

**Papahānaumokuākea Marine National Monument**  
CONSERVATION AND MANAGEMENT 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:

Papahānaumokuākea Marine National Monument Permit Coordinator

6600 Kalaniana'ole Hwy. # 300

Honolulu, HI 96825

nwhipermit@noaa.gov

PHONE: (808) 397-2660      FAX: (808) 397-2662

**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:** Eric King

**Affiliation:** Schmidt Ocean Institute

**Permit Category:** Conservation and Management

**Proposed Activity Dates:** March 7-July 1, 2014

**Proposed Method of Entry (Vessel/Plane):** Vessel, R/V Falkor

**Proposed Locations:**

Shallow water (50-150m) around: Nihoa, Twin Banks, Necker, St Rogatien Bank, W. St Rogatien Bank, Gardner Pinnacles, Maro Reef, Laysan, North Hampton Seamounts, Pioneer Bank, Bank 8 (Kilo Moana Seamount), Bank 9, Nero Seamount.

Deep water (>150m) around: Nihoa, Westpac Bank, Twin Banks, Keoia Seamount, Necker, French Frigate Shoals, Rogatien Banks (all), Gardner Pinnacles, Raita Bank, Maro Reef, Laysan, North Hampton Seamounts, Kaiuli Seamount, Pioneer Bank, Lisianski, Bank 8 (Kilo Moana Seamount), Bank 9, Pearl & Hermes, Ladd Seamount, Gambia Shoal, Midway, Nero Seamount, Kure, Wentworth Seamount, Woollard Seamount, Turnif Seamount, Bank 10 (Academician Berg Seamount), and several un-named seamounts

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

23 crew

**Estimated number of days in the Monument:** 72

**Description of proposed activities:** (complete these sentences):

a.) The proposed activity would...  
provide vessel operations in support of Christopher Kelley's proposed research activities to map the seafloor of the monument using multibeam sonar.

b.) To accomplish this activity we would ....  
Use the RV FALKOR to transport personnel to the Monument and act as a support platform to conduct proposed research activities as listed in Christopher Kelley's permit

application. This 72 day two-legged cruise will attempt to map as much of the presently unmapped seafloor in the monument as possible, the R/V Falkor's Simrad Kongsberg EM 302 and EM710 multibeam sonar mapping systems. The mapping plan has several focus areas that include seamounts and rift zone ridges, drowned reef terraces around Gardner Pinnacles, the mesophotic zone (50-150 m), completing the coverage of the ridge east of French Frigate Shoals (an important site for internal tide generation), and filling as many of the monument data gaps as possible above 3000 m depth.

- c.) This activity would help the Monument by ...
- d.) providing vessel support for Christopher Kelley's proposed research activities and without vessel support from the RV FALKOR those activities would not occur. The acquisition of high-resolution seafloor mapping data is an essential precursor to making significant biological, geological, and oceanographic discoveries in the monument. To date, four dedicated mapping cruises have taken place in the monument (Kilo Moana 0206, Hi'ialakai 0501, 0508, and 0610). The first, which took place in 2002, was the only major one (Evans et al., 2004), a fact that has clearly restricted the pace by which discoveries are being made. Subsequent mapping that also took place on fishery and submersible cruises over the past ten years have added to the existing multibeam coverage during transits and in areas of specific interest. Even so, only 48% of the 366,631 km<sup>2</sup> of monument waters have been mapped, much of it as simple transit lines by a multitude of ships, and with the different mapping systems yielding data of varying quality. Approximately 190,000 km<sup>2</sup> of monument waters are yet to be mapped, which does not include the lower quality transit data, some of which should be re-mapped. These data are both expensive and difficult to acquire in remote regions such as PMNM, generally costing upwards of \$35,000/day. The cost of this cruise is estimated to exceed \$2 million, of which the monument will be paying for only \$50,000 from NOAA's Office of National Marine Sanctuaries.

