

State of Hawai'i  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Aquatic Resources  
Honolulu, Hawai'i 96813

August 14, 2015

Board of Land and Natural Resources  
Honolulu, Hawai'i

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to Dr. Charles Littnan, NOAA Fisheries, Pacific Islands Fisheries Science Center, for Access to State Waters to Conduct Marine Mammal and Marine Debris Assessment 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. Charles Littnan, Lead Scientist, Hawaiian Monk Seal Research Program, NOAA, pursuant to § 187A-6, Hawai'i Revised Statutes (HRS), Chapter 13-60.5, Hawai'i 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, including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Laysan Island
- Lisianski Island
- Pearl and Hermes Reef
- Midway Atoll

The activities covered under this permit would occur between September 1, 2015 and August 31, 2016. The proposed activities are a renewal of work previously permitted and conducted in the Monument.

INTENDED ACTIVITIES

The Applicant proposes to conduct video camera surveys of Laysan, Lisianski, Pearl and Hermes Reef and Midway Atoll to enhance understanding of marine mammals and marine debris in the Northwestern Hawaiian Islands. To carry out the surveys, the Applicant would hand-launch the AeroEnvironment PUMA All Environment (AE) Unmanned Aircraft System (UAS) platforms at the select survey sites within the NWHI. The UAS would fly below 500 feet and flights would be between 15-20 minutes in length. The UAS system has the ability to collect remote imagery and develop habitat maps for a broad range of resource protection and management issues. In addition, these systems are able to operate discreetly without disturbance to sensitive seabird colonies or marine mammals.

The UAS HD video data and photographs collected would be evaluated and compared to existing datasets to determine if the resolution would be sufficient to assess marine mammal (ability to identify individuals) and seabird colony population dynamics for long-term monitoring. They will also be used to survey for marine debris. If desired, the data can also be used for vegetation surveys. In using these platforms, managers would be able to minimize potential wildlife disturbance. Providing the ability to survey resources on the remote islands without (1) interference; (2) the potential for the introduction of invasive species; and (3) human disturbance to the natural resources. The UAS would increase the monitoring and surveying capacity in the Monument. Please refer to "F-1 Attachment 1" for photos of the UAS.

The UAS will be launched and recovered from land, the NOAA R/V HI'IALAKAI, or one of the ships' launches and/or rigid hulled inflatables.

Over the past three years, the protocols and procedures for surveying marine mammals, sea birds and marine debris with the UAS system have been developed and perfected in national marine sanctuary sites across the country. The PUMA multicopter system was successfully operated within the NWHI in 2014.

The activities proposed by the Applicant directly support the Monument Management Plan's priority management needs 3.2 – Conserving Wildlife and Habitats, through action plan 3.2.1 – Threatened and Endangered Species. This action plan includes a strategy to "support activities that advance recovery of the Hawaiian monk seal".

#### REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, Hawai'i 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 April 22, 2015 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:**

##### QUESTIONS:

1. What is the protocol for recovery of the unit if it were to fail and crash, either on land or over the water?

*This is one of the topics that we intend to address with a UAS Operations Planning group we are putting together. Our first meeting is tentatively scheduled for the last week in May.*

*Right now the intent is that almost all operations will be occurring along the beach and shallow reef areas. All platforms will float for differing periods of times if they touch down in the water. We should be able to have enough time to retrieve them when they hit the*

*water. If one should sink it will likely be in relatively shallow water and retrievable with a mask and snorkel. There is a small chance that a platform could be lost at sea.*

*Staying on the periphery of the larger islands (Laysan and Lisianski) should minimize the potential for any UAS to land in the island interior.*

*The team will be composed of pilots and engineers that are very familiar with the platforms. There is a pre-flight check before every operation and several operational rules that are put in place to avoid instrument failure (i.e. we must return with 25% of the battery still available).*

2. If any damage to the environment or a cultural resource were to occur from such an event, who is held responsible?

*NOAA*

3. Please further elaborate about the specific goals for the project, listed on page 3. Why must the comparison and assessment of these platforms; and the development of protocols occur specifically inside the Monument? Please explain.

*These platforms have been used in many other locations around the country. Their safety and dependability is not really being tested. The intent of using multiple platforms simultaneously is to take advantage of other work that we already plan on doing to make greater use of the opportunity.*

*For instance some of the mission objectives:*

- 1) *Survey animals to see how well tags and natural markers can be identified and to also see if injuries/entanglements can be detected.*

*Because of the low density and widespread nature of the population in the MHI, we would have to fly in numerous places over the course of weeks in the MHI to be able to reproduce what we could do in a couple of days with monk seals in the NWHI. By incorporating these platforms into our mission in the NWHI maximizes our efforts and saves resources for taxpayers.*

- 2) *Assess body condition of seals using UAS.*

*This study requires capture, handling and sedation of seals. We will working with many seals this September that will be either controls or candidates for translocation or rehabilitation. We would prefer to develop this UAS technique on seals that we are already going to capture rather than go out and capture seals in the MHI that we would otherwise leave alone. Also, virtually all of the animals in the MHI are on the higher end of the condition spectrum. For this technique to be useful we need to work with animals that are thin as well as fat.*

- 3) *Marine debris detection.*

*We intend to use these platforms in areas designated as marine debris hotspots in the NWHI. Debris occurs in the NWHI at rates and densities that are far greater than the MHI. We can rapidly assess coastal debris (while doing the monk seal work) in the NWHI, and known net balls caught on reef, but we can also survey complex shallow areas (like the*

*“Maze” at Pearl and Hermes Reef) that would be far harder (and potentially more damaging) to do by small boat.*

*Regarding platform comparisons: We have a bonafide need to use a UAS platform in conjunction with our other already permitted/planned NWHI monk seal activities and the process of handling an animal takes 25-40 minutes. We believe this gives a good opportunity to compare between two platforms (APH-22 and IVAN) for image quality, consistency, control, etc. This will help inform our future decision-making on which tool is the best value and platform for multi-mission use in the NWHI.*

- a. We appreciate and support the goals and objectives of the applicant, however, we struggle with the applicant’s response of “...saves resources for taxpayers.” It appears to us in our interpretation of the overall response, the proposal to conduct the activity inside the Monument versus conducting it in the MHIs, is based on cost efficiency for NMFS. As such, this does not meet the Findings of why the activity must occur inside the Monument. Could you please clarify?

