

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

July 8, 2011

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to Dr. Christopher Winn and Dr. Samuel Kahng, Hawaii Pacific University, Oceanic Institute for Access to State Waters to Conduct Ocean Carbon Research Activities

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Dr. Christopher Winn and Dr. Samuel Kong, Associate Professors, Hawaii Pacific University, pursuant to § 187A-6, Hawaii Revised Statutes (HRS), chapter 13-60.5, Hawaii Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument (Monument), including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Nihoa Island
- Necker Island
- French Frigate Shoals
- Gardner Pinnacles
- Maro Reef
- Laysan Island
- Lisianski Island
- Pearl and Hermes Atoll
- Kure Atoll

The activities covered under this permit would occur between July 15, 2011 and August 31, 2011.

This work is a renewal of work previously permitted and conducted in the Monument.

INTENDED ACTIVITIES

The Applicants propose to collect water samples at various ocean depths from the ship in order to implement a long-term monitoring program that would assess the impact of ocean acidification on the Monument. They aim to assess and monitor calcite saturation state in the waters surrounding the monument and detail the concentrations of carbon system parameters in the Monument in order to demonstrate variation in space and time. This would provide the

applicant and scientific community with detailed knowledge of the state of the seawater CO₂ system at the current time in the history of global anthropogenic impacts on the environment. Many calcium carbonate producing organisms are threatened by the ongoing decrease in ocean pH and some evidence suggests that corals, even at low latitudes, may have already begun to be impacted. This proposed activity would attempt to provide the baseline information on carbon system dynamics within the Monument so that a well planned and effective long-term monitoring program can be put in place.

The Applicants are proposing to collect water samples from the research vessel from the surface to depths of 1000 meters. The samples would be collected along "transects" from shallow water to distances of up to 15 kilometers from the reef starting at the 60 meter contour, the safe operational depth for the research vessel. In addition, all of the sampling would be done in the water column and the seafloor would not be disturbed at any location. The Applicants propose collecting no more than 400 samples (30 gallons) of water during the month-long cruise to the NWHI.

The activities proposed by the Applicant directly support the Monument Management Plan's priority management needs 3.1 – Understanding and Interpreting the NWHI (through action plan 3.1.1 – Marine Conservation Science).

The activities described above may require the following regulated activities to occur in State waters:

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving monument resource

REVIEW PROCESS

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since March 10th, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Comments received from the scientific community are summarized as follows:

Scientific reviews support the acceptance of this application. No questions were raised during the review process.

Comments received from the Native Hawaiian community are summarized as follows:

Cultural reviews support the acceptance of this application.

Comments received from the public are summarized as follows:

No comments were received from the public on this application.

Additional reviews and permit history:

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA) Yes No

If so, please list or explain:

- The proposed activities are in compliance with the National Environmental Policy Act.
- The Department has made an exemption determination for this permit in accordance chapter 343, HRS, and Chapter 11-200, HAR. See Attachment ("DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAHAŌNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DR. CHRISTOPHER WINN AND DR. SAMUEL KAHNG, HAWAII PACIFIC UNIVERSITY, OCEANIC INSTITUTE FOR ACCESS TO STATE WATERS TO CONDUCT OCEAN CARBON RESEARCH ACTIVITIES UNDER PERMIT PMNM-2011-021")

Has Applicant been granted a permit from the State in the past? Yes No

If so, please summarize past permits:

- The applicant was granted permit PMNM-2009-045 in 2009 and PMNM-2010-039 in 2010 to conduct similar work.

Have there been any a) violations: Yes No
b) Late/incomplete post-activity reports: Yes No

Are there any other relevant concerns from previous permits? Yes No

STAFF OPINION

DAR staff is of the opinion that Applicants have properly demonstrated valid justifications for their application and should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with certain special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Research Permit General Conditions. All suggested special conditions have been vetted through the legal counsel of the Co-Trustee agencies (see Recommendation section).

MONUMENT MANAGEMENT BOARD OPINION

The MMB is of the opinion that the Applicants have met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by DAR staff.

