

Papahānaumokuākea Marine National Monument
RESEARCH Permit Application

NOTE: *This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).*

ADDITIONAL IMPORTANT INFORMATION:

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.
- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.
- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED

Send Permit Applications to:
NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818
nwhipermit@noaa.gov
PHONE: (808) 725-5800 FAX: (808) 455-3093

SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.

Papahānaumokuākea Marine National Monument Permit Application Cover Sheet

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

Summary Information

Applicant Name: Anke Kuegler

Affiliation: Marine Biology Graduate Program, University of Hawaii at Manoa

Permit Category: Research

Proposed Activity Dates: July-September 2017 and July-September 2018

Proposed Method of Entry (Vessel/Plane): Vessel

Proposed Locations: pending on where the cruise goes and instrument availability, we plan to deploy between 2-4 instruments in 2-4 of the following locations:

Kure (Mokupāpapa):	28.42°N	178.33°W
Midway (Pihemanu):	28.20°N	177.35°W
Pearl/Hermes (Holoikauaua):	27.93°N	175.74°W
Lisianski (Papaāpoho):	26.06°N	173.97°W
Laysan (Kauō):	25.77°N	171.73°W
Maro Reef (Nalukākala):	25.42°N	170.59°W
Gardner Pinnacles (Pūhāhonu):	25.02°N	167.98°W
French Frigate Shoals (Kānemiloha'i):	23.75°N	166.15°W
Necker (Mokumanamana):	23.57°N	164.70°W
Nihoa (Moku Manu):	23.06°N	161.92°W

Estimated number of individuals (including Applicant) to be covered under this permit: 4

Estimated number of days in the Monument: 365

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

Involve deploying and retrieving two to four deep water Ecological Acoustic Recorders (EARs) to depths ranging from 100 m to 500 m that will be used to record humpback whale song. The items used with each EAR will be a syntactic foam collar on the EAR, an acoustic release, a garage post concrete block and two to three sandbags. Deployments will last for about one year at each site.

b.) To accomplish this activity we would

We will first survey candidate locations with the ship's echosounder for relatively flat, sandy sites. We will then use the ship's J-frame or A-frame to lift the mooring anchor (cement block and sandbag), the acoustic release and deep EAR package along with flotation foam over the side of the ship and then release the entire package and let it drop to the bottom.

c.) This activity would help the Monument by ...

Helping to understand humpback whale population-specific habitat use and explore the population status of humpback whales wintering within the Monument. We aim to collect data to compare humpback whale song occurring within the Monument to song from other breeding grounds such as the Main Hawaiian Islands. This way, we aim to establish whether whales wintering within the Monument are part of a discrete stock with the Monument being a distinct breeding ground. We aim to establish a non-invasive tool to study humpback whale habitat use and behaviors in the North Pacific

It is intended that this information will be used in aiding management decisions regarding protection of valuable marine resources such as the Monument.

Other information or background:

Successful conservation of a species relies on understanding how that species interacts with its environment. Humpback whales have been seriously depleted through whaling, and while most populations recovered and are increasing, some populations remain small and are classified as 'endangered'. Breeding assemblages (stocks) in the North Pacific are estimated to consist of up to 10,000 whales, but can be as small as only a few hundred animals in other ocean basins. With the ongoing gas and oil development in the Arctic in addition to ocean noise, entanglement, and ship strike risks, it is important to identify distinct breeding stocks within populations, especially if they are small, as well as their critical habitats to assess potential anthropogenic impacts and necessary management actions.