*My apologies for not being more clear above. The cost-savings is only a small, but legitimate, justification. I hope the following responses are little more explicit and if they are not I would be happy to follow up with a phone call for further discussion.*

*The type of mission that we are doing is only for the NWHI. We are using two types of platforms for two different research/monitoring projects and it probably helps to separate the two general platform types (fixed wing vs. multicopter). The Puma is being used for larger scale transect work (marine debris searches, bird/plant surveys, “island-scale” work etc). This is work where longer flight times are necessary for efficiency and success. This mission is a continuation of work that was previously permitted. The platform has been improved by adding a more powerful camera, as suggested by last year’s participants (NOAA and USFWS) so its utility will be enhanced. Our intent is that this platform can become a regular tool on NOAA cruises that can conduct standard surveys and searchers to assist in marine debris, monitor natural resources, and be used to build a time series to help managers assess how changing dynamics (sea level rise, storm events, tsunami’s etc.) alter terrestrial habitat and distribution and abundance of flora and fauna.*

*The multicopters are for smaller scale work (assessing condition or id’s of individuals, small beach survey) that requires shorter flight times, ability to hold stationary position, and/or lower altitudes. For now, let’s assume we are only using one platform, the APH-22. The research we are doing with seals is capturing and sampling a range of seals from “skinny” (emaciated seals that will be captured and brought to Kona for rehabilitation) to medium (animals that will be sampled and left as controls for survival comparison) to fat (weaned pups that will be translocated to an area of higher survival). We are going to fly the hexacopter over them to assess condition prior to capture and again while the animal is sedated and placed in an “optimal” position. This is a technique used for other species, and we are refining it to use in the future for monk seals in the NWHI.*

*We are not doing this work with this age-class of animals in the MHI. We are prohibited from unnecessarily taking additional animals in our permit. A core value of permits, animal*

*welfare, and ethical research is to reduce the number of animals used for study, particularly in the case of endangered species. Furthermore, due to an absence of skinny seals in the MHI this study could not be conducted and this technique would not be applied in the MHI and even if it could it would unnecessarily increase the threat of serious injury or mortality to seals. Therefore, we believe that there isn't the ability to conduct the work outside the Monument.*

*Now, bringing in the Ivan quadcopter, we want to compare performance between the two multicopter platforms. We could fly these two platforms over random objects in the MHI to compare overall optics, stability, and utility. But technically, we are interested in how these factors compare when examining seals, seals that will only be sedated and studied in the NWHI as described above. As stated in our previous response, the duration of handling the animals provides the opportunity to compare the platforms on real animals. This could potentially double the time that a multicopter is in the air (i.e. survey a seal with APH-22 then survey the seal again with Ivan). The most important factor to take into account in these operations is interactions with birds. If during the initial use of platforms bird interactions are negligible than additional flight times pose little downside. However, if we do see bird interactions on initial flights, we would reduce or eliminate operations as appropriate and that includes the platform comparison. This is consistent with our concerns for seals above, that we would not want to unnecessarily increase the threat of bird injury or mortality.*

4. It may not be a requirement, but has the applicant received or plans to obtain permission from the Federal Aviation Administration to conduct operations in national air space?

*We do need a Certification of Authorization (COA) from the FAA and authorization from NOAA Aviation Operations Center prior to doing our work. This permitting is happening in parallel to the PMNM process. We will not and cannot operate unless all permits are in place.*

COMMENTS:

1. The proposed activity can be conducted with adequate safeguards for the natural and cultural resources of the Monument if the applicant tested his activities outside the Monument so that he can demonstrate success and address any trouble-shooting, and then have the approved method considered for the Monument.

*We will work within our UAS Operations Planning Group to ensure this and will keep the MMB informed as the plans develop.*

2. The practicable alternative to conducting the activity within the Monument is for the applicant to first have "the best" approach and specific protocols already determined before collecting data images directly inside the Monument. Species such as seabirds, seals and turtles exist in the main Hawaiian islands along coastlines where the proposal's comparison and assessment of these platforms, and development of protocols, can occur before conducting the approved method inside the Monument.

*We disagree. As explained above, these platforms are going to be incorporated into work with monk seals that is happening in the NWHI and not the MHI. We want to take advantage of a situation where we are already going to be handling seals rather than handle additional seals unnecessarily in the MHI.*

3. The applicant's methods and procedures are inappropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural and natural resources, because the proposal can occur outside the Monument, such as on the main Hawaiian islands, in order to address any trouble-shooting before approval of a method is considered for the Monument.

*I don't know what is meant by trouble-shooting. These are all highly stable dependable platforms with trained pilots. Trouble-shooting from a mechanical/performance standpoint has been done in the R&D phase and testing of platforms across a wide variety of places and species. We will be practicing hovering over a fixed point and refining the study designs and procedures before we go. When we are up there we are doing research, not trouble-shooting.*

4. The MMB requests that the research team review and adhere to the Boating and Diving Protocols, and assigned Best Management Practices, in place for the Monument, if the proposal is granted.

*We intend to. This can be incorporated into our operation plan which is a requirement of the NOAA Aviation Operation Center before we can fly. There will be a comprehensive risk assessment that is done that will relevant to this.*

5. The proposal may require MMB approval of a resource monitor, who is a seabird expert, on the terrestrial portions. Seabird behavior is quite variable between the various nesting colonies in the northwestern Hawaiian islands and we cannot necessarily expect the same experience at each site.

