

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: Todd Jacobs

Affiliation: NOAA, OAR Unmanned Aircraft Systems Program & NOAA, NOS, Office of National Marine Sanctuaries

Permit Category: Conservation and Management

Proposed Activity Dates: 6/15/14-6/15/15

Proposed Method of Entry (Vessel/Plane): Vessel

Proposed Locations: Nihoa, Mokumanamana, FFS

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

Estimated number of days in the Monument: 26

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

Utilize the AeroVironment Puma All Environment (AE) Unmanned Aircraft System (UAS) for environmental monitoring in the Northwestern Hawaiian Islands (NWHI). Specifically, the UAS will support monitoring and surveying of marine mammals, marine sea turtles, birds (land and sea) and marine debris in the areas of Nihoa, Monkumanamana and French Frigate Shoals (FFS).

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 AeroVironment Puma AE UAS (Puma or UAS) to survey select sites within the NWHI for marine mammals, marine sea turtles, birds (land and sea) and marine debris. The UAS would fly at altitudes of below 1,000 feet.

The UAS HD video data collected would be evaluated and compared to existing datasets to determine if the video resolution would be sufficient to assess marine mammal (ability to identify individuals), marine turtle and seabird colony population dynamics for long-term monitoring. In using the PUMA, 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) Successful integration of the PUMA into normal operations during a NWHI NOAA ship based research cruise.
- 2) The ability to successfully conduct UAS airborne surveys
- 3) The ability of the system to operate discreetly without disturbance to sensitive seabird colonies or marine mammals.
- 4) The ability to collect remote imagery and develop habitat maps for a broad range of resource protection and management issues including surveys of marine mammals, marine sea turtles, birds (land and sea) and marine debris.

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 Ship, Hiialakai, or one of the ships' launches and/or rigid hulled inflatables and flown at altitudes below 1,000 feet.

The 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, 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. In anticipation of the mission to the NWHI, the Puma UAS system was successfully

integrated and flown from the NOAA Ship Nancy Foster in 2013. 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)

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Todd Jacobs

Title: Deputy Superintendent for Operations and Administration, NOAA NOS Channel Islands National Marine Sanctuary & Project Scientist, NOAA OAR Unmanned Aircraft Systems (UAS) Program

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

Todd Jacobs

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

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 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):

LTJG Tanner Sims, NOAA AOC, Principal Puma UAS Operator

TBD, NOAA AOC, Secondary Puma UAS Operator

TBD, PMNM Staff Person

TBD, USFWS Refuge Staff Person (If we are authorized to land and operate from FFS)

TBD, NOAA Marine Debris Staff Person

Walter Klein, NASA, Ikhana UAS Mission Manager

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 checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input checked="" 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 type="checkbox"/> Laysan Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Lisianski Island, Neva Shoal	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Pearl and Hermes Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Midway Atoll	<input type="checkbox"/> Land-based	<input 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			

Ocean Based

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 PUMA UAS would be deployed to conduct environmental monitoring airborne surveys of the natural resources within PMNM. Specifically, the UAS will be deployed from the NOAA Ship, Hiialakai, to aid in marine debris, marine sea turtle, bird (land and sea) and marine mammal monitoring efforts in the Monument. The UAS has the ability to collect remote imagery and develop habitat maps for a broad range of resource protection and management issues. In addition, the system is able to operate discreetly without disturbance to sensitive seabird colonies or marine mammals.

The UAS mission will be to assist in surveying areas around Nihoa, Mokumanamana & FFS for marine mammals, marine sea turtles, birds (land and sea) and marine debris. While the UAS will target species on land and in the ocean for monitoring purposes, it will be at elevations of between 200 to 1,000 ft and will not disturb marine mammals, turtles or sensitive seabird colonies in their natural habitat. During descent, the UAS operator will ensure that no marine mammals, cetaceans, seabirds or other known species are in the retrieval area.

*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?

The UAS will be deployed from land, the NOAA Ship, Hiialakai, or its small boats. The system is able to operate discreetly without disturbance to sensitive seabird colonies or marine mammals or turtles. The system will be operated by trained NOAA staff and affiliates and all relevant Monument Best Management Practices and protocols specific to deployment and retrieval will be followed. If retrieval from the water is necessary, permitted personnel may be required to swim to retrieve the device.

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 ensure the appropriateness, from a cultural and natural resource perspective, of the information being disseminated.

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 of 200 feet, always below 1,000 feet. There is no disturbance to marine mammals, turtles or sensitive seabird colonies and little to no disturbance to seabird colonies during deployment. The data captured would be managed by PMNM managing agencies and aid in management decision-making.

We have successfully conducted seabird surveys in the USFWS Refuge Sites in Washington State and are scheduled to return to survey sea birds in USFWS Refuge Sites in both Washington and Oregon by request of USFWS in June of 2014. The USFWS Principal Investigator is Sue Thomas. Her contact is: sue_thomas@fws.gov

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument. There is no practicable alternative to conducting this activity. The only other way to conduct monitoring and survey efforts would be by deployment of field staff to physically survey areas of land and sea. The UAS provides monitoring data without the disturbance of human presence in areas within PMNM.

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 (PUMA UAS), 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 6/15/14 - 7/10/14.

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

Todd is the 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.

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.

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 enabling effective management of the Monument and are conducted in a way that minimizes impact as required by law. Management activities protect the Monument 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 Hi'ialakai is equipped with a Monument type-approved NOAA OLE Vessel Monitoring System (Specifications below).

Sailor TT 3606 XP - Thrane & Thrane VMS Email: [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 Nihoa, Mokumanamana and FFS.

The UAS will be launched and recovered from the NOAA Ship, Hiialakai, or one of the ships' launches and/or rigid hulled inflatables and flown at altitudes between 200-1,000 feet. During descent, the UAS operator will ensure that no marine mammals, turtles, 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. It is possible to lower the UAS system onto a vessel as well.

If permitted, the UAS will be deployed and retrieved from land at FFS.

The 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.

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

See appendix 1 for system specifications

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:

N/A

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

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