At a given breeding ground, all humpback whale males sing the same complex songs. These songs have a hierarchical and repeating series of units, phrases and themes. Songs differ between ocean basins, but there is debate about whether songs are similar between breeding assemblages within one ocean basin or different. In the North Pacific, humpback whales spend the summers in arctic regions such as Alaska and the Bering Sea and migrate to their tropical breeding grounds including Hawaii, Mexico, southern Japan and the Philippines. However, an extensive population study (SPLASH) has revealed that many of the whales feeding in the Aleutian Islands and the Bering Sea are not observed in known breeding areas in the North Pacific. The Northwestern Hawaiian Islands (NWHI), 1,800 km northwest of the main Hawaiian Islands (MHI), have been proposed as a previously undocumented wintering area and recent preliminary findings

suggest that this wintering area may be distinct from the MHI breeding ground. If songs from different breeding groups are sufficiently different from one another, we can use acoustic comparisons to identify whether whales in the NWHI and MHI are part of the same breeding group.

Passive acoustic monitoring allows us to autonomously collect acoustic data over long timeframes. We will use this method to collect song recordings from different major breeding locations including the NWHI during one breeding season to analyze and compare their structures within and among breeding assemblages. Our study aims to improve the knowledge of variation in humpback whale song at the winter breeding grounds, provide a non-invasive tool to study population-specific humpback whale habitat use and behavior in the Monument, and further explore the population status of humpback whales in the NWHI.

EARs have been used to acoustically monitor Monument waters since 2006. Over the past several years, acoustic analyses have focused on documenting marine mammal occurrence and natural ambient sounds in order to establish baselines of activity for long-term comparisons. Considerable attention has been focused on the sounds produced by snapping shrimp, which are the most ubiquitous source of sound on coral reefs. Data collected in the Monument have so far yielded a wealth of information regarding temporal patterns of activity over periods of days, weeks and seasons.

Finally, deep water EAR deployments made in the past have been successful at recording vessel traffic at several sites. Both shipping and non-shipping traffic has been found in many recordings.

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Kuegler, Anke

Title: PhD student, Marine Biology Graduate Program

1a. Intended field Principal Investigator (See instructions for more information):

TBD

2. Mailing address (street/P.O. box, city, state, country, zip):

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3. Affiliation (institution/agency/organization directly related to the proposed project):

Marine Biology Graduate Program

4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Research Diver; Jane Doe, Field Technician):

Marc Lammers

Carl Meyer

TBD

Section B: Project Information

5a. Project location(s):

<input checked="" type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Maro Reef			
<input checked="" type="checkbox"/> Laysan Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Lisianski Island, Neva Shoal	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Pearl and Hermes Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Midway Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Kure Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input type="checkbox"/> Other			

Ocean Based

Remaining ashore on any island or atoll (with the exception of Midway & Kure Atolls and Field Camp staff on other islands/atolls) between sunset and sunrise.

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

Location Description:

Although exact locations of acoustic instrument deployment are cruise dependent, the preferred locations we intend to target are:

Lisianski (Papaāpoho):	26.06°N	173.97°W
Maro Reef (Nalukākala):	25.42°N	170.59°W
French Frigate Schoals(Kānemiloha'i):	23.75°N	166.15°W

with the following locations being considered as alternatives if the preferred locations are not approached:

Kure (Mokupāpapa):	28.42°N	178.33°W
Midway (Pihemanu):	28.20°N	177.35°W
Pearl/Hermes (Holoikauaua):	27.93°N	175.74°W
Laysan (Kauō):	25.77°N	171.73°W
Gardner Pinnacles (Pūhāhonu):	25.02°N	167.98°W
Necker (Mokumanamana):	23.57°N	164.70°W
Nihoa (Moku Manu):	23.06°N	161.92°W

Attached is a map showing the tentative locations for EAR mooring deployments. The final locations will be determined by the cruise's itinerary, which will be set by other priorities, logistics and weather.

5b. Check all applicable regulated activities proposed to be conducted in the Monument:

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
- Anchoring a vessel
- Deserting a vessel aground, at anchor, or adrift
- Discharging or depositing any material or matter into the Monument
- Touching coral, living or dead
- Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- Attracting any living Monument resource
- Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
- Subsistence fishing (State waters only)
- Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

6. Purpose/Need/Scope *State purpose of proposed activities:*

To determine humpback whale wintering activities at different sites within the Monument. To characterize the structure and geographic variation of humpback whale song within the Monument by deploying up to four deep EARs at depths ranging from 100 m to 500 m in order to record humpback whale song for one year, encompassing the complete breeding season. To determine the similarity or difference from song recorded within the Monument to song found on other major breeding grounds and assess population-specificity.