*USFWS has been invited to the Planning Team and this will included in our operations discussions.*

6. It is noted that the APH-22 and IVAN systems (hexacopters) do not have propeller guards. Although, having these safeguards would be added weight that would reduce flight time, with the large number of birds at the proposed locations the applicant should at least consider propeller guards for protecting Monument resources.

*Absolutely. Another item on our list to discuss with the planning group. We are working with engineers that built both systems and we are confident that there are reasonable safeguards that can be put in place without greatly impacting operational capacity.*

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

Cultural reviews support the acceptance of this application. No concerns were raised.

**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.
- A request for a Section 7 informal consultation pursuant to the Endangered Species Act of 1973 is underway to analyze the effects of potential impacts or stressors to Hawaiian monk seals, green sea turtles, hawksbill sea turtles, North Pacific distinct population segment of loggerhead sea turtles, olive ridley sea turtles, leatherback sea turtles, humpback whales, sperm whales, fin whales, blue whales, sei whales, north pacific right whales; and proposed and designated Hawaiian monk seal critical habitat. The outcome of this consultation may require the Applicant to adhere to other NMFS-prescribed conditions. Such conditions would be reflected in the PMNM permit, prior to issuance.
- MMPA/ESA permit related to this activity: Permit To Take Protected Species For Scientific Research And Enhancement Purposes, Permit No. 10137-04, issued by the Office of Protected Resources, National Marine Fisheries Service
- The EA for this permit resulted in a FONSI (Finding of No Significant Impact) and is titled: Supplemental Environmental Assessment On Issuance Of A Permit For Field Research and Enhancement Activities On The Endangered Hawaiian Monk Seal (Permit No. 10137-04)
- 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 PAPAHA NAUMOKU AKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DR. CHARLES LITTNAN, NOAA FISHERIES, PACIFIC ISLANDS FISHERIES SCIENCE CENTER, FOR ACCESS TO STATE WATERS TO CONDUCT MARINE MAMMAL AND MARINE DEBRIS ASSESSMENT ACTIVITIES UNDER PERMIT PMNM-2015-019”)

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-2010-030 to conduct similar activities. The Applicant was also granted permits PMNM-2008-016, PMNM-2010-018, PMNM-2009-030, and PMNM-2011-029 to conduct associated Hawaiian monk seal recovery work in 2008, 2009 and 2011.

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:

PMNM staff is of the opinion that Applicant has properly demonstrated valid justifications for his 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 Applicant has 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 PMNM staff.

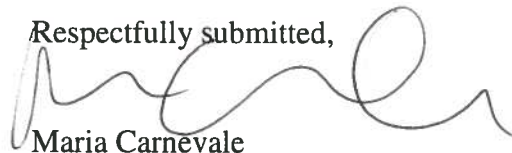


RECOMMENDATION:

That the Board authorize and approve a Research Permit to Dr. Charles Littnan, Pacific Islands Fisheries Science Center, with the following special conditions:

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 permittee provide, to the best extant possible, a summary of their Monument access, including, but not limited to, any initial findings to the DLNR for use at educational institutions and outreach events.
4. 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.
5. 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.
6. 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.
7. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
8. 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.
9. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

Respectfully submitted,



Maria Carnevale

Papahānaumokuākea Marine National Monument

APPROVED FOR SUBMITTAL



SUZANNE CASE

Chairperson



**Papahānaumokuākea Marine National Monument**  
CONSERVATION AND MANAGEMENT Permit Application

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

**ADDITIONAL IMPORTANT INFORMATION:**

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

**INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED**

Send Permit Applications to:

Papahānaumokuākea Marine National Monument Permit Coordinator

6600 Kalaniana'ole Hwy. # 300

Honolulu, HI 96825

nwhipermit@noaa.gov

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

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

## **Papahānaumokuākea Marine National Monument Permit Application Cover Sheet**

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

### **Summary Information**

**Applicant Name:** Charles Littnan

**Affiliation:** NOAA, NOAA Fisheries, Pacific Islands Fisheries Science Center, Hawaiian Monk Seal Research Program

**Permit Category:** Conservation and Management

**Proposed Activity Dates:** 5/19/15-5/30/15

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

**Proposed Locations:** Laysan, Lisianski, Pearl and Hermes Reef, Midway

**Estimated number of individuals (including Applicant) to be covered under this permit:**  
10

**Estimated number of days in the Monument:** 12

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

a.) The proposed activity would...

Utilize the AeroVironment Puma All Environment (AE) Unmanned Aircraft System (UAS) and two multi-rotor UAS platforms (Ivan and APH-22) for environmental monitoring in the Northwestern Hawaiian Islands (NWHI). Specifically, the UAS will support monitoring and surveying of marine mammals and marine debris (and potentially other flora and fauna) in some or all of the areas of Laysan, Lisianski, Pearl and Hermes Reef and Midway Atoll.

b.) To accomplish this activity we would ....

Utilize the UAS to meet the resource protection and management requirements of the Papahānaumokuākea Marine National Monument. We will deploy (hand launch) the UAS platforms to survey select sites within the NWHI for marine mammal activity as well as marine debris. The UAS would fly at altitudes below 500 feet.

The UAS HD video data and photographs collected would be evaluated and compared to existing datasets to determine if the resolution would be sufficient to assess marine mammal (ability to identify individuals) and seabird colony population dynamics for long-

term monitoring. They will also be used to survey for marine debris. If desired, they can also be used for vegetation surveys. In using these platforms, managers would be able to minimize potential wildlife disturbance, which is an inherent factor in conducting low level survey flights with conventional aircraft.

