

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:
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: Ross Barnes

Affiliation: University of Hawaii Marine Center

Permit Category: Conservation and Management

Proposed Activity Dates: 1 October to 31 December 2015

Proposed Method of Entry (Vessel/Plane): Vessel, R/V Kilo Moana

Proposed Locations: Focus is on the 300 to 600 meter depths near Norhtwest Hancock Seamount, Southeast Hancock Seamount, Zapadnaya Seamount, Pioneer Bank, West and East Northhampton Seamounts, Seamounts NW of Monument into Emperors. Additional seamounts in Monument between East Northhampton and the NW end of Monument may be added if extra time at the end.

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

20 Crew on R/V Kilo Moana, 19 scientist and the Sentry support team.

Estimated number of days in the Monument: Maximum 50 in 2015

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...
provide vessel support for Dr. Amy Baco-Taylor's Collaborative Research: Recovery of Seamount precious coral beds from heavy trawling disturbance. See the research permit from Dr. Amy Baco-Taylor, Florida State University, submitted on 29 April 2012. Deep waters in the monument around many of the island and seamounts have been affected by trawling prior to the establishment of the EEZ. The requested ship permit is to support year 1 and year 2 of this project which will use the ship's mutli-beam systems to provide high-resolution surveys of the features as well as photographic surveys using Sentry, an autonomous underwater vehicle (AUV) that will be launched and recovered by the ship. Year 2 of the project (2105) may be done on a different ship, but this ship permit is submitted to cover the potential for both years. Changes in crew compliment from one year to the next would be covered through an updated submission of the compliance information sheet.

b.) To accomplish this activity we would
use R/V Kilo Moana to transport personnel and equipment into the PMNM and act as a support platform for the collaborative research investigating the Recovery of Seamounts. Approximately 50 total days is allocated for the activities, only a portion of which will occur within the PMNM boundaries. All the research will be done at sea with no landings on any of the islands within the monument. One of the ship's small boats may be used to assist with launch and recovery operations of the AUV and if needed, all of the small boat operations will be in the immediate vicinity of the R/V Kilo Moana.

c.) This activity would help the Monument by ...
The research being supported by Kilo Moana should substantially increase our knowledge of the deep-water communities within the monument as well as provide a better understanding of trawling impacts and recovery potential for deep-sea coral and sponge communities. If we are also able to deploy a lander(s), we would obtain much needed time-series environmental data for deep waters in the monument.

Other information or background:

The R/V Kilo Moana, is owned by ONR and operated by the University of Hawaii Marine Center

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Barnes, Ross, E.

Title: Port Operations Manager

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

Dr. Amy Baco-Taylor is the PI for the science mission and has provided this information as part of the research permit application.

Gray Drewry will be the Captain for this voyage. Captain Gray is a Master Unlimited and has over 30 years of sea going experience. He has been sailing aboard the Kilo Moana for the past ten years. Captain Gray has also sailed within the PMNM several times and knows/respects this special area.

2. Mailing address (street/P.O. box, city, state, country, zip): Applicant's (ship Operator) address:

U.H. Marine Center
#1 Sand Island Access Road

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

For students, major professor's name, telephone and email address: n/a

3. Affiliation (institution/agency/organization directly related to the proposed project):

University of Hawaii Marine Center

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):

The ship's operating crew compliment will be 20 persons organized as:

Ship' Crew:

Ten people in the Deck Department

- * One Master
- * One Chief Mate
- * One 2nd Mate
- * One 3rd Mate
- * Six Able Bodied Seaman

Seven people in the Engineering Department

- * One Chief Engineer
- * One 1st Assistant Engineer
- * One 2nd Assistant Engineer
- * One 3rd Assistant Engineer
- * Three Qualified Members of the Engineering Department

Three people in the Steward Department

- * One Chief Steward
- * One 2nd Cook
- * One Mess Attendant

*Two Marine Technicians

A crew list by name will be provided prior to sailing from Honolulu for PMNM as part of the Compliance Information Sheet submission.