*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species? Yes No

For a list of terrestrial species protected under the Endangered Species Act visit:

<http://www.fws.gov/angered/>

For a list of marine species protected under the Endangered Species Act visit:

<http://www.nmfs.noaa.gov/pr/species/esa/>

For information about species protected under the Marine Mammal Protection Act visit:

<http://www.nmfs.noaa.gov/pr/laws/mmpa/>

7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

We will be deploying and retrieving up to four EARs and they will be removed afterwards. The deep EARs that will be deployed are entirely passive and do not emit any sounds themselves. EAR moorings have been used to monitor marine mammals and other marine biota around the world and within the Monument for more than 10 years and are safe to the environment. They do not interfere with the behavior of nearby animals as they are entirely passive and no different fundamentally from any other moored instrument, such as a temperature sensor. In addition, their presence in the environment is temporary, as they will be removed the following year. Therefore, no cultural, natural and historic resources will be jeopardized by our activities and the ecological integrity of the Monument will be left undisturbed.

The four deep EARs that were deployed in the Monument in 2010 were recovered in 2011 from the following locations:

Kure Atoll	28° 20.052'	178° 15.195'	depth = 123 m
Nihoa	23° 04.474'	162° 04.967'	depth = 405 m
French Frigate Shoals	23° 44.373'	166° 23.473'	depth = 372 m
Lisianski Island	25° 54.207'	174° 01.373'	depth = 374 m

Recovery of the instruments required that the anchoring weights be left on the ocean floor. Each mooring anchor was composed of a 75 lbs concrete garage post anchor and three burlap bags filled with sand weighing approximately 25 lbs each. No plastic bags were used. Although the exact substrate on which deployments were made could not be visually verified, deployment locations were selected based on the relative rugosity observed on the ship's echosounder. To maximise the likelihood of landing the moorings on sand, the locations selected were the flattest that could be found in the area. The same deployment procedure and materials will be used for this year's proposed deployments.

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects?

We believe the deployment and recovery of the hydrophones is completely compatible with the management direction and will not jeopardize any of the Monument's cultural, natural, and historic resources, qualities and ecological integrity. We are very aware of the cultural and spiritual importance of the NWHI to the Native Hawaiian community. We understand that for many Native Hawaiians the NWHI represent a genealogical origin and that they are considered a return path for their spirits after death. We also understand and agree that it is important that all resources in the Monument be treated with both a high degree of respect and reverence. Therefore, we assure that deployment and recovery of the hydrophones will take Native Hawaiian cultural aspects into full consideration. All activities related to the hydrophones will be conducted in a way so as to have the smallest and shortest impact possible and no activities will be knowingly engaged in that are somehow disrespectful of Native Hawaiian cultural and spiritual practices.

EARs have been used to acoustically monitor Monument waters since 2006. Important findings obtained by deploying EARs in the Monument have involved documenting the occurrence of marine mammals in Monument waters. In 2011, a paper was published describing the occurrence of humpback whales in the NWHI. It demonstrated that the NWHI are an important wintering area for the north Pacific population, probably on par with the main Hawaiian Islands. Recent analyses suggest that the abundance of humpback whales in the NWHI have been rising over the past several years. In addition, fin whales and minke whales are being documented in Monument waters and subsequent analyses will focus on documenting trends associated with their occurrence.

Over the past several years, other acoustic analyses have focused on documenting natural ambient sounds in order to establish baselines of activity for long-term comparisons. Considerable attention has been focused on the sounds produced by snapping shrimp, which are the most ubiquitous source of sound on coral reefs. Data collected in the Monument have so far yielded a wealth of information regarding temporal patterns of activity over periods of days, weeks and seasons.

