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: 9/01/2015 - 9/30/2015 (some subset of those days
Proposed Method of Entry (Vessel/Plane): NOAA RV Oscar Elton Sette
Proposed Locations: French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes Reef, Midway, Kure

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 French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes Reef, Midway Atoll and Kure Atoll.

b.) To accomplish this activity we would ….
Utilize the UAS to meet the resource protection and management requirements of the Papahanaumokuakea 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 dymanics 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 thie 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 hanlding seals for other purposes (activities covered by PMNM Managers Permit).
7) Aerial surveys of Lisiaksnki, Laysan and Kure to compliment the terrestrial shipwreck survivor camp surveys we will be conducting on island in August

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. NOAA qualified agency personnel (includes Cooperative Institute and contract pilots) will be operating the UAS.

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 system 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 an octocopter system that was built specifically for the marine environment and can land in the water if necessary. Additional rotors prevent hard landings due to unlikely failure of multiple rotors. 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.