - to present	sell merchandise to visitors in support of Refuge activities	0.00
No	transport 2, 25ml glass vials containing invertebrate larvae (midge species) for ID	0.00
Yes - 30Oct, 2005	collect fishes and other biological samples for science/educational purposes	5,000.00

2005 05001	Stanford Univ.	01Oct, 2004-30Sep, 2005
2005 05002	Univ of Texas Austin	01Sep, 2004-30Sep, 2005
2005 05003	Department of the Navy	05Jan-05Apr, 2005
2005 05006	National Marine Fisheries Service	01Jun-30Sep, 2005
2005 05007	National Marine Fisheries Service	01May-31Dec, 2005
2005 05005	NOAA R/V Hi'ialakai	28May-30Oct, 2005
2005 05004	Phoenix Air	01Jan-31Dec, 2005
2006 06001	Commanding Officer, R/V Hi'ialakai	01Apr, 2006-01Apr, 2007
2006 06003	Waimea Valley Audubon Center	04Apr-30Apr, 2006
2006 06002	Stanford Univ.	30Sep, 2005-31Dec, 2006
2006 06004	National Marine Fisheries Service	01Jan-01Dec, 2006
2006 06005	National Marine Fisheries Service	01Jan-31Dec, 2006
2006 06006	National Marine Fisheries Service	23May-31Dec, 2006

Yes - 31Dec, 2006	Collect VLF measurements of transmitter-induced electron precipitation	5,000.00	
No	Conduct corticosterone studies on Laysan and Black-footed albatrosses	5,000.00	
No	transfer possession of the TACON navigational aid from FWS to Navy for removal	5,000.00	
No	removal of marine debris from shoreline and reef	0.00	
Yes - 01Dec, 2006	Conduct Hawaiian monk seal research and collect specimens	33,000.00	
yes - 01Apr, 2007	collect fishes and other biological samples for science/educational purposes	5,000.00	
No	conduct flight operations	0.00	
No	small boat operations in support of scientific research	5,000.00	
No	Allow possession of *Solanum nelsonii* seeds collected at Midway Atoll	0.00	
No	Collect VLF measurements of transmitter-induced electron precipitation	0.00	
No	Conduct Hawaiian monk seal research and collect specimens	31,632.00	
No	Initiate and operate the "Captive Care" project for immature Hawaiian monk seals	27,000.00	
No	capture twin monk seals weaned on Spit Island for rehab and future release	0.00	

2006	06007	Univ of Santa Cruz	28Jun-28Jul, 2006
2006	06009	BBC	13Jul-27Jul, 2006
2006	06011	NOAA R/V Hi'ialakai	01Sep-01Oct, 2006
2006	MOA	DoD Space Missle Defense Command	21Aug, 2006-present

NOTE: The Papahanaumokuakea Marine National Monument was designated in June 2006. Midway Atoll National Wildlife Re

YEAR	Permit #	AFFILIATION	DATES
2007	2007-007	Private Citizen	1/4/2007, 1/25/2007
2007	2007-012	Traveler's Century Club	4/2/2007, 4/4/2007
2007	2007-019	Military Historical Tours	6/4/2007, 6/4/2007
2007	2007-020	Princess Cruise Lines	6/4/2007, 6/4/2007
2007	2007-045	For the Sea Productions	7/7/2007, 10/16/2007

Yes - to present	Attach sattelite transmitters to albatrosses to determine movement patterns	0.00	
No	Photograph, record and observe wildlife & habitat on Midway for a BBC documentary	1,000.00	
No	collect fishes and other biological samples for science/educational purposes	0.00	
Yes - to present	Radioneucleotide and Infrasound monitoring	225,000.00	

efuge Special Use Permits were issued through the Monument Management Board's permit process from 2007 onward.