Specific goals for this project include:

- 1) Continued assessment of integration of the PUMA into normal operations during a NWHI NOAA ship based research cruise for PMNM conservation/research objectives.
- 2) Assess utility of multicopter systems as a research and management tool that could be integrated into field camps.
- 3) Compare performance (flight, data collection etc.) between two multicopter platforms (IVAN and APH-22)
- 4) Assess the ability of the systems to operate discreetly without disturbance to sensitive seabird colonies or marine mammals.
- 5) Assess ability to collect remote imagery and develop habitat maps for a broad range of resource protection and management issues ranging from climate change to marine mammals and cultural landscapes.
- 6) Develop and implement protocol to assess the body condition of hauled out monk seals. This will be done in collaboration with researchers capturing and handling seals for other purposes (activities covered by PMNM Managers Permit).

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

Providing the ability to survey resources on the remote islands without (1) interference; (2) the potential for the introduction of invasive species; and (3) human disturbance to the natural resources. The UAS would increase the monitoring and surveying capacity in the Monument.

**Other information or background:**

The UAS will be launched and recovered from land, the NOAA R/V Hiialakai, or one of the ships' launches and/or rigid hulled inflatables and flown at altitudes below 500 feet.

The PUMA system consists of three platforms (aerial units) and two ground control units. The system is controlled via a remote control unit and is capable of a controlled landing, where the unit will slowly descend, glide above the area on which it will land and then land via deep stall in the water or on land. The system's low noise, ease of use, simplicity low maintenance and reliability are all beneficial to marine research. The system is relatively inexpensive to operate and uses an electric battery. Systems are durable, rugged for deployment to remote marine areas and repeat usage. These systems can fly for up to 2 hours per battery charge and cover a range of about 50 square miles per flight. The UAS systems are cheaper, safer and 'greener' than conducting manned operations. Over the past three years, the protocols and procedures for surveying marine mammals, sea birds and marine debris with the Puma

UAS systems have been developed and perfected in national marine sanctuary sites across the country. The PUMA was successfully operated within the NWHI in 2014. The following is a brief list of relevant NOAA Puma UAS missions that have been conducted:

- a. Law Enforcement Demo in Channel Islands NMS (May 2009)
- b. Oil Spill Drill & Law Enforcement in Channel Islands NMS (Sep 2011)
- c. Marine Debris testing and Planning Workshop in Haliewa, Hawaii 2013 (June 2012)
- d. Sea Birds, Blue Whale and Night Law Enforcement in Channel Islands NMS (August 2012)
- e. Law Enforcement demo with the Center for Asymmetric Warfare of the Naval Post Graduate School in Channel Islands NMS (August 2012)
- f. Law Enforcement and Habitat Mapping in Florida Keys NMS (October 2012)
- g. NOAA R/V Nancy Foster vessel use survey in Gray's Reef NMS (April 2013)
- h. Seabird Survey in Channel Islands NMS (June 2013)
- i. Seabird Survey in Olympic Coast NMS in conjunction with USFWS Copalis & Flattery Rocks National Wildlife Refuges (June 2013)
- j. Onboard USCG Healy (September 2013).
- k. Marine mammal survey in Channel Islands NMS (November 2013)

The two multicopter systems, like the Puma, are also relatively quiet, easy to use, low maintenance and reliable for marine research. The systems are relatively inexpensive to operate and use an electric battery. The Ivan is a quadcopter system that was built specifically for the marine environment and can land in the water if necessary. The APH-22 has been ruggedized to withstand marine environments but can not be landed in the water. Flight times will range between 15-20 minutes.

Per FAA regulations, only 1 UAS unit would be deployed at a time and the unit will remain within visual range and 1 mile of the remote operator at all times.

## **Section A - Applicant Information**

### **1. Applicant**

Name (last, first, middle initial): Charles Littnan

Title: NOAA, NOAA Fisheries, Pacific Islands Fisheries Science Center, Hawaiian Monk Seal Research Program

**1a. Intended field Principal Investigator (See instructions for more information):**  
Charles Littnan and Todd Jacobs (NOAA UAS Program)

**2. Mailing address (street/P.O. box, city, state, country, zip):**  
Hawaiian Monk Seal Research Program

[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):**  
NOAA

**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):**

Todd Jacobs, Principal Collaborator, NOAA NOS UAS Program, Researcher  
Jessie Lopez, JIMAR, APH-22 Pilot

TBD, Contractor, Principal APH-22 Pilot  
TBD, UH Hilo, Principal Ivan Pilot  
TBD, UH Hilo, Secondary Ivan Pilot  
TBD, NOAA AOC, Principal Puma UAS Operator  
TBD, NOAA AOC, Secondary Puma UAS Operator  
TBD, NOAA Marine Debris Staff Person  
TBD, Partner Agency, Collaborator  
TBD, Partner Agency, Collaborator



## **Section B: Project Information**

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

<input type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<b><u>Ocean Based</u></b>	
<input type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Maro Reef			
<input checked="" type="checkbox"/> Laysan Island	<input checked="" 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 checked="" 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 checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input checked="" 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 type="checkbox"/> Kure Atoll	<input type="checkbox"/> Land-based	<input 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 rich biodiversity of the PMNM stretches from the tops of basalt cliffs to the depths of the ocean. Extensive coral reefs are home to over 7,000 marine species, one quarter of which are endemic to Hawaii. Many of the islands and shallow water environments are important habitats for rare species such as the threatened green turtle and the endangered Hawaiian monk seal, as well as the 14 million seabirds representing 22 species that breed and nest there. Land areas also provide a home for numerous plants and four species of bird found nowhere else in the world, including the endangered Layan duck. The research, management and conservation of many of these species is reliant on evolving new tools to aid partner agencies to conduct their work more efficiently while reducing impacts and disturbance to resources. UAS platforms could be incorporated into numerous monitoring and research programs within the PMNM. This mission will continue work initiated in 2014 to assess the efficacy of UAS to aid in marine debris surveys, marine mammal and bird monitoring efforts, and habitat characterization in the Monument. The UAS have the ability to collect remote imagery and develop habitat maps for a broad range of resource protection and management issues. In addition, these systems are able to operate discreetly without disturbance to sensitive seabird colonies or marine mammals.