**Other information or background:**

The research being supported by the proposed vessel activities involves non-invasive sonar surveys that will neither remove nor add anything to the monument waters. The multibeam systems on the R/V Falkor are new and have only recently been used on cruises in the Atlantic and along the west coast. The data from these systems have been found to be of outstanding quality.

**Section A - Applicant Information**

**1. Applicant**

Name (last, first, middle initial): King, Eric, M

Title: Director of Marine Operations, Schmidt Ocean Institute (R/V FALKOR)

**1a. Intended field Principal Investigator (See instructions for more information):**  
Captain Bernd Buchner, Schmidt Ocean Institute

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

Applicant's (ship operator) Address:  
Schmidt Ocean Institute

[REDACTED]  
[REDACTED]

Principal Investigator's Address:  
Schmidt Ocean Institute

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED] address: n/a

**3. Affiliation (institution/agency/organization directly related to the proposed project):**  
Schmidt Ocean Institute - operator of R/V FALKOR

**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):**

Ship's operating crew compliment is 23 persons. Updated crew list can be provided at time of departure sailing from Honolulu for PMNM. The science party persons are included in the Research Permit Application.

**Section B: Project Information**

**5a. Project location(s):**

- |  |                                     |   |  |
|--|-------------------------------------|---|--|
| <input checked="" type="checkbox"/> Nihoa Island                 | <input type="checkbox"/> Land-based | <input checked="" type="checkbox"/> Shallow water | <input checked="" type="checkbox"/> Deep water |
| <input checked="" type="checkbox"/> Necker Island (Mokumanamana) | <input type="checkbox"/> Land-based | <input checked="" 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 checked="" 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 checked="" 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 checked="" 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:

Shallowest mapping depth will be 50m around Necker, Gardner Pinnacles, and Laysan. All other mapping will take place in depths greater than 150m.

**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:***

The proposed project activities are vessel support operations for Christopher Kelley's proposed research, which have as a goal the complete mapping of the monument's seafloor. A significant amount of that goal will be realized during this 72 day two-legged cruise. Of particular note are the syntheses that will be created from this project by merging the new data with existing data collected on previous cruises. These syntheses will better define existing features and locate new ones to inspire ideas for future research projects, and as a guide of existing coverage that could be shared and updated. They will generate interest for other uses such as physical oceanographic modeling of internal tides, investigation of reef evolution, subsidence and sea level changes using fossil reef terraces, and identify geological features such as seamounts and rift zone ridges that likely harbor extensive biological communities.

\*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/endangered/>

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?

This project only involves multibeam mapping sonar and therefore will have no effect on the cultural, natural, and historic resources and ecological integrity of the monument. Multibeam mapping has already taken place in the monument with no detected effects on the monument resources. The majority of the mapping will take place in deep water and at considerable distance from emergent land. There are no plans to anchor or access any of the land masses within the Monument. The FALKOR's grey water and waste water systems have sufficient holding capacity during the periods when the FALKOR is in the designated areas of the Monument where discharges of grey and waste water are prohibited.

The RV Falkor’s two multibeam systems use 30 kHz and 70-100 kHz frequencies. These frequencies have not been directly attributed to mammal strandings. The higher frequency Kongsberg EM710 system should be virtually inaudible to all cetaceans, or at least most species, while the frequency of the Kongsberg EM302 system is at the very upper limit of the optimal range for many species. Both systems have a special flexible “soft start” mode which can be used when entering areas of known cetacean activity. The soft start mode is a delay function, starting the sonar transmissions at a low output level and then gradually increasing to the level required for optimal bathymetry data collection. The two multibeam systems can also be operated with less than maximum power if required. We believe that the Falkor’s multibeam systems pose minimal risk to cetaceans in the Monument. Both multibeam systems will be turned on before the ship enters into the Monument and will remain on for the duration of the mapping cruise as a precautionary measure avoid possible startling of the animals. In addition to utilizing the systems’ soft start operating modes, we will create a plan whereby as much of the shallow water mapping as possible will be conducted during daylight hours when observers in the Falkor’s bridge, or on the mammal observation deck, can be on the lookout for the presence of cetaceans in the vicinity of the ship. If cetaceans are spotted ahead along the track the ship will stop and wait for the animals to pass.