RENEWED	PERMIT TITLE	PERMIT CATEGORY	
No	Collection of feather samples from Laysan Albatross in conjunction with on-going USFWS albatross monitoring studies at the Midway Atoll Special Management Area	Research	
No	Recreational activities in the Midway Atoll National Wildlife Refuge, PMNM	Recreaction	
No	Military Historical Tours chartered flights to honor the 65th Anniversary of the Battle of Midway.	Special Ocean Use	
No	Regal Princess cruise to Midway Atoll to honor the 65th Anniversary of the Battle of Midway.	Special Ocean Use	
No	Collection of still and video images for the purpose of enhancing education and outreach efforts for the Papahānaumokuākea Marine National Monument, and to conduct commercial photography activities.	Special Ocean Use	

2008	2008-003	USFWS, MASMA, MANWR	1/5/2008, 12/31/2008
2008	2008-010	Oceanic Society	2/9/2008, 12/6/2009
2008	2008-021	Duke University	1/8/2008, 2/10/2008
2008	2008-026	None	6/19/2008, 7/31/2008
2008	2008-032	International Midway Memorial Foundation	6/1/2008, 6/15/2008
2008	2008-033	Conservation International	6/14/2008, 6/21/2008
2008	2008-050	National Geographic	6/4/2008, 6/28/2008
2008	2008-061	University of Hawaii at Hilo, Marine Science Dept	11/4/2008, 11/11/2008

No	Administering the Visitor Services Program at Midway Atoll Special Management Area in accordance with the Interim Visitor Services Plan for the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the PMNM (IVSP)	Recreation
No	Recreational activities in the Midway Atoll Special Management Area (MASMA) PMNM	Special Ocean Use
No	Conservation ecology course field studies on Midway Atoll, PMNM	Education
No	Recreational activities within the Midway SMA (involving vessel and SCUBA diving)	Recreation
No	Military historical tour and memorial on Midway Atoll and Eastern Island	Special Ocean Use
Yes	Participation in wildlife observation, photography, historical tours and other recreational activities on Midway Atoll	Special Ocean Use
Yes	Filming for Wild Spaces National Geographic Series	Special Ocean Use
No	Comparision of ecological frameworks between Midway Atoll and Hawaii Island in alignment with Native Hawaiian worldview of kinship and connectivity between man and environment	Education

2009	2009-006	Conservation International	1/1/2009, 12/31/2009
2009	2009-007	Photo Safaris	2/1/2009, 12/31/2009
2009	2009-011	Current TV	3/1/2009, 12/31/2009
2009	2009-012	Oceanic Society	1/1/2009, 12/31/2009
2009	2009-013	U.S. Fish and Wildlife Service	1/1/2009, 12/31/2009
2009	2009-014	Military Historical Tours	6/1/2009, 12/31/2009
2009	2009-033	NOAA/NOS/ONMS/PMNM	6/12/2009, 12/31/2009
2009	2009-048	Chukyo T.V. Broadcasting Co.	6/1/2009, 6/31/2009
2009	2009-051	Telluride Instiute / Reel Thing Productions	6/26/2009, 12/31/2009
2009	2009-060	Chris Jordan Photography	9/11/2009, 12/1/2009

Yes	Participation in wildlife observation, photography, historical tours and other recreational activities on Midway Atoll	Special Ocean Use	
No	Photo documentary activities on wildlife, cultural, and historic features of Midway	Special Ocean Use	
Yes	Production of a short film on Midway about the effects of marine debris on marine life and ecosystems	Special Ocean Use	
Yes	Educational and volunteer activities on Midway Atoll	Special Ocean Use	
Yes	Administering the Visitor Services Program at MASMA in accordance with the Visitor Services Plan for the Midway Atoll NWR, the Battle of Midway National Memorial, and the PMNM (IVSP)	Recreation	
Yes	Commemoration Activities for the 67th Anniversary of the Battle of Midway	Special Ocean Use	
No	Papahanaumokuakea Ahahui Alakai (PAA) Program at Midway Atoll	Education	
No	Filming and photography activities of the PLASTIKI sailing vessel on Midway Atoll	Special Ocean Use	
No	Filming activities on Midway to support a documentary on plastic debris impacts on the environment	Special Ocean Use	
No	Establishing a collection of multimedia art about marine plastic pollution on Midawy Atoll	Special Ocean Use	

