

Papahānaumokuākea Marine National Monument
EDUCATION 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: Judith Lemus

Affiliation: Hawaii Institute of Marine Biology

Permit Category: Education

Proposed Activity Dates: July 23 - Aug. 20, 2011

Proposed Method of Entry (Vessel/Plane): Hi'ialakai RV

Proposed Locations: Nihoa/Necker; French Frigate Shoals; Gardner; Maro; Laysan; Midway

Estimated number of individuals (including Applicant) to be covered under this permit: 2

Estimated number of days in the Monument: 26

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...
develop the multimedia resources needed for a distance learning course offered to University of Hawai'i undergraduates. It would also provide needed visual media for existing outreach and education programs such as the marine exchange program Ecosystem Penpals, and updated photographs for important research reports and other related materials.

b.) To accomplish this activity we would
conduct interviews with research scientists during the course of their field work, and film (still photography and video) both the natural resources under study and the scientists conducting the studies. Additionally, we intend to link to several schools offering opportunities for direct interactions between students and scientists working in the Monument.

c.) This activity would help the Monument by ...
providing a much broader spectrum of the academic community (namely undergraduate students) an opportunity to learn about and better understand the NWHI and Papahānaumokuākea. The online course would provide a window into Papahānaumokuākea Marine National Monument for future scientists in Hawaii who might not otherwise have an

opportunity to experience the science of this rich and important ecosystem, enhancing the conservation and education capacity of the Monument. This fulfills the direct mandate of the Monument to bring the place to the people. This activity would also build upon existing and successfully proved outreach programs and further develop materials for education at all levels included informal outreach and formal K-12 education programs.

Other information or background: The principals on this permit both have extensive experience developing marine science curricula and university-level courses. Dr. Lemus is a trained marine biologist and has taught marine biology courses at both the undergraduate and graduate levels. Carlie Wiener also has had extensive experience working with the management of Papahānaumokuākea as the outreach and research specialist for the HIMB partnership. At the tenth anniversary of the designation of the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve, the managers stated that it is time to share the wonder of the place and the exemplary scientific research that serves as the model for effective science-management collaboration. The proposed course, "Science and Mangement of the Northwest Hawaiian Islands" would engage students in a virtual exploration of the islands, their flora and fauna, and the science that is being used to better understand and manage the ecosystem. Potential course topics include: Coral Reef Habitats; Comparison of MHI and NWHI Ecosystems; Marine Ecology Field Techniques; Population Genetics; Ecological Genomics; Overview of Marine Management History and Strategies; Papahānaumokuākea Management Objectives and Strategies; Ecosystem-based Management; What can the Science Tell Us?; Collaborations among Scientists, Cultural Practioners and Managers; Applications and Extrapolations to other Pacific MPAs. This class will also tie into the already existing Papahānaumokuākea community education course "Moku o Lo'e: The Best Kept Secret in Kane'ohe Bay". This course has been running for eight semesters and has shared the science and beauty of the NWHI with over 200 participants. The course will continue to share the unique research coming out of the Monument with the community, but after eight semesters is in need of course revision and fresh material. Having the ability to document new research, obtain photo and video footage and gather collective experiences will help to formulate new curriculum not only for the two above mentioned classes but for other outreach and education programs as well.

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Lemus, Judith, D.

Title: Specialist

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

Judith Lemus, Ph.D. (CV attached)

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

[REDACTED]

Phone:

[REDACTED]

Fax:

[REDACTED]

Email:

[REDACTED]

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

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

University of Hawaii, Hawai'i Institute of Marine Biology

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, Teacher; Jane Doe, Videographer):

Charlie Wiener, education specialist (CV attached)

Section B: Project Information

5a. Project location(s):

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

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

Location Description:

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 purpose is to provide a large number of undergraduate science students an opportunity to learn about the the natural history, and the science and management activities in the NWHI through a visually rich virtual education experience. The distance learning course will initially be offered through the University of Hawai'i in the fall of 2012, and bi-annually thereafter. The project will also update the existing NWHI Research Partnership photo and video catalogue that will be used for several outreach programs which focus on marine science and the Monument with local students around the state. These programs not only target our local students but others across the United States and Internationally. Using the NWHI as a teaching tool we are able to instill a conservation ethic towards the marine environment across numerous age ranges and cultures. Although we have had six years of research expeditions in the Monument, our visual media resources are limited because scientists cannot take the time to collect images while focuses on their extremely busy research agendas. Outreach specialists can obtain engaging footage without disrupting the research schedule on the cruise. Our education experience also allows us to understand the type of video and photo needed to produce dynamic reports and education products that will engage students and community.

