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: John Doe
Affiliation: Papahānaumokuākea Marine National Monument

Permit Category: Research
Proposed Activity Dates: August 1, 2008 – September 1, 2008
Proposed Method of Entry (Vessel/Plane): Vessel, NOAA Ship HIIALAKAI
Proposed Locations: Shallow water habitat (>100m) around French Frigate Shoals, Lisianski Island, and Pearl and Hermes Atoll.

Estimated number of individuals (including Applicant) to be covered under this permit: 7

Estimated number of days in the Monument: 30

Description of proposed activities: (complete these sentences):

a.) The proposed activity would…

The annual NWHI RAMP (Reef Assessment and Monitoring Program) cruise will conduct quantitative surveys of coral, algae, fish, and non-coral invertebrates throughout the NWHI for the purpose of monitoring the shallow coral reef ecosystems.

b.) To accomplish this activity we would ….

This project is a continuing effort to conduct quantitative surveys of coral, algae, fish, and non-coral invertebrates throughout the NWHI for the purpose of monitoring shallow coral reef ecosystems. Surveys for fishes, invertebrates, and corals are non-invasive and can be conducted visually. Limited numbers of algal voucher specimens will be collected by hand as necessary to make positive species identifications. The applicant uses non-invasive and non-lethal sampling techniques.

c.) This activity would help the Monument by …

Annual monitoring surveys are necessary to establish baseline abundance indices of coral reef organisms, to begin to understand the range of natural spatial and temporal variability that characterizes the ecosystems of the Monument, and to establish a baseline against which changes due to the effects of large scale, long-term natural and anthropogenic impacts can be compared. These baselines will also be useful in documenting the impacts of episodic or localized natural and anthropogenic perturbations of the environment, such as storm damage and vessel groundings within the Monument.

Other information or background:

The research consists primarily of non-invasive visual surveys. A limited number of algal voucher specimens will be collected by hand. The number of specimens collected by the applicant is the minimum required for proper algal identification.

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): DOE, John K.

Title: Research Coordinator, Papahanaumokuakea Marine National Monument (NOAA/NOS)

1a. Intended field Principal Investigator (See instructions for more information):
Jerry Doe, Research Specialist, Papahanaumokuakea Marine National Monument (NOAA/NOS)

2. Mailing address (street/P.O. box, city, state, country, zip):
NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818

Phone: (808) 725-5800

Fax: (808) 455-3093

Email: nwhipermit@noaa.gov

For students, major professor's name, telephone and email address:

3. Affiliation (institution/agency/organization directly related to the proposed project):
National Oceanic and Atmospheric Administration/National Ocean Service/National Marine Sanctuary 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):
Julie Doe, Research Diver, Papahanaumokuakea Marine National Monument, julie.doe@noaa.gov. Phone number 808-123-4567
Jane Doe, Field Technician, Papahanaumokuakea Marine National Monument, jane.doe@noaa.gov. Phone number 808-123-4567
Jerry Doe, Research Specialist, Papahanaumokuakea Marine National Monument jerry.doe@noaa.gov. Phone number 808-123-4567
Data Manager, TBD – will complete in the Compliance Logistics Information Sheet
Benthic Ecologist, TBD – will complete in the Compliance Logistics Information Sheet
SAFEBoat coxswain, TBD – will complete in the Compliance Logistics Information Sheet

Section B: Project Information

5a. Project location(s):

		Ocean Based	
☐ Nihoa Island	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Necker Island (Mokumanamana)	☐ Land-based	☐ Shallow water	☐ Deep water
☒ French Frigate Shoals	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Gardner Pinnacles	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Maro Reef			
☐ Laysan Island	☐ Land-based	☐ Shallow water	☐ Deep water
☒ Lisianski Island, Neva Shoal	☐ Land-based	☒ Shallow water	☐ Deep water
☒ Pearl and Hermes Atoll	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Midway Atoll	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Kure Atoll	☐ Land-based	☐ Shallow water	☐ Deep water
☐ Monument Expansion Area			
☐ Other			

NOTE: Shallow water is defined by water less than 100 meters in depth.

☐ Remaining ashore on any island or atoll (with the exception of Sand Island,at Midway Atoll 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:

REA sampling for fishes and benthic flora and fauna will be conducted at three locations: French Frigate Shoals, Lisianski Island and Pearl and Hermes Atoll. At each location, a stratified random survey design will be employed to sample coral reef habitat. The stratification scheme comprises the combination of three reef zones—fore reef, back reef, and lagoon—and three depth ranges—0 to 6 m, 6 to 18 m, and 18 to 33 m. A sampling 'site' denotes an area of 100 m by 100 m containing coral reef habitat. The target number of sampling sites for each location was estimated as follows:

At each location, sampling sites will be allocated proportionally among reef zone-depth strata according to the amount of coral reef habitat within each stratum. Specific site locations to be sampled within each stratum will be randomly selected from the complete list of stratum sample sites compiled using a Geographical Information System (GIS). A secondary list of alternative sampling sites will also be randomly generated for each stratum. In some situations, a randomly selected site may be determined upon arrival by the field team to be unsuitable for sampling, e.g., non-reef habitat, unsafe sea conditions, etc. In the case of unsuitable habitat, adjacent sampling sites (approximately 100 m in each direction from the original point) will be searched to the extent possible and substituted for the original site if suitable coral reef habitat is located. Sites

determined to be unsuitable for REA sampling will be substituted with an alternative site from the secondary sample list.