In addition to the crew there will be a science party of approximately 19 people the names with their specific roles within the science party will be provided prior to mission start once actual sailing complement of the science party is known.

Section B: Project Information

5a. Project location(s):

<input type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<u>Ocean Based</u>	
<input type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input 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 checked="" type="checkbox"/> Other			

Remaining ashore on any island or atoll (with the exception of Midway & Kure Atolls and Field Camp staff on other islands/atolls) between sunset and sunrise.

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

Location Description:

All locations should be in depths greater than 100m to as deep as 600m around the following seamounts; Northwest Hancock Seamount, Southeast Hancock Seamount, Zapadnaya Seamount, Pioneer Bank, West and East Northhampton Seamounts, Seamounts NW of Monument into Emperors. Additional seamounts in Monument between East Northampton and the NW end of Monument may be added if extra time at the end. Attached as an appendix to this application is a listing of the seamounts, their location, and a Google map image that shows their location. Note that only 3 of the 9 station locations are within the PMNM boundary waters.

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 purpose of the ship activities covered by this permit request is to support Dr. Amy Baco-Taylor's funded science proposal: "Collaborative Research: Recovery of Seamount Precious Coral Beds From Heavy Trawling Disturbance". The purpose of the research project is to examine a series of locations in the far Northwestern Hawaiian Islands (NWHI) and the Emperor Seamount Chain (ESC) to address the hypothesis, based on predictions of low resilience and decadal recovery times for seamounts, that deep-sea coral beds in the NWHI have not recovered despite the end of trawling 30+ years ago. It is likely that the initial colonizers to a seamount coral community following large-scale disturbance would be from long-distance dispersal events. Given that this first dispersal event will be a largely stochastic process, we also hypothesize that the initial colonization of a seamount may take decades, and that the initial cohort will be the key source of propagules for subsequent recruitment to a given site. To test these, we will survey a series of replicate seamounts in three trawling "treatment" types (designated based on previous trawling activity level) using AUV and surveys

*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?

This research mission involves multi-beam mapping sonar that has already and continues to be conducted in the Monument; it will have no effect on the cultural, natural, historic resources, and ecological integrity of the environment. Mapping occurring in deep water associated with sea mounts and rift zones will occur at distance to land. There are no plans to anchor the ship within Monument waters or access any of the land masses within the Monument. No discharge of black water from the ship's MSD system will occur.

The two multibeam systems being used are the Kongsberg EM122 at the 30 kHz frequency and the Kongsberg EM710 at the 70 - 100 kHz frequencies. These frequencies have not been directly attributed to mammal strandings and are the same frequencies as used by the R/V FALKOR who was permitted this year for multibeam mapping operations in the Monument. Both systems have a soft start mode which is a delay function in startup that begins sonar transmission at a low level then gradually increases the level required for optimal data collection. The soft start mode is intended to avoid startling any mammals with a sudden full start of the multibeam systems. If any marine mammals are spotted while either of multibeam systems are operating the ship stop and wait for the animals to pass.

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? As a sacred place, especially in the realm of Po (beyond Mokumanamana), Kilo Moana will tread lightly and leave no trace of our activities. The only discharges from the ship will be those that are incidental to normal shipboard operations. Ship discharges expected will be limited to rainwater and seawater washing off the ship's decks, cooling water discharges, brine discharge from the ship's evaporators, engine exhaust, seawater from the ship's flow through science seawater system, and approved marine sanitation device effluent. For the later, Kilo Moana is equipped with a biological based USCG approved MSD that is expected to discharge no black water. The ship is equipped with an incinerator for burning trash, but will not use the incinerator when within the PMNM boundaries. The ship has a dedicated series of saltwater ballast tanks along with an IMO approved ballast water treatment system. As indicated in 7.a, the ship will be using its multibeam systems for bottom mapping the survey sites, but will follow the safeguards identified in 7a to avoid adversely impacting wildlife. Lastly, there is no intentions to anchor within the PMNM boundaries so there will be no anchor and/or anchor chain impact on the bottom.

All activities will be consistent with the spirit of Proclamation 8031, and specifically with Finding 1.a: The activity can be conducted with adequate safeguards for the resources and ecological integrity of the monument; and 1.b: The activity will 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 resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects;

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.