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

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

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

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

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

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

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

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

The Findings are as follows:

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

In 2014, the UAS research team (including members from NOAA and USFWS) demonstrated that the PUMA system could operate with virtually no impacts to cultural and natural resources within the Monument. As in 2014, the development of the UAS

missions will be done in close collaboration with Monument partners and the systems will be operated by trained NOAA staff and affiliates. All relevant Monument Best Management Practices and protocols specific to deployment and retrieval will be followed. Interactions with birds and other wildlife will be closely monitored and should significant interactions occurs operations will be halted.

All photos and imagery captured by the UAS will be used internally for purposes of conservation and management activities. Images will be shared with all Co-Trustee agencies upon request and not disseminated for public consumption without first ensuring the appropriateness. All images selected for potential public use as part of communications, education and outreach efforts would be reviewed by the Monument Communications Team, which includes an OHA representative, and the PMNM/ONMS Native Hawaiian Coordinator. Since cultural site imagery is not the purpose of the mission, there are no plans to use imagery other than marine life and marine debris survey images. A similar process was used in 2014 and seemed to work well.

In 2014, after consultation with the State of Hawai'i SHPO a no-effect determination was reached in regards to a section 106. However, it was acknowledged that the UAS will impact the cultural and spiritual essence of the place during operation and there was consultation with the MMB and agency staff to ensure that UAS operations do not conflict with or operate during the same time that cultural and protocol activities occur. A similar protocol and coordination will be followed this year. Additionally, we are open to continuing discussions on how our operations can be conducted in a culturally respectful and sensitive manner and would not be adverse to permit conditions that mitigate concerns, should our permit application be endorsed and prior to issuance.

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 UAS operates in a discreet manner, generally flying at altitudes below 500 feet. Previous operations in the NWHI and elsewhere have demonstrated no disturbance to marine mammals and little to no disturbance to seabird colonies during flights. The data captured would be managed by NOAA and shared with other managing agencies and aid in management decision-making.

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. Similar platforms have been tested in a variety of sensitive wildlife areas. The work here is to determine the operation constraints and value to the agencies and researchers working within the Monument so there is no practicable alternative to conducting this activity.

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

The information gathered by the UAS will not only establish a baseline of data collected by this means, it will also compliment all other data collected by field surveys. Due to federal budget shortfalls, the capacity of the UAS will aid in managers' ability to continue to monitor areas within PMNM.

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

The activity will be conducted on Hiialakai during the Monk Seal Camp deployments (separately permitted activity) from roughly 5/18/15-5/30/15.

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

CV of Primary Applicant is attached and other CVs and qualifications can be provided as the team is identified. Background on the two primary field researchers (Littnan and Jacobs) is here:

Todd Jacobs, National Oceanic and Atmospheric Administration, is currently the Deputy Superintendent for Operations and Administration for the Channel Island National Marine Sanctuary and a Project Scientist with the NOAA UAS Program. He has been with the NOAA National Ocean Service since 1989. His background includes facilitating research projects using research vessels, manned submersibles, aircraft and unmanned aircraft systems. He has been the principal investigator on more than 20 UAS missions and has been involved with the NOAA UAS Program since its inception in 2004.

The primary field investigator is a Project Scientist for NOAA's OAR, UAS Program. The applicant and his affiliates possess high levels of expertise and knowledge of the UAS as well as the ecosystem and locations within the Monument. These experts provide their knowledge and recommendations in all management decisions so that all impacts are minimized and mitigated if necessary.

Charles Littnan is the head of NOAA's Hawaiian Monk Seal Research Program, the primary group charged with understanding and recovering this endangered species. The HMSRP is considering UAS as a future tool to aid in their research, monitoring and emergency response of monk seals.

All pilots and partners associated with this project will have training and experience relevant to the role they will play on the team.

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

The applicant has adequate financial resources available to conduct the proposed management activities. Federal funding is provided through congressional appropriation.

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.

This mission will be following the same protocols and considerations that were developed for the UAS mission in 2014. The methods and procedures used in the conservation and management activities by the permit applicant are appropriate to achieve the proposed activity's goals. All activities proposed are required for effective management of the Monument and are conducted in a way that minimizes impact as required by law. Management activities assist the applicants to protect the Monument's natural, historic and cultural resources, qualities, and ecological integrity.

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 Monument type-approved NOAA OLE Vessel Monitoring System (Specifications below).

Sailor TT 3606 XP - Thrane & Thrane VMS [REDACTED]  
[REDACTED]

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

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

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

Deployment, operation and retrieval of PUMA AE UAS in areas around Laysan, Lisianski, Pearl and Hermes Reef and Midway Atoll.

The UAS will be launched and recovered from land, the NOAA Ship R/V Hiialakai, or one of the ships' launches and/or rigid hulled inflatables and flown at altitudes below 500 feet. During descent, the UAS operator will ensure that no marine mammals, cetaceans, seabirds or other known species are in the retrieval area. UAS operators may need to swim to retrieve the UAS system if landed in the water though this is unlikely. It is possible to lower the UAS system onto a vessel as well.

The PUMA system consists of three platforms (aerial units) and two ground control units. Per FAA regulations, only 1 UAS unit would be deployed at a time and the unit will remain within visual range and 1 mile of the remote operator at all times. The system is controlled via a remote control unit and is capable of a controlled landing, where the unit will slowly descend, hover above the area on which it will land and then land. The system's low noise, ease of use, simplicity and low maintenance are all

beneficial to marine research. The system is relatively inexpensive to operate and uses an electric battery. Systems are durable, rugged for deployment to remote marine areas and repeat usage. They were developed for the US Special Operations Command (SOCOM). These systems can fly for up to 2 hours and cover a range of about 50 square miles. The UAS systems are cheaper, safer and 'greener' than conducting manned operations.