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 annual NWHI RAMP (Reef Assessment and Monitoring Program) cruise will conduct quantitative surveys of coral, algae, fish, and non-coral invertebrates throughout the NWHI for the purpose of monitoring the shallow coral reef ecosystems. This year, based on a statistical power analysis and new spatial stratification scheme, revised methods and a new random stratified site selection protocol will be tested in an attempt to minimize variance, increase statistical power, and increase the robustness of the resulting derived products. As such, the cruise will not visit every reef and island in the NWHI, but rather will focus intensively on fewer sites in order to increase sample sizes and statistical power for the comparison of the old and new methods. The new methods will be intercalibrated with the previous protocols, so that all data collected between 2000-2007 and beyond may be incorporated into a continuous time series.

The three proposed locations (French Frigate Shoals, Lisianski/Neva Shoals, and Pearl and Hermes Atoll) were selected for a number of reasons. First, although this year's RAMP cruise is testing new protocols and will not be visiting all locations, we will still be collecting valid monitoring data. Thus, these locations were selected in part because they cover much of the geographic and latitudinal spread of the NWHI. In addition, these sites represent the two broad reef types in the NWHI, atolls (French Frigate Shoals, Pearl and Hermes Atoll) and submerged shallow banks (Lisisanski/Neva Shoals). Finally, the three habitats of the stratification scheme (forereef, backreef, lagoonal/patch reef) are abundantly represented at these sites.

*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species beyond the protocols provided in PMNM Best Management Practices (https://www.papahanaumokuakea.gov/permit/bestmanagement.html)? Yes ☒ No ☐

If so, please list the species you specifically intend to target.
Hawaiian Monk Seal as authorized by MMPA/ESA permit 12345-67.

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?

The proposed activities will have minimal impact on the resources of the region. The research consists primarily of non-invasive visual surveys. Limited numbers of algal voucher specimens will be collected by hand as necessary to make positive species identifications. This research is being conducted in concert with the priorities listed in the current draft NOAA research plan for the Monument.

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?

The proposed activities will have minimal impact on the resources of the region. The research consists primarily of non-invasive visual surveys. Limited numbers of algal voucher specimens will be collected by hand as necessary to make positive species identifications. This research is being conducted in concert with the priorities listed in the current draft NOAA research plan for the Monument.

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.

There is no practicable alternative to conducting the activities in the Monument. Annual monitoring surveys are necessary to establish baseline abundance indices of coral reef organisms, to begin to understand the range of natural spatial and temporal variability that characterizes the ecosystems of the Monument, and to establish a baseline against which changes due to the effects of large scale, long-term natural and anthropogenic impacts can be compared. These baselines will also be useful in documenting the impacts of episodic or localized natural and anthropogenic perturbations of the environment, such as storm damage and vessel groundings within the Monument

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 proposed activities have been identified as vital to the future management of the Monument and will have no adverse impact on the resources, qualities and ecological integrity of the Monument.

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

A minimal amount of time will be spent at each collection location depending on weather and oceanographic conditions.

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

All personnel included in this permit application have extensive experience conducting research in the Monument, and in the collection techniques utilized. This is a continuance of a multi-year project.

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.

This cruise and subsequent data analyses are supported by an allocation of 29 days at sea aboard the NOAA ship HIIALAKAI from NOAA's Office of Marine and Aviation Operations, a line item in the budget of NOAA's Papahānaumokuākea Marine National Monument, and an allocation of funds from NOAA's Coral Reef Conservation Program to NOAA Fisheries Pacific Islands Fisheries Science Center.

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 research consists primarily of non-invasive visual surveys. A limited number of algal voucher specimens will be collected by hand. The number of specimens collected by the

applicant is the minimum required for proper algal identification.

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

NOAA ship HIIALAKAI is equipped with a NOAA OLE Vessel Monitoring System

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 activities inappropriate.

8. Procedures/Methods:

Benthic community structure survey methods:
Working at depths between 3 to 30 m, each dive takes place within a 100m x 100m cell whose midpoint has been previously determined by mapping/GIS personnel as part of a stratified random site selection process. The benthic team, consisting of five divers, enters the water 10-15 minutes after the two-person fish team. Two, 25m transect lines are randomly deployed, with a surface float on which a GPS receiver is mounted, marking the beginning of each transect line. One member of the benthic team is responsible for conducting the line-intercept method at 0.25m intervals along the transect lines for the purposes of determining substrate composition, with a particular focus on determining coral percent cover on a species-specific basis. This diver is also responsible for taking a number of measurements pertaining to topographic complexity.