Finally, deep water EAR deployments made in the past have been successful at recording vessel traffic at several sites. Both shipping and non-shipping traffic has been found in many recordings. Analyses related to vessel traffic patterns are ongoing but have been temporarily suspended due to a lack of funding. They will be resumed as soon as new sources of funding have been secured.

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.

The Monument has been proposed as a previously undocumented breeding ground of North Pacific humpback whales instead of whales just migrating through on their way to the major breeding ground in the Main Hawaiian Islands. Humpback whale song structure has been found to differ between distinct major breedings ground within the North Pacific. To explore humpback whale occurrence and to characterize the structure of song, hydrophones must be placed within the Monument and record during the breeding season. Acoustic data collection from within the Monument is a critical component of our study as we aim to draw comparisons of song structure within the Monument and those from known breedings grounds within the MHI.

The deep EAR deployments proposed for this year will help build on the data sets obtained nine years ago. An additional year of data collection with appropriate and adjusted sampling rates and duty cycles as well as concurrent sampling in the MHI will help to answer the question whether previously preliminarily observed differences in song are a sampling artifact or caused by population-specificity. In addition, identifying this potential difference will give us a non-invasive tool to study behaviors of whales within the Monument and to identify population-affiliation of whales recorded outside the Monument and identify their migration patterns.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?

There will not be any adverse impact on the Monument so our activities should be considered as harmless. The anchoring materials that will be used do not contain any plastic or synthetic components and will therefore naturally decompose with time. We believe that the benefits of better understanding the importance of the Monument as critical humpback whale habitat as well as the population status of whales that might exclusively be using the Monument outweigh any temporary negative impacts from the abandonment of anchoring materials. In light of the recent delisting of North Pacific

humpback whales from the endangered species list, documenting the degree of difference of humpback whales wintering in the NWHI from whales in the MHI and potentially identifying them as a small and more vulnerable stock will bring positive media and public attention to the Monument, which will in turn help strengthen support for management goals. It will also help guide management decisions regarding required enforcement levels and will help gauge the effectiveness of current management efforts within and outside the Monument.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

The deep EARs that will be deployed will be deployed for a one-year period. This length of time is meant to maximize the monitoring period for humpback whales and ensures that song predominantly occurring during the breeding season (November - March) is captured as well as to conform to deployment and recovery logistics. Once deployed, we do not expect to be able to return to recover the instruments until the following year.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

Anke Kuegler has been working with acoustic EAR data since 2014 and was involved in multiple field efforts, including preparation, deployment, and retrieval of instruments, in Hawaii and San Diego. She is familiar with all the equipment and protocols involved.

Marc Lammers led the design of the EAR and has been deploying EARs in the NWHI and many other parts of the world since 2006. He has been involved in bioacoustic research for the past 22 years.

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

The field-based component of this project is supported by an allocation of ship time (July- September period, dates TBD) on the NOAA research vessel *Hiialakai*, from a line item in the budget of the Monument. EARs are donated by Oceanwide Science Institute. Subsequent data analysis is part of a dissertation in the Marine Biology Graduate Program at the University of Hawaii at Manoa.

h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

The method we are applying, that is to record humpback whale song throughout the Monument, will allow us to acoustically investigate the relative population status of humpback whales wintering in the Monument and compare these findings to data collected in the Main Hawaiian Islands.

This type of information provides insight into the cultural, natural and historical resources of the Monument. These observational techniques will not affect the quality and ecological integrity of the Monument.