The Monument is unique as probably the only place in the world where once trawled seamounts have been protected for >10 years, thus it is by far the best place to conduct this research when trying to study the impacts and recovery time scales. Since it has been >30 years since the establishment of the EEZ, we will be able to test the

hypothesis that deep-sea coral and sponge communities require decades for recovery from trawling impacts.

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 aboard Kilo Moana will directly contribute to greater understanding of the time-scales over which deep-sea habitats may recover from largescale disturbance from destructive bottom trawling activities. This will then contribute to the Monument as well as other areas of the world's oceans where bottom trawling activities have occurred to help promote efficient stewardship of the high seas and other locations.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

The duration of the activity is determined by the endurance capability of the Kilo Moana not the purpose of the research which will take longer than one cruise to accomplish because of the vast area of study. The project is planned for two cruises; one in 2014 and a follow on cruise in 2015 (the ship for the 2015 cruise is TBD, but if again on SIKULIAQ a new permit request for 2015 would be submitted). To get the most scientific return for the investment, the duration of the 2014 research cruise (and time spent within the Monument) has been planned to take full advantage of the ship's on site endurance taking into account the long transit legs from and back to Honolulu in addition to the time needed for survey locations that are outside of the Monument waters. To optimize this valuable time on station, previous bottom mapping data collected within the Monument is being used to refine the science station locations for 2014. Data collected from 2014 will in turn be used to further refine the study locations in 2015.

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

Kilo Moana is a globally operated NSF/UNOLS oceanographic research ship outfitted with the latest scientific sonar systems. Technicians operating sonars and oceanographic equipment such as the winches are all experienced having operated similar systems on other research ships. The crew operating Kilo Moana are all professional mariners with many years experience operating ocean going ships and supporting scientists on other research vessels. Operation of the AUV Sentry is unique and not part of the ship's equipment so all Sentry operations will be conducted by a dedicated Sentry support crew from Woods Hole Oceanographic Institution which is the owner/operator of the AUV Sentry. The Sentry support crew is part of the embarked science party.

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.

NSF has approved the funding for the research being done by the principle investigator which covers all necessary expenses for the science party and operation of the AUV.

The ship operating costs for Kilo Moana are also be provided for by NSF through the operating agreement between NSF and UAF.

As part of the operating expense for Kilo Moana, the ship carries the necessary Protection and Indemnity insurance coverage needed to have a Certificate of Financial Responsibility on file with USCG along with having Witt O'Brien on retainer as an oil spill management team. Kilo Moana's insurance policy runs in conjunction with the UAF fiscal year which goes from 1 May to 30 April the following year. Copies of the insurance policy after its renewal for the next fiscal year will be provided as attachment to the Compliance Information Sheet when it is submitted later this year.

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.

Kilo Moana is equipped with Kongsberg multi-beam systems which is state of the art technology for mapping seafloor features. The operation of the systems is carried out using standard practices from across the academic fleet with experienced personnel.

The AUV being used is Sentry which is part of the National Deep Submergence Facility out of Woods Hole Oceanographic Institution (WHOI). There will be a dedicated Sentry team from WHOI aboard to operate and maintain Sentry throughout the cruise. The team from WHOI has many years of experience with Sentry on many different research cruises. For 2014 alone, the cruise on SIKULIAQ is just one of five different research cruises Sentry will do in 2014 totaling over 175 days at sea.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

The Kilo Moana is equipped with the Farris Watch Dog VMS.

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 for ship operations that would make the issuance of a permit for the activity inappropriate.

8. Procedures/Methods:

R/V Kilo Moana will operate 24hrs/day while on mission and providing access to the waters of the Monument for the science party. The ship will depart from Honolulu to start the research cruise and return to Honolulu at the completion of the cruise.

To support the ship's multibeam operations it is necessary to periodically measure water column conditions to determine sound velocity. This is normally done using expendable bathythermographs (XBT's), but during any time the ship is in the waters of the Monument XBT's will not be used. Instead, the ship will measure the water column

conditions using a CTD (measures conductivity, temperature, and depth) deployed and fully recovered back on deck using one of the ship's oceanographic winches.

