

**Papahānaumokuākea Marine National Monument**  
RESEARCH Permit Application

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

**ADDITIONAL IMPORTANT INFORMATION:**

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

**INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED**

Send Permit Applications to:  
NOAA/Inouye Regional Center  
NOS/ONMS/PMNM/Attn: Permit Coordinator  
1845 Wasp Blvd, Building 176  
Honolulu, HI 96818  
nwhipermit@noaa.gov  
PHONE: (808) 725-5800    FAX: (808) 455-3093

**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:** Bruce Mundy

**Affiliation:** NOAA, National Marine Fisheries Service, Pacific Islands Fisheries Science Center

**Permit Category:** Research

**Proposed Activity Dates:** September 6 – 30, 2017

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

**Proposed Locations:** All island/atoll areas within the Northwestern Hawaiian Islands

**Estimated number of individuals (including Applicant) to be covered under this permit:** 5

**Estimated number of days in the Monument:** 25

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

a.) The proposed activity would...

The proposed activity would verify the species identification of the lehe, thicklipped jack, pig ulua, or butaguchi ulua (*Pseudocaranx* species) that resides in the Hawaiian archipelago. It would determine if the species in Hawaiian waters is different from *Pseudocaranx dentex*, originally described from Brazil, which was long thought to be the *Pseudocaranx* species in Hawaiian waters, or if it is a Polynesian species that would take the available name *Pseudocaranx cheilio*.

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

We would collect 6-7 whole butaguchi via spear, freeze them whole and conduct molecular analysis (cytochrome c oxidase I; COI genetic barcode analysis) and morphological analysis using standard ichthyological techniques to confirm identity. The work will be done in collaboration with Dr. William Smith-Vaniz, a world authority on the taxonomy of ulua (Carangidae) (e.g. Smith-Vaniz. 1999, and Smith-Vaniz and Jelks. 2006). The COI barcode analysis has been used in previous taxonomic studies of fish specimens from the Papahānaumokuākea Marine National Monument (e.g., Pyle et al., 2016).

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

This activity would help the Monument by further characterizing Monument resources as prioritized in the Monument Management Plan activity MCS-1.1 – *Continue to characterize types and distributions of shallow-water marine habitats to inform protection* and management efforts, and MCS-1.5 – *Measure connectivity and diversity of key species to enhance management decisions*.

**Other information or background:**

Until 2007, the species of lehe or butaguchi ulua in Hawaiian waters was identified as *Pseudocaranx dentex* (Bloch & Schneider), with a type locality of Brazil (e.g., Randall, 1996. Shore fishes of Hawai'i, 1<sup>st</sup> edition; Hoover, 2003. Hawaii's fishes. A guide for snorkelers divers and aquarists, 9<sup>th</sup> printing [revised]). The genus *Pseudocaranx* is now known to consist of a complex species still under study by William F. Smith-Vaniz; who advised the use of the name *P. cheilio* (Snyder) for the Hawaiian population; type locality, O'ahu, in the most recent reference for the identification of Hawai'i's fishes (Randall, 2007. Reef and shore fishes of the Hawaiian Islands). Randall (2007) also commented that the Easter Island population of lehe or thicklipped jack was most similar to the population in Hawai'i and might also take the name *P. cheilio*. However, Randall and Cea (2011. Shore fishes of Easter Island) noted that "Easter Island specimens are currently identified as the Hawaiian *P. cheilio*, despite lower gill raker counts (W. F. Smith-Vaniz, pers. comm.). Genetic study may be needed to resolve confusing meristic data in these populations." Thus, the species identifications of *Pseudocaranx* from the Hawaiian Islands and Easter Island remain unresolved and are in need of more research to solve the taxonomic problems in the genus.