RECOMMENDATION

Based on the attached proposed declaration of exemption prepared by the department after consultation with and advice of those having jurisdiction and expertise for the proposed permit actions:

1. That the Board declare that the actions which are anticipated to be undertaken under this permit will have little or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment.
2. Upon the finding and adoption of the department's analysis by the Board, that the Board delegate and authorize the Chairperson to sign the declaration of exemption for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200, HAR.
3. That the Board authorize and approve a research permit to Dr. Christopher Winn and Dr. Samuel Kahng, Hawaii Pacific University, with the following special conditions:
 - a. This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.
 - b. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.
 - c. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocol attached to this permit.
 - d. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
 - e. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge.
 - f. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

Respectfully submitted,


for Administrator

APPROVED FOR SUBMITTAL


William J. Aila, Jr.
Chairperson

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:

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: Dr. Christopher Winn and Dr. Samuel E. Kahng
Affiliation: Hawaii Pacific University

Permit Category: Research

Proposed Activity Dates: July 23, 2011 through August 20, 2011

Proposed Method of Entry (Vessel/Plane): vessel

Proposed Locations: The waters surrounding several islands within the Monument including Nihoa, French Frigate, Pearl and Hermes, Midway and Kure 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...
will help Monument managers put in place a long-term monitoring program to assess and understand the impact of ocean acidification on the Monument. As a part of that work we are attempting to assess calcite saturation state in the waters surrounding the monument as well as detail the concentrations of carbon system parameters in the monument and their variation in space and time. This will provide us with detailed knowledge of the state of the seawater CO₂ system at the current time in the history of global anthropogenic impacts on the environment. The chemical parameters that we will measure include titration alkalinity and pH. In addition, the standard hydrographic work that will be used to collect water samples will produce additional physical data on seawater temperature and salinity as well as some optical qualities of the water column. The two chemical parameters that we will measure will be used to compute the remaining two parameters of the seawater CO₂ system (i.e., total dissolved inorganic carbon and the partial pressure of CO₂) as well as several other parameters including calcite and aragonite saturation state and bicarbonate and carbonate concentrations.

A detailed description of the temporal and spatial variability in carbon system parameters is necessary in order to assess, understand and account for any aliasing of the long-term chemical record we are attempting to produce.

At the present time our primary goal is to assess the spatial and temporal scale of the calcium carbonate saturation "halo" that has been reported to exist in the waters of the monument. This halo is believed to be produced by the dissolution of high-magnesium calcite advected from the coral reefs. Understanding the spatial scale of the halo as well as its magnitude and temporal variability is important to provide context for assessments of change in the oceanic carbon system with time.

b.) To accomplish this activity we would
will collect water samples from the research vessel from the surface to depths of 1000 meters. The samples will be collected along "transects" from shallow water to distances of up to 15 kilometers from the reef. In this context shallow water is at a depth of about 60 meters. We are limited to this as a minimum depth given the safe operational limits of the research vessel. Our sampling takes advantage of available time on the research vessel and our operations are therefore generally conducted at night. However, our specific sampling locations are dependent upon the islands that the research vessel will visit and therefore we cannot specify exact station locations at this time. However, all of our sampling work will be deeper than the 60 meter depth contour. In addition, all of our sampling will be done in the water column and we will not disturb the seafloor at any location. Although we sampled to 1500 meters in the past, our data to date suggests that this depth is well beyond the influence of the halo and we will sample no deeper than 1000 meters in the summer of 2011. We anticipate collecting no more than 400 water samples during the month-long cruise to the NWHI. The exact number will depend on the sampling opportunities that other ship operations will allow.

c.) This activity would help the Monument by ...
assessing and documenting changing seawater carbonate chemistry with the monument. It is well known that many calcium carbonate producing organisms are threatened by the ongoing decrease in ocean pH and some evidence suggests that corals, even at low latitudes, may have already begun to be impacted. However, sufficient data to assess the rate of change in carbonate chemistry in the monument is not available. At present, our research is attempting to provide the baseline information on carbon system dynamics within the monument so that a well planned and effective long-term monitoring program can be put in place.