Each deep EAR mooring anchor will be composed of a 75 lbs concrete garage post anchor and three burlap bags filled with sand weighing approximately 25 lbs each. No plastic bags will be used. Although the exact substrate on which the deployments will be made cannot be visually verified, deployment locations will be selected based on the relative rugosity observed on the ship's echosounder. To maximize the likelihood of landing the moorings on sand and away from any deep-water coral, the locations selected will be the flattest that can be found in the area.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

Yes

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

These acoustic recordings are a continuation of research efforts that have been conducted for many years and throughout the history of the Monument by Marc Lammers and Whitlow Au at HIMB. During these previous efforts, there have been no problems with permit violations by our research team, no safety issues, and no complaints of offensive behavior. Under these circumstances there are no other factors that would make the issuance of the permit inappropriate.

8. Procedures/Methods:

The four deep EARs will be deployed directly off the ship by dropping them overboard at sites ranging from 100-500 m in depth. EARs work on a duty cycle and collect data through out the year on a daily basis. The data will be analyzed with computer-based algorithms that will allow us to determine the occurrence of humpback whales and the structure of song within the Monument and characterize the degree of difference in song from song recorded at other breeding grounds.

NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding, as a customized application will be needed. For more information, contact the Monument office on the first page of this application.

9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):

Common name:

N/A

Scientific name:

N/A

& size of specimens:
N/A

Collection location:
N/A

Whole Organism Partial Organism

9b. What will be done with the specimens after the project has ended?
N/A

9c. Will the organisms be kept alive after collection? Yes No
N/A

• General site/location for collections:
N/A

• Is it an open or closed system? Open Closed
N/A

• Is there an outfall? Yes No
N/A

• Will these organisms be housed with other organisms? If so, what are the other organisms?
N/A

• Will organisms be released?
N/A

10. If applicable, how will the collected samples or specimens be transported out of the Monument?
N/A

11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:
N/A

12a. List all specialized gear and materials to be used in this activity:

12b. List all Hazardous Materials you propose to take to and use within the Monument:
N/A

13. Describe any fixed installations and instrumentation proposed to be set in the Monument:

We plan to deploy four deep EARs. These are temporary items and will be recovered the following year. EARs are moored with a concrete block and additional sandbags and attached to an acoustical release.

14. Provide a time line for sample analysis, data analysis, write-up and publication of information:

The EAR data will only become available when EARs are recovered, sometime in the summer of 2018. We expect the data from the EARs to be analyzed by the end of 2018. Write-ups usually take no more than an additional year, although the turn-around time for some journals can exceed 300 days, so time to publication can still be considerable post-submission of the study.

Results from these studies will be made available to the Monument, FWS, and state managers as quickly as possible. Brown-bag luncheons at HIMB allow researchers to highlight important or interesting new results and discuss them with the management personnel. In addition, HIMB holds an annual symposium during which researchers present the most current findings from their ongoing research in the Monument. These efforts ensure that research results are provided to the Monument co-trustees as quickly as they become available.

15. List all Applicants' publications directly related to the proposed project:

Lammers, M.O., Brainard, R.E. and Au, W.W.L., Mooney, T.A. and Wong K. (2008). "An Ecological Acoustic Recorder (EAR) for long-term monitoring of biological and anthropogenic sounds on coral reefs and other marine habitats." *J. Acoust. Soc. Am.* 123:1720-1728

Lammers, M.O., Fisher-Pool, P., Au, W.W.L., Wong, K., Meyer, C. and Brainard, R., (2011). "Humpback whale (*Megaptera novaeangliae*) wintering behavior in the Northwestern Hawaiian Islands observed acoustically." *Mar. Ecol. Prog. Ser.* 423:261-268.

Lammers, M.O. and Munger, L.M. (2016) "From Shrimp to Whales: biological applications of passive acoustic monitoring on a remote Pacific coral reef." In: *Listening in the Ocean*, Au, W.W.L. and Lammers, M.O., eds. Springer. Pp 61-81

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as “confidential” prior to posting the application.

Signature

Date

**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE
BELOW:**

NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818
FAX: (808) 455-3093

DID YOU INCLUDE THESE?