AUV operations are detailed in the research permit application being submitted by Dr. Amy Baco-Taylor.

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:

The science party plans to collect water samples, but no specimens.

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 as no collection of specimens is planned

9c. Will the organisms be kept alive after collection? Yes No

N/A as no collection of specimens is planned

• General site/location for collections:

• Is it an open or closed system? Open Closed

• Is there an outfall? Yes No

• Will these organisms be housed with other organisms? If so, what are the other organisms?

- Will organisms be released?

10. If applicable, how will the collected samples or specimens be transported out of the Monument?

The water samples collected by the science party will be transported back to Honolulu on board the ship.

11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:

This is a collaborative effort between 2 scientists who have previously worked independently in the Hawaiian Archipelago. They are sharing this project to prevent duplication of effort. Bottom mapping data from a previous NOAA sponsored mapping cruise will be used to refine science stations within the Monument.

12. List all specialized gear and materials to be used in this activity:

AUV Sentry - operated by Woods Hole Oceanographic Institution Kilo Moana shipboard Multibeam. Kilo Moana shipboard CTD.

13. List all Hazardous Materials you propose to take to and use within the Monument:

Nothing unique to this cruise is planned for the ship, but the science party does plan to bring into the Monument mercuric chloride and dilute hydrochloric acid. The MSDS sheets for these materials are provided as part of the science party's research permit request. The ship is adequately equipped with a Hazmat Locker and hazardous material cabinets to properly store the hazmat. An inventory of hazmat the ship carries to support the ship and small boat operations will be provided with the Compliance Information Sheet is submitted per the instructions for that sheet.

14. Describe any fixed installations and instrumentation proposed to be set in the Monument:

The AUV Sentry will be placed into and deployed within the waters of the Monument, but will not touch bottom. After each Sentry dive the AUV will be recovered by the ship so it will not remain within the Monument.

15. Provide a time line for sample analysis, data analysis, write-up and publication of information:

The science party plans on a 2 to 3 year post-cruise assessment period for this.

16. List all Applicant's publications directly related to the proposed project:

See the research permit application from Dr. Amy Baco-Taylor, Florida State University, submitted on 29 April 2012. It details the science party publications related to this project. For the ship permit, there are no publications by the applicant related to this project.

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:

NOAA/Inouye Regional Center
NOS/ONMS/PMNM/Attn: Permit Coordinator
1845 Wasp Blvd, Building 176
Honolulu, HI 96818
FAX: (808) 455-3093