The specifications of the Kongsberg EM302 system are:

Operating frequency .....	30 kHz
Depth range .....	10-7000 m
Swath width .....	5.5xDepth, to approx 8 km
Pulse forms.....	CW and FM chirp
Swath profiles per ping .....	1 or 2
Motion compensation:	
- Yaw .....	± 10 degrees
- Pitch .....	± 10 degrees
- Roll .....	± 15 degrees
Sounding pattern .....	Equi-distant /equiangular
Depth resolution of soundings .....	1 cm
High resolution mode .....	High Density processing
Sidelobe suppression .....	> 25 dB
Suppression of sounding artefacts.....	9 frequency coded transmit sectors
Beam focusing .....	On transmit (per sector) and on reception (dynamic)
Beamforming method .....	Time delay
Gain control .....	Automatic
Swath width control ....	Manual or automatic, soundings intact when reduced swath width
Seabed imagery/sidescan sonar image .....	Standard
Water column display.....	Standard
Mammal protection .....	Standard
Multi frequency operation .....	Yes, by integration with EM 3002 and/or EM 710
Sub bottom profiling .....	Yes, by integration with SBP 300
Transmit array (deg).....	150 x 1

Recevei array (deg).....	1 x 30
Number of beams per swath.....	288
Maximum number of sounding per swath.....	432
Maximum number of swaths per ping.....	2
Maximum number of soundings per ping.....	864
The specifications sheet is attached.	

The specifications of the Kongsberg EM710 system are:

Frequency range.....	70 to 100 kHz
Max ping rate.....	30 Hz
Swath coverage sector.....	Up to 140 degrees
Min depth.....	3 m below transducer
Max depth.....	2000 m
CW transmit pulses.....	0.2 to 2 ms
FW sweep pulse.....	Max 120 ms
Roll stabilized beams.....	Yes, ±15°
Pitch stabilized beams.....	Yes, ±10°
Yaw stabilized beams.....	Yes, ±10°
Sounding patterns.....	Equiangular, Equidistant, High Density
Mammal protection .....	Standard
Max number of soundings per ping.....	800
The specifications sheet is attached.	

The multibeam mapping activity is planned to occur around-the-clock. While operating during periods of darkness and when entering all areas of the monument the multibeam systems' "soft start" mode will be utilized. The sonar transmissions will start at a low output level and then gradually increasing to the level required for optimal bathymetry data collection. Furthermore, we will try as much as possible to work further offshore at night. It is our understanding that the only documented report of a whale grounding event that could possibly have been caused by multibeam mapping took place close to shore, where the animals may have been startled by a sudden full start of the system. It is our further understanding that the whales related the aforementioned incident made a wrong turn and wound up in a lagoon system and were unable to find their way out. Using a "soft start" mode, if and when the systems need to be turned on and off, and mapping most nights well offshore should ensure that the multibeam mapping activities from the Falkor do not result in a similar incident.

The soft start modes of the EM302 and EM710 multibeam systems can either be set at -10 or -20 decibels with a 0 to 15 minute ramp up time to the desired power. We can select -10 dB, -20 dB or maximum transmit power. Maximum transmit power is recommended by Kongsberg for maximizing the mapping swath coverage. In the deepest operating mode the EM302 is 237 dB while the EM710 is 229 dB. When operating in shallow modes the decibels are 232 dB and 225 dB respectfully.