- Applicant CV/Resume/Biography
- Intended field Principal Investigator CV/Resume/Biography
- Electronic and Hard Copy of Application with Signature
- Statement of information you wish to be kept confidential
- Material Safety Data Sheets for Hazardous Materials

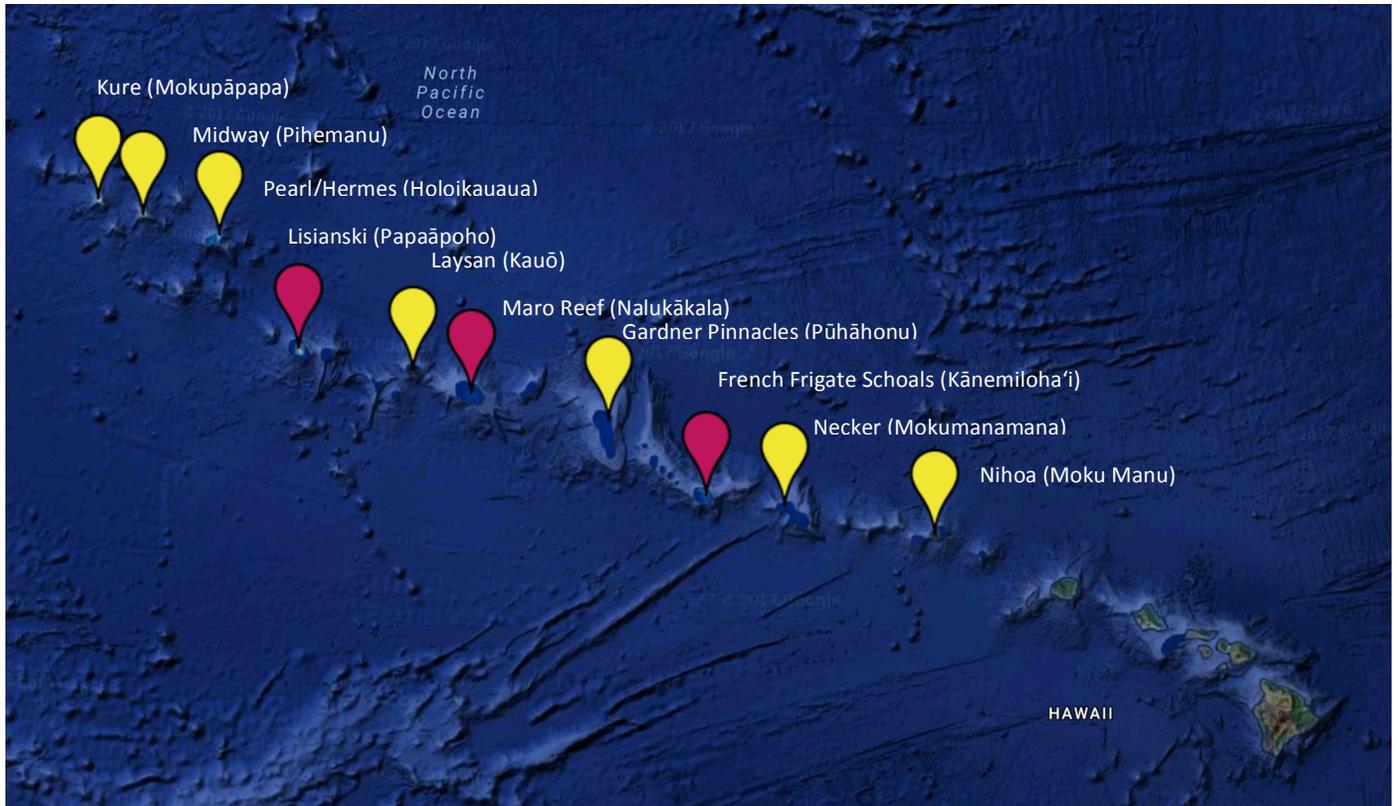


Figure 1. Tentative locations of EAR deployments in the Monument. Red shows preferred deployment sites, yellow shows alternative deployment sites. Final deployment locations will be determined by the cruise's itinerary.