Other information or background:

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Christopher D. Winn and Samuel E. Kahng

Title: Associate Professor of Oceanography

1a. Intended field Principal Investigator (See instructions for more information):
Christopher D. Winn/Sam Kahng

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

Oceanic Institute
[REDACTED]

Phone: cwinn [REDACTED] S.Kahng [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):

Hawaii Pacific University
[REDACTED]

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):

Mr. Robert Thompson, Graduate assistant
Mr. Coulson Lantz, Graduate Assistant
MS. Becky Walker, HPU Undergraduate
Ms. Andrea Kealoha, HPU Graduate Student
Ms. Jessica Hellenbeck, HPU Graduate Student

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Dr. Sam Kahng, HPU Faculty
Dr. Christopher Winn, HPU Faculty

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 checked="" 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 checked="" type="checkbox"/> Shallow water | <input checked="" type="checkbox"/> Deep water |
| <input checked="" type="checkbox"/> Pearl and Hermes Atoll | <input type="checkbox"/> Land-based | <input checked="" type="checkbox"/> Shallow water | <input checked="" type="checkbox"/> Deep water |
| <input checked="" type="checkbox"/> Midway Atoll | <input type="checkbox"/> Land-based | <input checked="" type="checkbox"/> Shallow water | <input checked="" type="checkbox"/> Deep water |
| <input checked="" type="checkbox"/> Kure Atoll | <input type="checkbox"/> Land-based | <input checked="" type="checkbox"/> Shallow water | <input checked="" type="checkbox"/> Deep water |
| <input type="checkbox"/> Other | | | |

Ocean Based

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

Location Description:

Our sampling will be restricted to the water column. We will not be collecting live animals or collecting other types of samples within the monument.

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:*

Our research is designed to evaluate the impact of the calcium carbonate banks on the carbon chemistry of the surrounding ocean and to assess the impact of ocean acidification on the carbonate structures within the monument. Ocean acidification is produced by the accumulation of anthropogenic carbon dioxide that is added to the sea. Although mankind's activities inject carbon primarily onto the atmosphere, as atmospheric concentrations rise, a portion of this carbon dioxide dissolves in the sea. At present about half of the carbon that has been added to the atmosphere has already entered the ocean and eventually all of the carbon added to the atmosphere is projected to be sequestered in the sea. The addition of this carbon alters the pH of the sea and threatens to impact the growth and viability of calcite producing organisms like corals.

The ultimate purpose of our research is to monitor chemical changes in the waters of the Northwestern Islands and the impact of these changes on the coral communities within the monument. This work is critical to protecting the long-term viability of these precious environments. The scope of our research encompasses the entire island chain from waters offshore of the reefs to waters within the reef environments themselves. However, our sampling program is restricted to the water above and around the reefs and will not impact any of the organisms in the monument (see below).

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?

Our collection small volumes of seawater from the water column surrounding the islands will not impact the emergent islands or submerged reefs in any way. Our personnel will not collect samples via SCUBA and will only obtain samples from sampling gear deployed from research vessels.

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 cultural importance of the Northwestern Hawaiian Islands (NWHI) to Native Hawaiians as being a sacred place. It is understood that Native Hawaiians have always depended on the ocean as a resource (especially in the NWHI) for both sustenance and cultural activities. We look forward to expanding our knowledge on this topic at the required cultural briefing. Coral reefs and the ecosystem surrounding the Hawaiian Archipelago are an important natural resource as well as a cultural asset for Native Hawaiians and all U.S. citizens. These huge calcium carbonate structures may be severely damaged or even completely destroyed by

the slowly declining pH in the global ocean. Our research is designed to better understand the carbon chemistry of the ocean waters in and around the Monument and will hopefully be useful in designing strategies for protecting these resources for future generations of Native Hawaiians as well as all people of the Pacific region.

Our sampling work will be compatible with management practices in the monument in that our work will have no impact on any cultural, historic or natural resources in the monument. Water samples will be collected only from the water column and will not affect any cultural, biological or physical features within 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.

Our samples must be collected from monument waters in order to improve our understanding of the chemical processes 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?