The two multicopter systems are launched either from resting on the ground/floor or from an operator's hand. The system will fly for approximately 15-20 minutes and will remain within the pilot's visual range. The rechargeable battery will be replaced for each mission.

**General Operation Guidelines:**

Daylight hours only

Winds less than 25kts

There will be at least one pilot and observer for each mission and an additional observer to watch and record wildlife response.

Only a single platform will be flown at a time.

The exact mission protocols and objectives will be developed in consultation with partner agencies based on their management /research needs and interests in February/March 2015.

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

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

Common name:

N/A

Scientific name:

# & size of specimens:

Collection location:

Whole Organism  Partial Organism

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

N/A

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

N/A

- General site/location for collections:

N/A

- Is it an open or closed system?  Open  Closed

N/A

- Is there an outfall?  Yes  No

N/A

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

N/A

- Will organisms be released?

N/A

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

N/A

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

N/A

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

PUMA AE UAS

Omni RF Head Unit

Gimbaled EO/IR/Illuminator

Battery Charger

Toughbook

AV Batteries

Field Repair Kits

Marine IVAN- UAV

RC Controller (Turnigy 9XR 2.4GHz)

Ground Control Station (Laptop, tripod stand, telemetry radio (915 Mhz))

4S Lithium polymer battery- 4000 Mah (Quantity: 6)

Canon A2500 Camera

VHF Aviation Radio

Lipo Charger, power inverter

DSLR Camera  
External Hard Drives  
Gyro Table

APH-22 Hexacopter  
RC Controller (Futaba T10CAG/CHG 2.4Ghz)  
Ground Control Station (Laptop, tripod stand, telemetry radio (915 Mhz))  
4S Lithium polymer battery- 4000 Mah (Quantity: 4-6)  
VHF Aviation Radio  
DSLR Camera  
Gyro Table


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

**14. Describe any fixed installations and instrumentation proposed to be set in the Monument:**  
NONE

**15. Provide a time line for sample analysis, data analysis, write-up and publication of information:**  
Wildlife impacts will be assessed and analyzed on site and protocols modified accordingly. A white paper comparing operation and performance across platforms will be produced within 6 months of the end of flight operations. Potential submission for publication in technical journal within 12 months. There will also be a series of post-operation briefings to partner agencies as requested.