2009	2009-061	Amateur Radio Operator	10/7/2009, 10/22/2009
2010	2010-002	WINGS	3/15/2010, 3/15/2010
2010	2010-004	University of Hawaii at Hilo, Marine Science Dept	3/1/2010, 6/1/2010
2010	2010-005	Joseph Van Os Photo Safaris	2/25/2010, 12/30/2014
2010	2010-008	DUMA Naturreisen	5/1/2010, 6/15/2010
2010	2010-010	Oceanic Society	3/15/2010, 12/31/2010
2010	2010-011	Duke University	1/15/2010, 1/30/2014
2010	2010-013	Oceanic Wildlife Society	Extended to 6/30/2011
2010	2010-044	Chris Jordan Photography	7/1/2010, 6/30/2010
2010	2010-045	Galapagos Travel	1/1/2011, 12/31/2011
2011	2011-002	DUMA Naturreisen	1/1/2011, 12/31/2011
2011	2011-003	Private Citizen	3/10/2011, 4/30/2011
2011	2011-004	University of Hawaii at Hilo, Ola Na Iwi Hawaiian Language Program	6/1/2011, 7/31/2011

No	Filming ham radio activities on Midway Atoll	Special Ocean Use	
No	Tour group activities to Midway Atoll for Bird Watching and Natural History Observation	Special Ocean Use	
Yes	Comparision of ecological frameworks between Midway Atoll and Hawaii Island in alignment with Native Hawaiian worldview of kinship and connectivity between man and environment	Education	
Yes	Photo documentary activities on wildlife, cultural, and historic features of Midway	Special Ocean Use	
No	Guided eco-tourism activities on Midway Atoll	Special Ocean Use	
No	Educational and volunteer activities on Midway Atoll	Special Ocean Use	
No	Marine Conservation Biology field studies course on Midway Atoll	Education	
No	Guided eco-tourism activities on Midway Atoll	Special Ocean Use	
Yes	Multiledia art focusing on the effects of plastic on the albatross population at Midway Atoll	Special Ocean Use	
No	Galapagos Travel natural history and wildlife tour to Midway Atoll	Special Ocean Use	
No	Guided eco-tourism activities on Midway Atoll	Special Ocean Use	
No	Literary Publication on Midway Tour Activities	Special Ocean Use	
No	Hawaiian Language Immersion Progra	Native Hawaiian Practices	

2011	2011-005	Freelance Writer	2/1/2011, 4/30/2011
2011	2011-038	Red Sea Ocean Adventure	6/25/2011, 9/30/2011
2011	2011-045	Film und Medien Stifung NRW and West German TelevisionCologne	10/20/2011, 11/30/2011
2012	2012-002	Freelance Photographer	5/10/2012, 7/31/2013
2012	2012-011	Wyland Foundation	1/1/2012, 1/30/2012
2012	2012-014	Future Planet Films Ltd.	5/1/2012, 12/31/2012
2012	2012-017	NWReflections LLC	4/5/2012, 7/31/2012
2012	2012-023	Glacialis Productions	4/25/2012, 5/31/2012
2012	2012-027	Parthenon Entertainment Ltd.	6/18/2012, 7/31/2012
2012	2012-042	NOAA-NOS/ONMS/PMNM	6/5/2012, 7/31/2012
2012	2012-043	Friends of Midway Atoll	3/1/2013, 12/31/2017
2012	2012-003	Oahu Nature Tours	6/30/2012, 6/30/2012
2012	2012-005	Galapagos Travel	2/1/2012, 12/31/2016
2012	2012-006	Pacific Rim Conservation and Pacific Seabird Group	2/10/2012, 3/1/2012
2012	2012-007	Wildlife and Nature Travel	2/15/2012, 6/30/2016
2012	2012-021	Private Citizen	5/1/2012, 12/31/2013

No	Literary Publication on Resource Restc	Special Ocean Use	
No	Filming for "Hawaii Skin Diver" Television Program	Special Ocean Use	
No	Production of a script for a German cinema documentary	Special Ocean Use	
No	Literary production on Midway Atoll's Albatross	Special Ocean Use	
No	Promoting Public Awareness of PMNM	Special Ocean Use	
No	Filming of "Plastic Oceans" Documentary on Midway Atoll	Special Ocean Use	
No	Filming and Photography at Midway Atoll NWR	Special Ocean Use	
No	Filming Activitives at Midway Atoll for "1000 Days for the Planet" Documentary	Special Ocean Use	
No	HD Filming for Wildlife Television Documentary	Special Ocean Use	
No	Google Earth Project at Midway Atoll	Special Ocean Use	
Yes - to present	Friend of Midway Atoll Sale of Monument Items	Special Ocean Use	
No	Oahu Nature Tours on Midway Atoll	Special Ocean Use	
Yes	Galapagos Travel Natural History and Wildlife Tours to Midway Atoll	Special Ocean Use	
No	Pacific Seabird Group visit to Midway Atoll	Special Ocean Use	
No	Wildlife and Nature Travel to Midway Atoll	Special Ocean Use	
Yes - to present	Comprehensive Test Ban Treaty, Infrasound Station Installation and Monitoring at Midway Atoll	Research (Permit transferred to DOI-FWS right of way permit)	

