

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: Elizabeth Kehn

Affiliation: PMNM

Permit Category: Research

Proposed Activity Dates: October - November 2011

Proposed Method of Entry (Vessel/Plane): Plane

Proposed Locations: Midway Atoll lagoon <10m depth

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

4

Estimated number of days in the Monument: 8

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

be a continuation of the research conducted under 2008 permit (PMNM-2008-039). Derelict fishing nets are one of the few remaining direct threats to the reefs of the Northwestern Hawaiian Islands. The currents of the sub-tropical convergence zone gather debris from the Northern Pacific. At certain times these currents travel through the Northwestern Hawaiian Islands, and much of the debris ends up on the reefs and beaches of the PMNM. A previous study found that an estimated 52 metric tons of derelict fishing gear is deposited in the NWHI each year. The derelict fishing nets that are washed onto the reefs often settle on living habitat, smothering the organisms beneath them. Since the late 1990's derelict fishing gear has been being removed from the reefs. Although this work is very important and the positive outcomes far outweigh any negatives, it is possible that removal of the certain nets may cause further disturbance to the benthos, including damage to organisms that have settled on the nets themselves. In 2008 we initiated a study to investigate the impacts from nets entangled on the reefs by tracking the changes in the corals over time. We looked at the changes that occur either after the nets are removed, and also when they are left in place. The data from those surveys has been analyzed and shows that there are statistically significant trends indicating that certain coral species can recover once a net is removed, and others have more difficulty. This was an exciting discovery. But the data failed to show that the corals actually recovered or died after the one year time

period of the first study. We propose a follow up survey of the same sites two years after the last survey was completed in the hopes of determining the long term fate of the study corals.

b.) To accomplish this activity we would

To address the long term effects of nets, either left or removed, on the benthic community, we have designed a study which compares the percent cover of benthic species at different types of sites. The site categories are; a) nets left on the reef, b) nets removed from the reef and c) a control, without having any net on the reef. These sites have been previously marked permanently. Using a small boat, we will find the sites using GPS waypoints and photo document them again. The field team conducting this survey will be made up of individuals who are experienced in both marine debris removal techniques and benthic organism identification. The success of this survey is improved by involvement researchers who have previously conducted surveys for the project in 2008/2009.

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

This project is the first study that looks directly at the impacts that derelict fishing nets have on the benthic communities of the reefs of the Hawaiian Islands. In fact, to our knowledge it is the first study done anywhere to assess the impacts of derelict fishing nets on reefs. The results will be useful to managers in a number of ways including; influence the determination of whether all nets that are on the reefs should be removed, give managers away to begin to quantify the damage occurring to the benthic communities, and provide the beginnings of a timeline for their potential recovery. These results are readily transferable to reefs outside of the Monument and outside of Hawaii. Furthermore, in the absence of targeted studies for the impacts of other disturbances, such as ship groundings, on Hawaiian reefs, these results can be used to make estimates of damage and predict the recovery rates for these events.

Other information or background: Results from the initial surveys have been presented at the 5th International Marine Debris Conference in Honolulu.