One of the most fundamental processes within the monument is the precipitation of calcium carbonate by reef building organisms. Calcium carbonate is precipitated by a variety of reef organisms and calcium carbonate also dissolves through both biological and abiotic processes. At the present time, the rate of precipitation is almost certainly greater than the rate of dissolution throughout most of the Monument. However, as the carbon chemistry of the reef environments change it is anticipated that precipitation will decline and dissolution will increase. This is a result of the changes in the solubility of calcium carbonate resulting from a decrease ocean pH and a simultaneous decrease the concentration of the carbonate ion. Our research will improve our understanding of the precipitation and dissolution of calcium carbonate and help to anticipate the impact of ocean acidification on these processes within the monument.

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

We will participate in month-long expeditions to the monument. Our visits will be part of ongoing observation and research by the Papahānaumokuākea Marine National Monument. We need to be in the monument for an entire month because we will be passengers on the ship and cannot return to Honolulu until the ship does.

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

Dr. Winn and Dr. Kahng have considerable experience in this area of research. Dr. Winn has participated in research programs focusing on oceanic carbon chemistry for decades. Relevant experience includes participation as principle investigator on the Department of Energy's Global Carbon Survey as part of the International World Ocean Circulation Experiment (WOCE) and

the National Science Foundation's Joint Global Ocean Flux (JGOFS) program. These large scale research programs have included similar research on research cruises in virtually all of the world's oceans.

Dr. Kahng has been working in Hawaii's coral reef environment for many years. He has worked on mesopelagic coral species and has extensive experience and expertise in coral reef biology and Ecology. In addition, Dr. Kahng has been conducting a time-series carbon system measurement program in near-shore Hawaiian waters for the past year and has provided some of the first data on carbon system dynamics on exposed coral reef environments in Hawaii.

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. We are working closely with the Papahānaumokuākea Marine National Monument on this research effort and the monument is funding our participation.

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.

Our sample collection and analysis procedures have been developed over years of similar research and our expertise in the study of the oceanic carbon system will provide important insight into the impact of ocean acidification of the monument. Our research will not involve the collection of any live animals or other materials from the monument. We will collect a total of only 30 gallons of seawater from the monument.

i. Has your vessel has 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.

We cannot foresee any conditions that would make issuance of this permit inappropriate

8. Procedures/Methods:

Our research work involves collecting water samples from monument waters. Water samples will be collected from the research vessel using standard hydrographic methods and no live animals will be collected. Standard hydrography generally includes deploying a CTD, a Conductivity, Temperature and Depth measuring instrument, deployed on a hydrowire attached to a high-power winch onboard the ship. As the CTD is lowered through the water, continuous measurements are made by electronic sensors. The output from these sensors are transmitted to the ship via a conducting wire embedded in the hydrowire supporting the instrument. Onboard the research vessel, these output voltages are converted to physical and chemical measurements via complex calibration algorithms. In addition, a rosette is generally attached to the CTD in a circular arrangement surrounding the CTD. The rosette supports water sampling niskin bottles that can be closed at desired depths. Using this system, we will collect water at depth below the

ship and obtain the necessary physical information to determine the precise position within the water column as well as the physical conditions at the depth where the sample was collected.

Our sampling plan involves collecting water along transects (i.e., sampling stations arranged in straight lines) away from the shallow coral reefs. Water samples will be collected from several depths from the surface to near the seafloor at each sampling location. 10 to 20 depths will be sampled at each location depending on the time we have available for sampling as well as the water depth. Water samples are collected in carefully cleaned 300ml glass bottles and will be returned to Honolulu for analysis. No waste of any kind will be introduced into monument waters.

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:

We will not collect any living specimens but we will be collecting seawater samples from the water column surrounding the islands. We will collect roughly four hundred 300 ml samples for a total of about 30 gallons of ocean water. These samples will be returned to Honolulu for analysis and we will not release any chemicals in Monument waters.

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

• General site/location for collections:

Water column above the substrate from the surface to 1000 meters and to roughly with 15 kilometers of any emergent reefs.

- Is it an open or closed system? Open Closed
I don't believe that our sampling fits into either definition. All of our water samples will be drawn from the water column, preserved and returned to Honolulu for analysis
- 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 or specimens be transported out of the Monument?

