

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: John Burns

Affiliation: UH Manoa, Hawai'i Institute of Marine Biology (HIMB), UH Hilo, Friends of Papahānaumokuākea (PPO)

Permit Category: Research

Proposed Activity Dates: April 1 - October 31 2013 (specific dates TBD)

Proposed Method of Entry (Vessel/Plane): Vessel

Proposed Locations: (TBD, dependent on NOAA field cruise destinations)

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

4 (Dr. Ruth Gates, Dr. Misaki Takabayashi, Makani Gregg, and John Burns). Only 2 individuals will need to enter the Monument to perform field surveys.

Estimated number of days in the Monument: 30

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

Assess the health and community structure of corals on shallow-water reefs throughout the Papahānaumokuākea Marine National Monument. Our survey techniques will utilize a stratified random sampling approach to objectively survey the health of corals at multiple sites within the Monument. The resulting data will enable a comprehensive examination of coral health at large-spatial scales throughout the Monument. This work will build upon the data collected during the 2012 research activities.

b.) To accomplish this activity we would

Conduct surveys using SCUBA on shallow-water reefs to collect data on the health of corals as well as coral community structure. Detailed descriptions of the surveyed colonies and visible disease signs will be recorded. We will also conduct overlapping photo and video surveys in order to create digital reconstructions of the benthic habitat. Ultimately we will obtain detailed data on the community structure and health characteristics of surveyed corals. This research will allow us to decipher important characteristics of reduced health states affecting corals in the Papahānaumokuākea Marine National Monument.

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

Enabling a detailed analysis of coral health and community structure on shallow-water reefs of the Papahānaumokuākea Marine National Monument. Surveying at randomly chosen coordinates within each site will create a robust dataset for an objective analysis of the prevalence and severity of coral health afflictions. The photo and video surveys will provide useful data for assessing the dynamics of coral community structure throughout the monument. This research will be critical for tracking changes to coral health and ecosystem function in the face of increasing global stressors such as climate change and ocean acidification.

Other information or background: Our coral health survey methods have proved useful for determining the severity and prevalence of reduced health states and diseases. This research is critical for assessing the impacts of coral health afflictions to the overall health and function of shallow-water coral reef ecosystems. Utilizing an objective and randomized survey approach on reefs throughout the Papahānaumokuākea Marine National Monument will enhance the capability of tracking and monitoring the health of coral populations within this valuable ecosystem. Currently, coral health and disease is assessed using permanent monitoring sites and repeatedly observed colonies. This method has great utility for tracking disease progression and incidence rates, however the data is less useful for determining disease characteristics at the population level. Our methodology will improve the knowledge of coral health in the Monument by creating a robust dataset pertaining to large-scale population characteristics. Ultimately, this will provide useful information for managers such as; spatial and temporal dynamics of reduced health states and disease, cofactors (species, colony size, depth, etc.) related to coral health, and measures of severity for each observed health affliction.