2012	2012-022	Private Citizen	6/1/2012, 6/1/2017
2012	2012-054	Private Citizen	3/1/2013, 12/31/2013
2013	None		
2014	None		

Yes - to present	Maintenance and Operations of a Radionuclide Aerosol Sampler/ Analyzer (RASA) on Miday Atoll	Research	
No	Seabird Plastic Ingestion Study on Midway Atoll	Research	

Region	Location	State	Total Acres in Unit
1	Rose Atoll NWR	American Samoa	1,613.00
1	Hawaiian Islands NWR	Hawaii	254,418.10
1	Huleia NWR	Hawaii	241.11
1	Kakahaia NWR	Hawaii	44.61
1	Oahu Forest NWR	Hawaii	4,569.56
1	Three Arch Rocks NWR	Oregon	15.00
1	Baker Island NWR	U.S. Minor Outlying Islands	413,415.89
1	Howland Island NWR	U.S. Minor Outlying Islands	422,361.00
1	Jarvis Island NWR	U.S. Minor Outlying Islands	434,697.17
1	Johnston Atoll NWR	U.S. Minor Outlying Islands	566,700.00
1	Kingman Reef NWR	U.S. Minor Outlying Islands	487,016.00
1	Mariana Arc Of Fire NWR	U.S. Minor Outlying Islands	54,232.00
1	Mariana Trench NWR	U.S. Minor Outlying Islands	50,532,102.00
1	Midway Atoll NWR	U.S. Minor Outlying Islands	580,740.00
1	Wake Atoll NWR	U.S. Minor Outlying Islands	497,750.00
1	Copalis NWR	Washington	60.80
1	Flattery Rocks NWR	Washington	125.00
1	Franz Lake NWR	Washington	551.73
1	Pierce NWR	Washington	329.38
1	Protection Island NWR	Washington	659.31
1	Quillayute Needles NWR	Washington	300.20
2	Rio Mora NWR	New Mexico	4,223.90
2	San Andres NWR	New Mexico	57,215.48
2	Ozark Plateau NWR	Oklahoma	3,872.75
2	Little Sandy NWR	Texas	3,802.00
2	Moody NWR	Texas	3,516.87
2	Neches River NWR	Texas	3,729.06
3	Hackmatack NWR	Illinois	13.55
3	Detroit River InterNWR	Michigan	~6000
3	Michigan Islands NWR	Michigan	744.39
3	Mille Lacs NWR	Minnesota	0.60
3	Ozark Cavefish NWR	Missouri	41.80

3	Pilot Knob NWR	Missouri	90.00
3	West Sister Island NWR	Ohio	80.13
3	Gravel Island NWR	Wisconsin	27.00
3	Green Bay NWR	Wisconsin	330.70
4	Logan Cave NWR	Arkansas	123.59
4	Caloosahatchee NWR	Florida	40.00
4	Crocodile Lake NWR	Florida	6,708.06
4	Everglades Headwaters NWR And Conservation Area	Florida	10.00
4	Island Bay NWR	Florida	20.24
4	Lake Wales Ridge NWR	Florida	1,860.69
4	Matlacha Pass NWR	Florida	564.73
4	Passage Key NWR	Florida	63.87
4	Pine Island NWR	Florida	608.48
4	St. Johns NWR	Florida	6,257.45
4	Wolf Island NWR	Georgia	5,125.82
4	Handy Brake NWR	Louisiana	465.70
4	Shell Keys NWR	Louisiana	8.00
4	Theodore Roosevelt NWR	Mississippi	6,696.82
4	Desecheo NWR	Puerto Rico	360.00
4	Tybee NWR	South Carolina	100.00
4	Navassa Island NWR	U.S. Minor Outlying Islands	364,950.00
4	Green Cay NWR	Virgin Islands	13.77
5	Seal Island NWR	Maine	65.00
5	Martin NWR	Maryland	4,569.05
5	Susquehanna NWR	Maryland	3.79
5	Mashpee NWR	Massachusetts	341.65
5	Massasoit NWR	Massachusetts	208.51
5	Nomans Land Island NWR	Massachusetts	628.00
5	Conscience Point NWR	New York	60.40
5	Seatuck NWR	New York	209.23
5	Fisherman Island NWR	Virginia	1,896.30
5	Nansemond NWR	Virginia	422.99