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 nature of the activities of this project are purely observational and non-invasive. While benthic organisms (including dead coral, but not live coral) may be picked up for photography, they will be replaced in the same location. Working as a team, we will use the utmost care while photographing natural resources, with one person being assigned camera duties and the other serving as a tender to insure there is no damage to those resources. We recognize how special Papahānaumokuākea is and are committed to only using non invasive techniques such as photo and video to bring this special place to the public and to enhance our education programs.

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 activities are entirely compatible with the management direction in that they will not diminish the resources in any way, and in fact will enhance the management capacity of the Monument by providing virtual access and education to Hawaii college students and the general public. This activity will also aid in enhancing public knowledge and understanding about the Papahānaumokuākea Marine National Monument and the Northwestern Hawaiian Islands thorough outreach materials. Fostering personal connections to the Monument through virtual experiences

will directly support the Monument's aim of bringing the “place to the people”, and help engender an ethic of environmental stewardship.

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 principles will work with researchers who have previously worked in the Monument to obtain additional photographic and videographic footage for use in the course, and will also request access to the large Monument image database. But to provide a dynamic and engaging learning experience we feel it is important to interview and photograph scientists as they conduct their work in the field (and on the ship). Narrated walking and snorkeling/diving tours of some islands will also significantly enrich the course content. Additionally, we will be connecting with students in live time which requires a presence on the ship not only to demonstrate the importance of the science but to connect students to future marine science and conservation careers. The images we are seeking require "in the moment" science shots observing researchers in the field. Previous photos in the database are mostly scenery shots and do not capture the most up to date research and new projects.

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 end value of the proposed activity will be only to educate future scientists and resource managers about the unique ecosystem of the NWHI and the science that helps support its management. Through this type of pre-career training in scientific and management processes and techniques, the cultural, natural and historic resources, and ecological integrity of the NWHI, we can help to broaden the impact of the conservation objectives of the Monument. An added value will be enhanced public outreach capacity with visually engaging resources.

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

The activities will last for the duration of the scheduled RAMP cruise on July 23 - Aug. 20, 2011

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

Dr. Lemus is an experienced marine biologist and science education specialist that has utilized multimedia resources (including photos, video, and web-based products) in a variety of ocean science education programs, including undergraduate and graduate courses, teacher professional development, and high school student field courses. Example courses/programs include:

Communicating Ocean Sciences (OEST 696)

UH Manoa Ocean and Earth Sciences and Technology, Co-Instructor

The Role of Marine Protected Areas in Ecosystem Based Management (OEST 699)

UH Manoa Ocean and Earth Sciences and Technology, Creator and Lead Instructor

Communicating Ocean Sciences to Informal Audiences (BISC 599)

University of Southern California Biological Sciences, Lead Instructor

Oceanography of the Southern California Bight (CORE 195)

USC Summer Seminar, Creator and Lead Instructor

Fundamentals of Biology (Biology 3)

Santa Monica College, Lead Instructor
Field Program in Galapagos: Ecology and Evolution (CORE 195)
USC Summer Seminar, Creator and Lead Instructor
Oceanography of the Southern California Bight (CORE 195)
USC Summer Seminar, Creator and Lead Instructor
Science Teacher Professional Development - online and in-person workshops
USC Center for Ocean Sciences Education Excellence, Designer and Instructor

Carlie Wiener is also an experienced education specialist who has worked on the subject of the Northwestern Hawaiian Islands since 2006. She is involved in several outreach projects related to the NWHI including the Ocean FEST (Families Exploring Science Together) state-wide inter-generational program and Ecosystem PenPals, a natural and cultural Pacific-wide exchange program. She also develops annual reports and assorted outreach materials including websites, postcards, newsletters and education curriculum related to NWHI and science activities.

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 activity will require minimal equipment and resources other than photographic and recording equipment, which will be supplied by the principle investigators. Berths on the Hi'ialakai are provided as part of the HIMB NWHI Research Partnership with NOAA. University of Hawai'i is self-insured and the activities of both principles are covered under this policy.

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.

As stated above, the activities will be purely observational and no cultural, natural or historic resources will be disturbed. Images and interviews of scientists conducting research are essential to helping university science students understand science designed to inform ecosystem-based management efforts. Furthermore, the activities and products will help to educate a broader audience about science efforts that support the ecological integrity of the Monument with emphasis on our local students in Hawaii.

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

NA

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

NA

8. Procedures/Methods:

Photos and video will be taken aboard the ship during preparation of research activities. Video interviews with scientists will also be conducted during this time. Photos and video will also be taken in the field to capture images of research activities and subjects, and to continue interview elements. These may be taken either on land, by snorkeling, or SCUBA. Dr. Lemus has advanced open water and rescue diver certifications, as well as underwater photography certification. Ms. Wiener has her advanced open water, scientific diver, and underwater photography certification. Communication with teachers and school programs may also be carried out throughout the trip, and continue upon returning from the Monument. Various activities and programs may also be developed from the information and image collections gathered on this trip. Although both principles have lapsed scientific diver certifications, we plan to undergo reinstatement before the cruise. If for some reason this is not possible, we will conduct our activities via land, boat, and snorkel.