Two divers are responsible for measuring the dimensions (length x width x height) of each coral, by species, whose center falls within a 0.5m belt on each side of the transect line, and for determining the health status of each colony. In addition, a 0.25m x 0.25m quadrat will be used within each 5m segment along the transect lines to enumerate, and measure, coral recruits (< 5cm maximum diameter).

A trained phycologist will record benthic cover along the transect lines at 10 cm intervals to determine percent cover by algae at the lowest level of taxonomic resolution possible, using a point intercept method. Additionally, a photoquadrat will be used to take high-resolution digital images to create a historical record of the site. A random swim is used to collect voucher specimens of algae from the site. A photoquadrat will be used to take high-resolution digital images to create a historical record of the site.

Finally, visual surveys will be conducted for macroinvertebrates by conducting ten quadrat enumerations (.25m2 quadrat) at 2 m intervals along the 25 m lines. Target species include cnidarians (Zoanthids, Actinarians, Hydrocorals), echinoderms (echinoids, holothuroids, and asteroids), molluscs (bivalves, gastropods, nudibranchs, and cephalopods), and decapod crustacea.

Fish community structure survey methods:
Working at depths between 3 to 30 m, each dive takes place within a 100m x 100m cell whose midpoint has been previously determined by mapping/GIS personnel as part of a stratified random site selection process. The fish team, consisting of two or three divers, will count all fishes utilizing both a belt transect method and a modified stationary point count (SPC) method.

At each randomly selected site, three 25 meter belt transect lines are surveyed. Two divers swim side by side along a transect line each recording all fish larger than 20cm observed within a 4 meter wide x 4 meter high belt parallel to their respective side of the transect (200m2 area per belt, 100m2 per diver). The divers make a second pass along each transects recording all fish less than 20cm observed within a 2m wide x 4m high belt (100m2 area per line, 50 m2 per diver). The large fish surveys take approximately 5 minutes to complete while the smaller fish surveys take about 10 minutes to complete.

Under the SPC method, at each randomly selected site, 1 or 2 two-diver team(s) enter the water and haphazardly select a survey location. The divers lay down two contiguous 15m lines and each position themselves in the middle of one of these lines. From this pivot point, the divers record all individual fish within a 7.5m radius area for a period of 10min. Afterwards, the divers move to the beginning of their respective 15m lines and count all individuals on a 2m-wide belt centered on the line. This procedure is repeated once by each team (2 replicates per team). Divers will be within 15m of each other during these surveys.

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):

At each site, voucher specimens of algae (one specimen per species per site) will be collected.

Common name:

See table below:

Common Name	Scientific Name		Common Name	Scientific Name
Algae	Caulerpa		Algae	Dasya
Algae	Caulerpella		Algae	Heterosiphonia
Algae	Codium		Algae	Hypoglossum
Algae	Halimeda		Algae	Martensia
Algae	Bryopsis		Algae	Schizoseris
Algae	Derbesia		Algae	Vanvoorstia
Algae	Pseudobryopsis		Algae	Amansia
Algae	Avrainvillea		Algae	Chondria

Algae	Chlorodesmis		Algae	Chondrophycus
Algae	Rhipidosiphon		Algae	Herposiphonia
Algae	Rhipilia		Algae	Laurencia
Algae	Tydemania		Algae	Lophosiphonia
Algae	Udotea		Algae	Neosiphonia
Algae	Palmophyllum		Algae	Polysiphonia
Algae	Phyllodictyon		Algae	Spriocladia

Scientific name:

See table above.

& size of specimens:

No more than one voucher specimen per species of algae per site. No more than one 1 gallon Ziploc bag total volume of wet specimens per site.

Collection location:

Specimens will be collected at sites surveyed by benthic teams at French Frigate Shoals, Lisianski/Neva Shoals, and Pearl and Hermes Atoll.

☒ Whole Organism ☒ Partial Organism

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

Specimens in frozen and pressed state will be initially deposited in the collections at NMFS PIFSC CRED and Department of Botany, University of Hawaii at Manoa, for identification and analysis. Where appropriate, voucher specimens will be deposited in the collection at the B.P. Bishop Museum, Honolulu, Hawaii.

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

• General site/location for collections:
See 9a. above.

• 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?

A majority of algal specimens will be frozen and transported in NOAA Ship HIIALAKAI's scientific freezer. A small number of specimens may be preserved in dilute (5%) formalin for histological analysis.

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

To the best of our knowledge, the proposed project is unique in the NWHI and does not duplicate any other current initiatives. After preliminary analysis, preservation or pressing, and curation, all algal specimens collected will be made available to bona fide researchers upon request.

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

Specimens of fleshy macroalgae will be hand collected. Voucher specimens of crustose coralline algae may be collected with a geologist's pick and chisel, or by hand (free-living rhodoliths).

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

Formalin (as a fixative for some algal specimens).

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

N/A

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

Initial collections will be reported in the Cruise Report for HI-07-08. Monitoring reports resulting from this cruise will be finalized (with input from partners and Monument agencies) by October 2009.

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

None.

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