6	Baca NWR	Colorado	85,941.02
6	Rocky Flats NWR	Colorado	4,481.01
6	Sangre de Cristo Conservation Area	Colorado	167,200.00
6	Flint Hills Legacy Conservation Area	Kansas	2,449.74
6	Lake Thibadeau NWR	Montana	3,868.48
6	Lamesteer NWR	Montana	800.00
6	Rocky Mountain Front Conservation Area	Montana	63,365.01
6	Swan Valley Conservation Area	Montana	80.00
6	John W. And Louise Seier NWR	Nebraska	2,400.00
6	Appert Lake NWR	North Dakota	907.75
6	Ardoch NWR	North Dakota	2,696.13
6	Bone Hill NWR	North Dakota	640.00
6	Brumba NWR	North Dakota	1,977.48
6	Canfield Lake NWR	North Dakota	313.23
6	Dakota Grassland Conservation Area	North Dakota	13,700.43
6	Dakota Lake NWR	North Dakota	2,799.78
6	Half-Way Lake NWR	North Dakota	160.00
6	Hutchinson Lake NWR	North Dakota	478.90
6	Johnson Lake NWR	North Dakota	2,007.91
6	Lake George NWR	North Dakota	3,118.81
6	Lake Otis NWR	North Dakota	320.00
6	Lake Patricia NWR	North Dakota	800.23
6	Lambs Lake NWR	North Dakota	1,206.67
6	Little Goose NWR	North Dakota	288.41
6	Lords Lake NWR	North Dakota	1,915.29
6	Lost Lake NWR	North Dakota	960.21
6	Maple River NWR	North Dakota	712.00
6	Pleasant Lake NWR	North Dakota	897.80
6	Pretty Rock NWR	North Dakota	800.00
6	Rabb Lake NWR	North Dakota	260.80

6	Rock Lake NWR	North Dakota	5,665.96
6	Rose Lake NWR	North Dakota	836.30
6	School Section Lake NWR	North Dakota	297.30
6	Shell Lake NWR	North Dakota	1,835.10
6	Silver Lake NWR	North Dakota	3,347.64
6	Snyder Lake NWR	North Dakota	1,550.18
6	Springwater NWR	North Dakota	640.00
6	Stoney Slough NWR	North Dakota	880.00
6	Storm Lake NWR	North Dakota	685.90
6	Stump Lake NWR	North Dakota	27.39
6	Sunburst Lake NWR	North Dakota	327.51
6	Tomahawk NWR	North Dakota	440.00
6	White Lake NWR	North Dakota	1,040.00
6	Wild Rice Lake NWR	North Dakota	778.80
6	Willow Lake NWR	North Dakota	2,620.38
6	Wintering River NWR	North Dakota	239.26
6	Wood Lake NWR	North Dakota	280.00
6	Karl E. Mundt NWR	South Dakota	1,063.21
6	Bamforth NWR	Wyoming	1,166.03
6	Mortenson Lake NWR	Wyoming	1,927.34
8	Antioch Dunes NWR	California	55.38
8	Bitter Creek NWR	California	14,093.82
8	Blue Ridge NWR	California	897.08
8	Castle Rock NWR	California	13.89
8	Ellicott Slough NWR	California	199.55
8	Farallon NWR	California	211.00
8	Hopper Mountain NWR	California	2,471.00
8	Marin Islands NWR	California	131.29
8	Seal Beach NWR	California	910.71
8	Anaho Island NWR	Nevada	247.73
8	Bear Valley NWR	Oregon	4,200.26