Samples will be returned to Honolulu with the research vessel

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

We anticipate exchanging a few water samples with other laboratories to ensure analytical accuracy and precision. Dr. Andrew Dickson's laboratory at Scripps Institution of Oceanography.

Contact Information:

Dr. Andrew Dickson
Marine Physical Laboratory
Scripps Institution of Oceanography
University of California, San Diego
9500 Gilman Drive
La Jolla, CA 92093-0244, USA
Phone: 1-858-822-2990
Fax: 1-858-822-2919
Email: adickson@ucsd.edu

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

We will utilize the ship's CTD, rosette, winch and hydrowire for sample collection

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

Small amounts of Mercuric Chloride. This chemical will be used for sample preservation only and will not be released into monument waters. We add this chemical to our water samples into order to preserve them for analysis in shore-based laboratories. This chemical is also used sparingly. We will use less than 30 milliliters during the entire month-long expedition.

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

No fixed instruments will be deployed

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

Complete analysis and interpretation will require approximately one year following the completion of the cruise. Our data will be compiled in a data report that will be submitted to the NOAA Monument program. the data report for our 2009 sampling season is now complete. and the report for 2010 will be completed once the analytical work for that year is complete. Our data reports will be submitted to the monument approximately 12 months after the completion of our annual sampling. We have already presented the results of our work at several scientific conferences and will be writing a manuscript for publication in the peer-reviewed literature after the completion of our 2010 summer sample analysis.

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

Please see attached C.V.

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

Papahānaumokuākea Marine National Monument Compliance Information Sheet

1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant): Coulson Lantz (Graduate Student), Andrea Kealoha (Graduate Student)

2. Specific Site Location(s): (Attach copies of specific collection locations): Transects from the 60 meters depth to 10 km from shallow water will be collected from several islands. These islands may include, Nihoa, Necker, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island Pearl and Hermes Atoll, Midway Atoll and Kure Atoll

3. Other permits (list and attach documentation of all other related Federal or State permits): none

3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation. No permits, were suspended, modified or revoked

4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information): Papahānaumokuākea Marine National Monument

5. Time frame:

Activity start: July 23, 2011

Activity completion: August 20, 2011

Dates actively inside the Monument:

From: 7-23-2011

To: 8-20-2011

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application: None

Personnel schedule in the Monument: graduate students will be entering and leaving the monument with the R/V Hi'ialakai.

6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument: Hawaii Pacific University covers insurance for graduate students participating in research activities.

7. Check the appropriate box to indicate how personnel will enter the Monument:

- Vessel
 Aircraft

Provide Vessel and Aircraft information:

8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):

- Rodent free, Date:
 Tender vessel, Date:
 Ballast water, Date:
 Gear/equipment, Date:
 Hull inspection, Date:

9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):

Vessel name: R/V Hi'ialakai

Vessel owner:

Captain's name:

IMO#:

Vessel ID#:

Flag: US

Vessel type:

Call sign:

Embarkation port:

Last port vessel will have been at prior to this embarkation: Honolulu

Length:

Gross tonnage:

Total ballast water capacity volume (m3):
Total number of ballast water tanks on ship:
Total fuel capacity:
Total number of fuel tanks on ship:
Marine Sanitation Device:
Type:

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems: This will be handled by the R/V Hi'ialakai crew.

Other fuel/hazardous materials to be carried on board and amounts:

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type:

VMS Email:
Inmarsat ID#:

* Individuals MUST ENSURE that a type-approved VMS unit is installed and that its automatic position reports are being properly received by the NOAA OLE system prior to the issuance of a permit. To make sure your VMS is properly configured for the NOAA OLE system, please contact NOAA OLE at (808) 203-2503 or (808) 203-2500.

* PERMITS WILL NOT BE ISSUED TO INDIVIDUALS ENTERING THE MONUMENT VIA VESSEL UNTIL NOAA OLE HAS CONTACTED THE MONUMENT PERMIT COORDINATOR WITH A 'POSITIVE CHECK' READING.