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 are aware of the significance and cultural importance of the NWHI to Native Hawaiians. As a sacred place, and especially in the realm of Po (beyond Mokumanamana), our hope is to tread lightly and leave no footprint from our activities. Recognizing that natural resources are, in fact, cultural resources for Native Hawaiians, it is our hope that the information and data generated by this project will assist PMNM by providing a base map which may then be populated with what is known about the rich and unique biological resources of this region. This knowledge will contribute directly to the documentation of these natural/cultural resources, and it is this understanding that allows for enhanced protection of these resources. No specimen collections are requested under this permit, and all proposed activities are non-invasive. Thus, there are no anticipated impacts to the cultural resources or the integrity of NWHI ecosystems. We believe this proposed activity is consistent with the spirit of Proclamation 8031, and specifically with Finding 1.b.

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. Multibeam sonar mapping is the current state of the art technique used to map in depths below 50m. No better alternative methods exist to acquire high resolution imagery of the seafloor. A major objective of the project is to benefit the management of the monument by revealing the nature of the seafloor within its boundaries. Of the many individual islands, seamounts, atolls, ancient volcanic ridges, isolated pinnacles, and submerged banks within and crossing the PMNM boundaries, some are delineated only by the low resolution global dataset, others are sparsely mapped with just postage stamp-sized dive site summit surveys over them, while numerous other features are simply incomplete in coverage with gaping holes. Much of the existing data came from the transit swaths of opportunity which lack quality, resolution, and the proper acquisition orientation for the features being surveyed. In addition, the sidescan backscatter component is missing from many of the older systems. The project will result in new higher quality data useful to both the monument and to ongoing research efforts. The RV FALKOR is an at sea research platform to transport scientists and support proposed research activities under Chris Kelley's permit application. Without this vessel support the multi-beam mapping research project could not occur.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity? The information gathered will directly contribute to a better understanding of marine habitats in the NWHI, thereby improving our understanding of NWHI habitats and ecosystems. The potential value of this information on previously unmapped habitats is tremendous. As noted in 7.b. (above), there are no anticipated impacts to PMNM

cultural, natural, or historic resources. No specimens will be collected, no project gear will touch the benthos, and no shore access is required. In our estimation, the end value of this activity far outweighs any potential impacts (which are assumed to be negligible/nonexistent), thus meeting the criteria noted under Finding 1.d. in Proclamation 8031.

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

Even with 72 ship days, this project may fully be able to complete the huge task of mapping the entire seafloor within the monument boundaries. However, this is long enough to map most of the seamounts and most of the volcanic platforms of the islands and therefore will provide a significant contribution to achieving the task.

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

The RV FALKOR is a globally operated oceanographic research ship outfitted with the latest scientific sonar systems. The ship's crew is specifically trained to operate the multibeam mapping sonars as recently demonstrated by mapping the protected waters of the United States off the coast of Florida and the protected waters of Honduras off the coast of Roatan Island. Additionally, in 2012 and 2013 R/V FALKOR utilized its multibeam mapping systems for a variety of collaborative projects with the US organizations' Woods Hole Oceanographic Institute, Monterey Bay Aquarium and Research Institute, University of Texas, University of Mississippi, University of New Hampshire, and NOAA. The FALKOR's mapping sonars are tested annually by The Center for Coastal and Ocean Mapping. The technicians operating the sonars have lead experience operating the multibeam mapping sonar systems aboard NOAA survey ships and ships of the UK's Natural Environment Research Council.

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.

Schmidt Ocean Institute (SOI), a US nonprofit operating institution, has agreed to provide the ship, the multibeam sonar systems, and their own multibeam technicians required for this cruise. The ship and ancillary support was made available through a competitive proposal review process directly from SOI. The Principal Investigator / Chief Scientist Christopher Kelley has requested the NOAA Office of National Marine Sanctuaries provide \$50,000 of salary support for three of the participants, John Smith, Joyce Miller, and himself, which the University of Hawaii required. This has been approved and the funds are currently in process to be passed to UH. The other participants have all agreed to arrange for their own salary support through their respective employers. The FALKOR carries both Hull and Machinery insurance as well as Protection and Indemnity coverage. A Certificate of Financial Responsibility is on file with the US Coast Guard. Oil spill management team ECM is on retainer.