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

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

2/1/2015  
\_\_\_\_\_  
Date

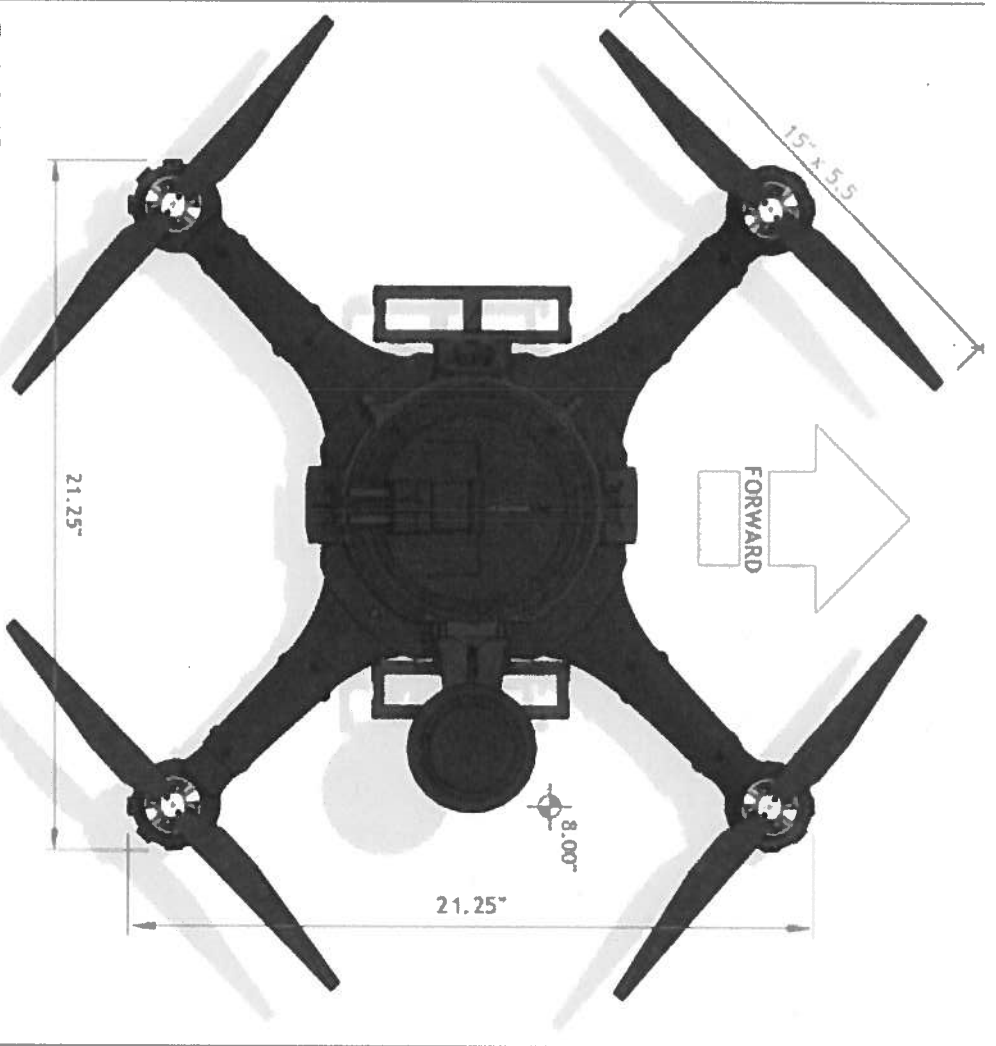


**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE  
BELOW:**

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



**Technical Data:**

**Propulsion System**

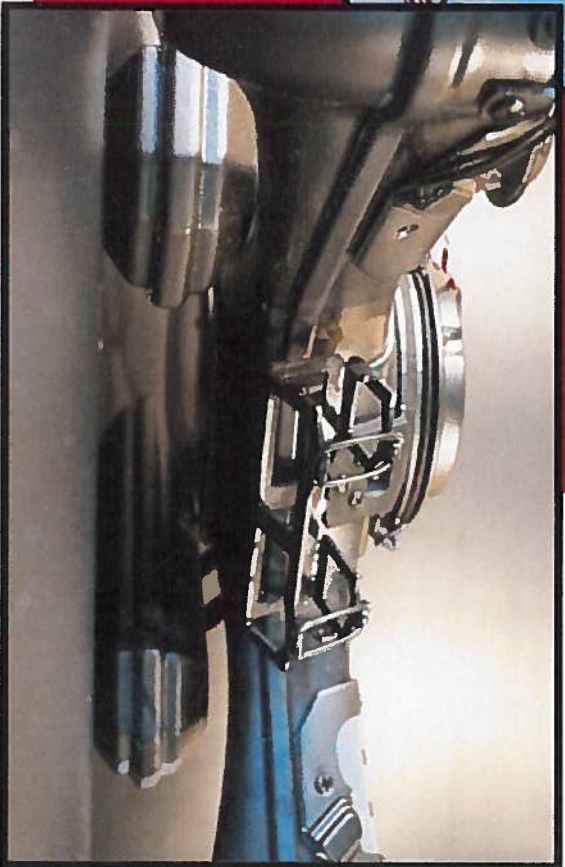
<b>Type</b>	X Configuration: Quad-Rotor
<b>Size</b>	Frame Size: 21.25" x 21.25" x 8.00" w/ propellers 36.5" x 36.5" x 8.00"
<b>Motors</b>	1 Motor: Nidec Proprietary Servos 40*4 (brushless, waterproof, motor) 400 W/HP requirement complete
<b>Motors</b>	1 Motor: Runarator Servos 40*4 Brushless (waterproof) motor 408 W/HP maximum power
<b>Rotor</b>	1.5" x 5.5" Carbon Fiber w/ quick detachable mounting systems
<b>Empty Weight</b>	2030 grams
<b>Take Off Weight</b>	4257 grams
<b>Max. Take Off Weight</b>	6370 grams (80% thrust)
<b>Max Payload</b>	2.3 kg
<b>Linear Range</b>	2 miles / 3.2 km
<b>Max Wind Speed</b>	15m/s / 29 knots

**Approx. Max Airspeed (Autonomous Model)**

<b>Waypoint Navigation</b>	Min: 25 cm/sec/ Max: 30 m/sec
<b>Ascent Rate</b>	Min: 20 cm/sec/ Max: 30 cm/sec
<b>Descent Rate</b>	Min: 10 cm/sec/ Max: 5 m/sec

**Wireless Communication**

2.4 GHz FHSS empty spectrum, angle radio & channel, 100 m of signal  
 controller using the DSMX™ consumer-grade protocol.  
 RC2-500 Ultra Long Range Radio R450 Model  
 13W band radio module covering the 900 - 925 MHz frequency band.  
 Single Radio Diversity Antennas  
 Optional 3.0GHz DSMW 32 channel ANI transmitter



## **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):** Charles Littnan, Researcher; Todd Jacobs, Researcher; Katie Sweeney, Researcher/Pilot; Don Leroi, Pilot; Sean Headrick, Pilot; Adriano Quiroga, Pilot, 3 TBD Pilots.

**2. Specific Site Location(s): (Attach copies of specific collection locations):**

Operations will be conducted at some combination of the following:

French Frigate Shoals: Tern Island, Trig Island, East Island

Laysan Island: around perimeter and interior of island

Lisianski Island: around perimeter and interior of island

Pearl and Hermes Reef: North, Little North, Southeast, Seal-Kittery, and Grass Island, and over reef structure in center of atoll.

**3. Other permits (list and attach documentation of all other related Federal or State permits):**

PMNM 2015-001 Monument Conservation and Management Permit (for monk seal activities)

NMFS MMPA/ESA Permit #16632 All research by PIFSC on Hawaiian Monk Seals

**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.** None

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

**5. Time frame:**

Activity start: Sept 13, 2015

Activity completion: Sept 18, 2015

Dates actively inside the Monument:

From: Sept 11, 2015

To: Sept 19, 2015

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application: Schedule should be set barring changes in ship schedule due to engineering or other problems. Or, staff may stay in Monument longer depending on plane scheduling from Midway.

Personnel schedule in the Monument:

9/13 French Frigate Shoals

9/15 Laysan Island

9/16 Lisianski Island

9/17-18 Pearl and Hermes

9/19 Midway (fly to Honolulu)

**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: NOAA**

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

Vessel

Aircraft

Provide Vessel and Aircraft information: NOAA RV Oscar Elton Sette

**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): TBD**

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:

Vessel owner:

Captain's name:

IMO#:

Vessel ID#:

Flag:

Vessel type:

Call sign:

Embarkation port:

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

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:

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:

Sette Tenders:

SE4: 17' Northwind with 115hp motor

SE2: 17' Achilles with 60hp motor

### **Additional Information for Land Based Operations**

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

No samples collected.

Movement of staff and equipment will be done using Sette small boats and will follow all inter and intra atoll quarantine rules.