10. Tender information:

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors:

Additional Information for Land Based Operations

11. Proposed movement of personnel, gear, materials, and, if applicable, samples:

All personnel, equipment and samples will enter and leave the monument aboard the R/V Hi'ialakai

12. Room and board requirements on island: none

13. Work space needs: wet lab on the R/V Hi'ialakai

DID YOU INCLUDE THESE?

- Map(s) or GPS point(s) of Project Location(s), if applicable
- Funding Proposal(s)
- Funding and Award Documentation, if already received
- Documentation of Insurance, if already received
- Documentation of Inspections
- Documentation of all required Federal and State Permits or applications for permits

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

GUY KAULUKUKUI
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

July 8, 2011

TO: Division of Aquatic Resources File

THROUGH: William J. Aila, Jr., Chairperson

FROM:  Francis Oishi
Division of Aquatic Resources

SUBJECT:

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT
UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR
PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DR. CHRISTOPHER
WINN AND DR. SAMUEL KAHNG, HAWAII PACIFIC UNIVERSITY, OCEANIC INSTITUTE, FOR ACCESS
TO STATE WATERS TO CONDUCT OCEAN CARBON RESEARCH ACTIVITIES
UNDER PERMIT PMNM-2011-021

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200, HAR:

Project Title:

Papahānaumokuākea Marine National Monument Research Permit to Dr. Christopher Winn and Dr. Samuel Kahng, Hawaii Pacific University, Oceanic Institute, for Access to State Waters to Conduct Ocean Carbon Research Activities

Permit Number: PMNM-2011-021

Project Description:

The research permit application, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument (Monument), including the NWHI State waters from July 15, 2011 through August 31, 2011.

The applicant proposes to collect water samples from various depths and locations within the Monument to analyze and characterize the carbonate chemical make-up of the water surrounding the atoll systems in Papahānaumokuākea Marine National Monument.

To conduct this activity, Conductivity, Temperature, and Depth (CTD) casts would be performed, using the shipboard rosette on the NOAA Ship Hi'ialakai. In addition to the data collected by the CTD, the rosette would carry Niskin bottles for water sampling. Water samples

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would be brought onboard, preserved, and returned to Honolulu for analysis. Samples would be used to determine water column carbon chemistry. The applicant anticipates collecting 400 300ml samples, for a total of 30 gallons of water collected. The proposed work would more clearly define the potential impact of changes in ocean pH (ocean acidification) on the Monument ecosystem.

The proposed activities are in direct support of the Monument Management Plan's priority management need 3.1 – Understanding and Interpreting the NWHI (through action plan 3.1.1 – Marine Conservation Science). This action plan calls for further understanding of "functional linkages of marine organisms and their habitats." Activities to support this understanding, such as the carbon cycling research to be carried out by the permittee, are also addressed in the Monument Management Plan Environmental Assessment (December 2008) which resulted in a FONSI. This EA specifically covers field activities, such as those being proposed, that will "characterize shallow-water and deepwater marine habitats" (PMNM MMP Vol 2, p.70).

Consulted Parties:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since March 10th, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Exemption Determination:

After reviewing HAR § 11-200-(8), including the criteria used to determine significance under HAR § 11-200-12, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit, including monitoring ocean chemistry by the collection of water samples, have been evaluated as a single action. As a preliminary matter, multiple or phased actions, such as when a group of actions are part of a larger undertaking, or when an individual project is precedent to or represents a commitment to a larger project, ocean chemistry monitoring, must be grouped together and evaluated as a single action. HAR § 11-200-7. Since this permit involves an activity that is precedent to a later planned activity, i.e. the continuation of ocean chemistry monitoring activities, the categorical exemption determination here will treat all planned activities as a single action.

2. The Exemption Class for Scientific Research with no Serious or Major Environmental Disturbance Appears to Apply. Chapter 343, HRS, and § 11-200-8, HAR, provide for a list of classes of actions exempt from environmental assessment requirements. HAR §11-200-8.A.5. exempts the class of actions which involve "basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." This exemption class has been interpreted to include collection for "water quality analysis", such as those being proposed.