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.

Multibeam mapping is the state of the art technique for mapping seafloor deeper than 50m. The FALKOR's multibeam systems are the most up-to-date systems being produced and sold by SIMRAD / Kongsberg. To reiterate, that the proposed activities are for vessel operations to support proposed research activities under Christopher Kelley's permit application.

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

No, but arrangements have been made to borrow a transceiver from the monument and install it on the FALKOR when it arrives in the Hawaiian Islands later this Fall / Winter 2013-2014.

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

There are no other factors that would make the issuance of a permit for the activity inappropriate. Ship's waste water and grey water are processed through a sewage treatment system (aka marine sanitation device) that produces no more than 100/100 ml of coliform count. The sewage treatment system type has been approved by the Federal Republic of Germany in accordance with MARPOL 73/78, Annex IV and Helsinki Convention, tested based on IMO Resoluton MEPC.159(55).

### **8. Procedures/Methods:**

The Monument will be accessed directly from the FALKOR. The FALKOR will depart from Honolulu and return to Honolulu at the completion of the mapping survey. There are currently no plans to anchor or access any of the land masses within the Monument. The ship will be operating 24 hours a day and is equipped with a forward looking sonar. The FALKOR's grey water and waste water systems have sufficient holding capacity during the periods when the FALKOR is in the designated areas of the Monument where discharges of grey and waste water are prohibited.

Instead of using expendable bathythermographs (XBTs are small single-use instruments deployed over the side of the ship to record sea temperature relative to depth and typically used several times a day when conducting multibeam mapping projects as part of assuring data quality) the FALKOR will lower into the water column, by ship embeded scientific winch and wire, two other instruments called CTD and SVP. The CTD measures conductivity, temperature and depth, while the SVP is a sound velocity profiler which collects sound velocity data. Neither CTD or SVP instruments will touch the seafloor or remain in the PMNM after use, unlike XBTs which typically remain on the seabed after their single use deployment.

A complete track plan of all of the survey lines will be created and installed into the ship's navigation computers and multibeam systems. All data from previous cruises will also be incorporated into their real time multibeam displays to provide guides for minimizing seams between old and new data. The survey lines will be numbered in the order in which they should be done and the ship will run each line at 7 nm/hr. Multibeam mapping is carried out around the clock and as a result, participants will man the processing and watch stand computers in two person teams for 8 hr shifts. The processing teams hope to finish with all or almost all of the data processing prior to the ship returning to Honolulu Harbor. Whatever raw data remains will be processed back in port as quickly as possible. A synthesis of the old and new data will be created by the PI after the cruise.

**NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding.**

**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

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

SIMRAD / Kongsberg EM302 and EM710 multibeam sonar systems as well as CTDs and SVPs for calibrating the systems at different locations within the monument.

**13. List all Hazardous Materials you propose to take to and use within the Monument:**

none

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

none

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

Every effort will be made to complete the data processing by the end of the cruise. Once that is completed, the data products will be distributed to the monument, UH-SOEST, SOI, MBARI, and other interested parties for publication on their websites.

**16. List all Applicant's publications directly related to the proposed project:**

Schmidt Ocean Institute will work to Google Earth's Ocean division to populate the Ocean product with the bathymetry data results. This approach follows the recent data sharing publication initiative with NOAA where the bathymetry data collected from the protected marine areas, collected on behalf of and in collaboration with NOAA, was embedded into Google Earth's Ocean product. The data will also be shared for public access through the National Geophysical Data Center.

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.

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Signature

Date

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

Papahānaumokuākea Marine National Monument Permit Coordinator  
6600 Kalaniana'ole Hwy. # 300  
Honolulu, HI 96825  
FAX: (808) 397-2662

**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