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):

None

Common name:

Scientific name:

& size of specimens:

Collection location:

Whole Organism Partial Organism

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

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

• Specific site/location:

• Is it an open or closed system? Open Closed

• Is there an outfall? Yes No

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

• Will organisms be released?

10. If applicable, how will the collected samples be transported out of the Monument?

NA

11. Is your proposed activity based on a State Department of Education Standards Based Curriculum? If so, describe:

NA

12. If applicable, describe how you are collaborating with others in any way to reduce duplicative activities in the Monument or elsewhere?

We will be working with scientists that have previously worked in the Monument to obtain additional photographic and video footage. This approach has not been completed by others in the past few years and a gap in the imagery reflecting new research and programs exists. This work will be shared with other education programs both in Hawaii and abroad for use in several outreach programs including Ocean FEST, Ecosystem PenPals, The HIMB Community Education Program, the proposed UH NWHI course, Windward Community College continuing education course, amongst other programs.

13. What materials, products or deliverables will be developed as a result of your proposed activity? Provide a time line for write-up and publication of information or production of educational materials:

This activity will create a visual database of photgraphic and video images of science being conducted in the Monument. It will also add to the existing database of images of the natural resources in the Monument. Video interview vignettes of scientists will help develop educational stories of what scientists do and how their work can help to support management objectives. Multimedia ootage will be used to develop an undergraduate distance learning (online) course offered through UH in Fall 2012. It will also be integrated into the existing continuing education course at Windward Community College. Public outreach and education materials generated at HIMB will also be much enhanced with images of scientists and the science being conducted in PMNM. Photos and video will also be made available to the Monument. Direct application to new activities and expansion of existing programs like the Ocean FEST and Ecosystem Penpals program will also be included.

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

Underwater camera; underwater video camera; underwater full face mask with microphone

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

Rechargeable batteries for cameras

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

None

17. List all Applicants' publications/references directly related to the proposed project:

Lemus, J. (2010) Applied Ocean Studies BAS Degree Program; Two-year upper division curriculum at UH Maui College

Lemus, J. and Duncan, K. (2009) Communicating Ocean Sciences; Graduate course at UH Manoa.

Lemus, J. (2008) Ecosystem-based Management; Graduate special topics seminar at UH Manoa.

Lemus, J. (2004-2007) Centers for Ocean Sciences Education Excellence (COSEE-West) Online Teacher Professional Development workshops.

Lemus, J. D., A. Read, A. Knight, H. Havens, J. Mooney, S. Teck, E. Franklin, M. Chow, J. Lindholm, A. Rosenberg, L. Abramson, B. Barr, C. Benson, E. Brody, K. Carvalho, C. Combest-Friedman, J. Dupont, K. Emery, D. Fluharty, B. Halpern, J. Johnson, S. Katz, B. Keller, J. Kerr, E. Klein, E.S. Rutherford, R. Warner, R. Pavia (in prep). Marine Ecosystem-based Management Course Guide. Journal of Geoscience Education.

Kittinger, J.N., D.J. Skillings, K.K. Carvalho, L.L.N. Reeve, M. Hutchinson, J. O'Malley, K. Cullison, J. Shackeroff, M. Chow, and J. Lemus (2009). Reconciling Ecosystem-Based Management and Focal Resource Conservation in the Papahānaumokuākea Marine National Monument. Marine Sanctuaries Conservation Series ONMS-09-04. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD.

Wiener, C. (2008-2010) Secrets of Moku o Loe; Continuing education course at UH Windward Community College

Wiener, C.S., B. C. Bruno. J. Fooley. (2011). Ocean investigators: Learning to monitor coral reefs using quadrats. Green Teacher Special Issue: Marine Education. (In press).

Wiener, C.S., M.A. Rivera., R.J. Toonen., et al. (2010). Creating Effective Partnerships in Ecosystem Based Management: A Culture of Science and Management. Journal of Marine Biology.

Wiener, C.S., & M.A. Rivera. (2010). Journeying through the Hawaiian Archipelago: Using marine science and place-based learning at the Hawai'i Institute of Marine Biology. Current: The Journal of Marine Education 26 (4).

Bruno, B. C. & C.S. Wiener. (2010). Ocean FEST: Families Exploring Science Together. *Journal of Geoscience Education*: 14 pages.

Wiener, C.S. & M.O. Lammers. (2010). Sound and observation: Listening for clues using real life acoustic recorders. *American Biology Teacher* 72 (6), 365-368.

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:**

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