The proposed collection activities here appear to fall squarely under the exemption class #5, exempt item #1 as described under the Division of Plant Industry, Department of Agriculture exemption list approved on September 17, 2008. As discussed below, no significant disturbance to any environmental resource is anticipated in the sampling of Monument resources. Thus, so long as the below considerations are met, an exemption class should include the action now contemplated.

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if “the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.” HAR § 11-200-8.B. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. HAR § 11-200-12. Examples of actions which commonly have a significant effect on the environment are listed under HAR § 11-200-12.

This project would be a continuation of work previously conducted by the applicant. Specifically, further monitoring of ocean chemistry of Monument waters would be conducted. Other projects may include the collection of water samples, but no other studies are looking specifically at carbon chemistry and the potential impact of changes in ocean pH on the Monument ecosystem. Other permits that have involved collection of water samples have had no deleterious effects on Monument resources. No significant impacts are anticipated as a result of the proposed collection techniques especially since these techniques have been utilized by this Applicant in both 2009 and 2010. There have been no impact issues resulting from this applicant’s technique and activities in the past. All activities will be conducted in a manner compatible with the management direction of the Monument Proclamation in that the activities do not diminish monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. The joint permit review process did not reveal any anticipated indirect or cumulative impacts, nor did it raise any cultural concerns, that would occur as a result of these activities.

The activities would be conducted from the NOAA Ship HI’IALAKAI (PMNM-2011-009) during its July/August cruise. The following table lists additional activities that are anticipated to take place on this cruise pending approval of permit applications.

Table 1. Concurrent Projects Aboard NOAA SHIP HI’IALAKAI

Permit	Purpose and Scope	Location
PMNM-2011-009 NOAA Ship HI’IALAKAI	The permit allows NOAA Ship HI’IALAKAI entry into PMNM. Personnel aboard the vessel will be permitted under separate permits.	All locations

Permit	Purpose and Scope	Location
PMNM-2011-018 Meyer (proposed)	The proposed action is to allow collection of reef fish and tagging of top predators as well as acoustic receiver deployment	All locations
PMNM-2011-020 Aeby (proposed)	The proposed action is to allow collection of reef fish and corals for disease studies as well as monitoring for diseased corals	All locations
PMNM-2011-027 Thomas (proposed)	The proposed action is to allow collection of algae, bivalves and water samples.	All locations
PMNM-2011-023 Au (proposed)	The proposed action is to allow deployment and retrieval of acoustic receivers.	Kure, Lisianski, FFS, Nihoa
PMNM-2011-025 Bowen (proposed)	The proposed action is to allow collection of reef fishes and invertebrates.	All locations
PMNM-2011-022 Godwin (proposed)	The proposed action is to allow quantitative surveys and collections of coral, algae, fish, and non-coral invertebrates.	All locations
PMNM-2011-032 Donahue (proposed)	The proposed action is to allow collection of corals, deploy coral settlement blocks, and measure water chemistry.	All locations

This is the only ocean acidification study proposed. One other proposed activity, Thomas (PMNM-2011-027) would involve the collection of water samples. Geographically, the activities do not overlap. This Applicants' water samples as proposed would be taken from depths greater than 60 meters and therefore will not overlap with that proposed by Thomas, whose would max out at 60 meter depths in nearshore waters.

The culmination of these permits, and their disparate activities, occurring throughout the Monument over a 4-week period, is not anticipated to have significant cumulative impacts. The NOAA Ship OSCAR ELTON SETTE (PMNM-2011-008) may also be in the Monument during this time frame facilitating needs of the monk seal camps under the management permit (PMNM-2011-001).

Since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

4. Overall Impacts will Probably be Minimal and Insignificant.

Again, any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific conditions attached to the permit. Specifically, all research

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activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources of the Monument as required by Presidential Proclamation 8031, other applicable law and agency policies and standard operating procedures.

Conclusion. Upon consideration of the permit to be approved by the Board of Land and Natural Resources, the potential effects of the above listed project as provided by Chapter 343, HRS and Chapter 11-200 HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.

William J. Aila, Jr.
Chairperson, Board of Land and Natural Resources

Date