**12. Room and board requirements on island: None**

**13. Work space needs: None**

**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



DAVID Y. IGE  
GOVERNOR OF HAWAII



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

SUZANNE CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA  
FIRST DEPUTY

W. ROY HARDY  
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

August 14, 2015

TO: Division of Aquatic Resources File

THROUGH: Suzanne Case, Chairperson

FROM: Maria Carnevale  
Papahānaumokuākea Marine National Monument

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAHAANAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO DR. CHARLES LITTNAN, NOAA FISHERIES, PACIFIC ISLANDS FISHERIES SCIENCE CENTER, FOR ACCESS TO STATE WATERS TO CONDUCT MARINE MAMMAL AND MARINE DEBRIS ASSESSMENT ACTIVITIES UNDER PERMIT PMNM-2015-019.

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. Charles Littnan, NOAA Fisheries, Pacific Islands Fisheries Science Center, for Access to State Waters to Conduct Marine Mammal and Marine Debris Assessment Activities

Permit Number: PMNM-2015-019

Project Description:

The research permit application, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument, including the NWHI State waters from September 1, 2015 through August 31, 2016.

The Applicant proposes to conduct video camera surveys of Laysan, Lisianski, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll to enhance understanding of marine mammals and marine debris in the Northwestern Hawaiian Islands.

The UAS system consists of three platforms (aerial units) and two ground control units. The system is controlled via a remote control unit and is capable of a controlled landing, where the

unit will slowly descend, glide above the area on which it will land and then land via deep stall in the water or on land. The system's low noise, ease of use, simplicity, low maintenance and reliability are all beneficial to marine research. The system is relatively inexpensive to operate and uses an electric battery. Systems are durable, rugged for deployment to remote marine areas and repeat usage. These systems can fly for up to 2 hours per battery charge and cover a range of about 50 square miles per flight. However, the flights for this permit would range between 15-20 minutes. The UAS systems are cheaper, safer and 'greener' than conducting manned operations. In addition to UAS activities, the Applicant will also be swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area.

All photos and imagery captured by the UAS will be used internally for purposes of conservation and management activities. Images will be shared with all Co-Trustee agencies upon request and not disseminated for public consumption without first ensuring the appropriateness. In 2014, after consultation with the State of Hawai'i SHPO a no-effect determination was reached in regards to a section 106. However, it was acknowledged that the UAS will impact the cultural and spiritual essence of the place during operation and there was consultation with the MMB and agency staff to ensure that UAS operations do not conflict with or operate during the same time that cultural and protocol activities occur. A similar protocol and coordination will be followed this year.

The proposed activities are in direct support of the Monument Management Plan's priority management needs 3.2 – Conserving Wildlife and Habitats, through action plan 3.2.1 – Threatened and Endangered Species. This action plan includes a strategy to “support activities that advance recovery of the Hawaiian monk seal”.

In addition, activities to support understanding and interpreting the NWHI are addressed in the Monument Management Plan Environmental Assessment. This EA covers field activities “carried out to conserve, manage, monitor, and document species and their natural habitats” (PMNM MMP Vol 2, p.202). Benthic habitat monitoring and characterization activities, such as those proposed, would enhance understanding of Hawaiian monk seal critical habitat.

#### Consulted Parties:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, Hawai'i 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 April 22, 2015 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 deployment of an underwater camera, 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, must be grouped together and evaluated as a single action. HAR § 11-200-7. This permit does not involve an activity that is precedent to a later planned activity.

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 research falls within Exemption Class #5, Exempt Item #2 which allows “non-destructive data collection and inventory, including field aerial and satellite surveying and mapping.” Additionally, this research falls within Exemption Class #5, Exempt Item #15 which includes “aquatic life surveys, inventory studies, new transect lines, photographing, recording, sampling, collection, culture and captive propagation” which is listed on the DEPARTMENT OF LAND & NATURAL RESOURCES, EXEMPTION LIST (June 5, 2015).

As discussed below, no significant disturbance to any environmental resource is anticipated in the filming 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.

One prior study of this type has been undertaken to date, which had no deleterious effects on Monument resources. Other permits that have involved underwater filming, for educational purposes, have had no deleterious effects on Monument resources. With this in mind, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. 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.

These activities would be conducted from the NOAA Ship HI‘IALAKAI. The ship will be conducting routine operations (PMNM-2015-006) and serving as a research platforms for other PMNM Applicants.

Table 1: Concurrent projects aboard NOAA Ship HI‘IALAKAI

<b>Permit</b>	<b>Purpose and scope</b>	<b>Location</b>
PMNM-2015-006 Simon HI‘IALAKAI	This permit allows the NOAA Ship HI‘IALAKAI entry into the Monument. Personnel aboard the vessel would be permitted under separate permits	All locations
PMNM-2015-016 Wall (approved)	This proposed action would conduct coral bleaching assessment activities	All locations
PMNM-2015-020 Meyer (approved)	This proposed action would be to conduct top predator research consisting of fishing for various shark and fish species	All locations
PMNM-2015-029 Kosaki (proposed)	This proposed action would explore and document the biodiversity and invasive species in deep coral reef ecosystems	All locations
PMNM-2015-030 Bowen (proposed)	This proposed action would conduct a genetic survey of species in shallow and deep reef ecosystems	All locations

Table 2: Concurrent projects aboard NOAA Ship OKEANOS

<b>Permit</b>	<b>Purpose and scope</b>	<b>Location</b>
PMNM-2015-025 Wetzler OKEANOS (approved)	The permit would allow NOAA Ship OKEANOS into the Monument to support separately permitted activities	All locations
PMNM-2015-018 Elliott (approved)	The proposed action would conduct bathymetric mapping activities to characterize deepwater areas and coral communities	Nīhoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan, Lisianski and Neva Shoal, Pearl and Hermes

There is not an overlap in research activities for the Applicants aboard the HI‘IALAKAI or the particular resources they will interact with in their research. All research will contribute to the overall knowledge of PMNM. 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 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 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.

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Suzanne Case  
Board of Land and Natural Resources

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Date