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

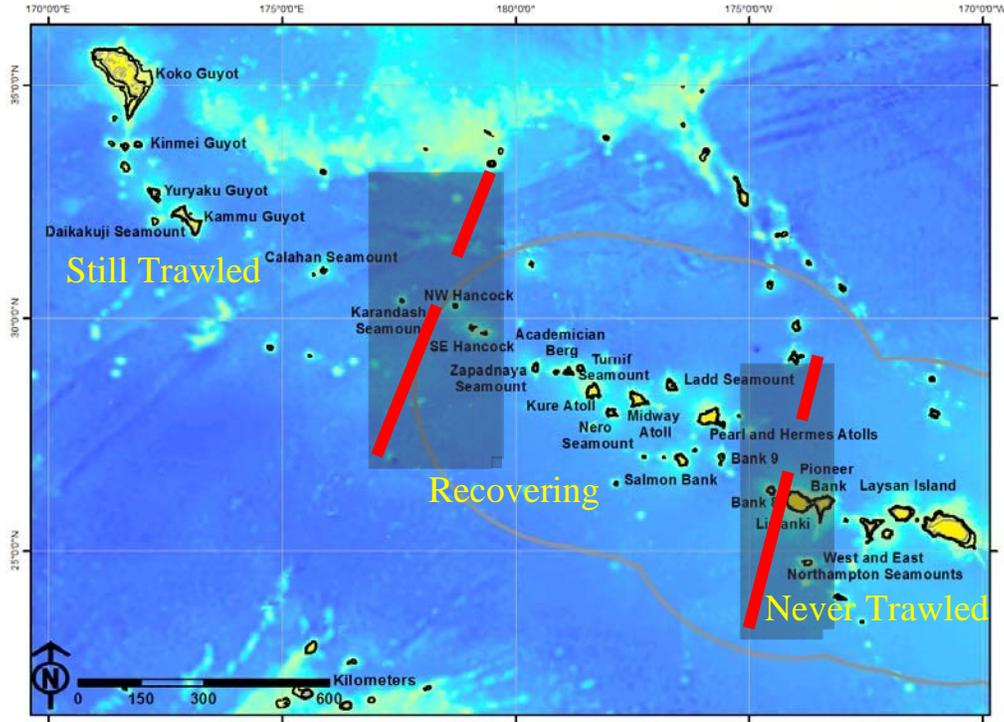
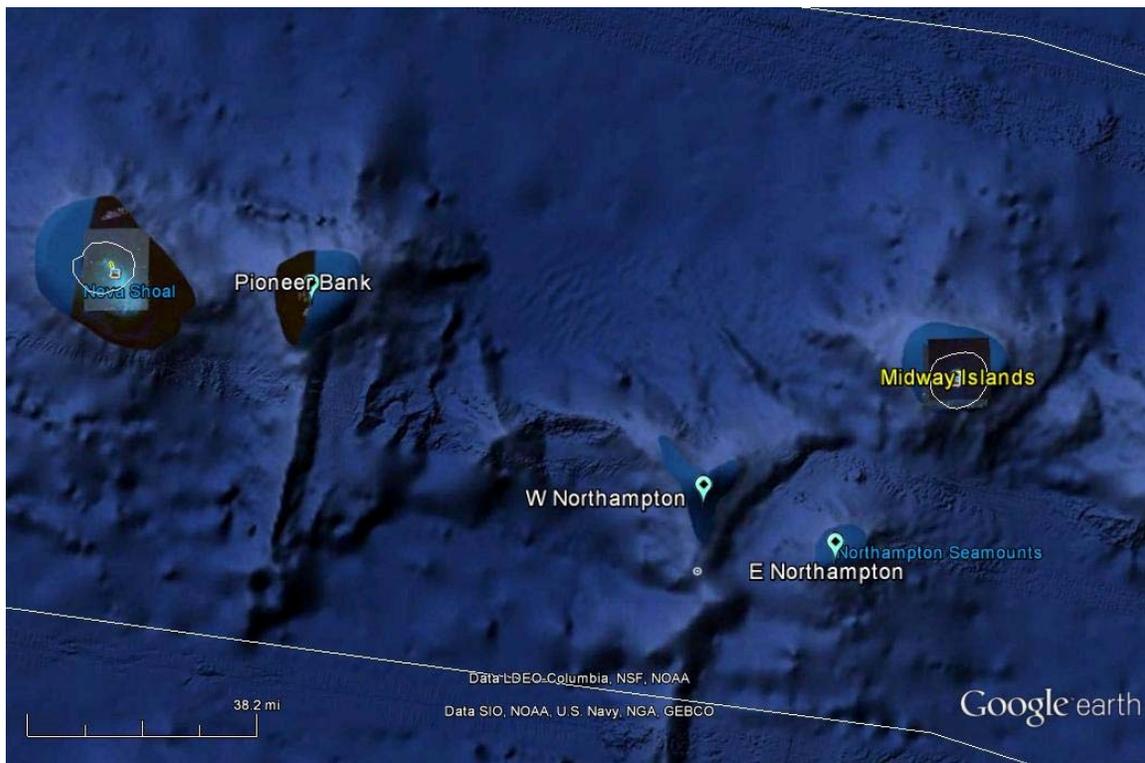


Table 1. Trawling history for potential targets of this study listed from the NW to SE. Heavy lines separate treatment types, with top group “still trawled”, middle group “recovering,” and bottom group “never trawled”. Yuryaku and Kammu are two of the three features of the Milwaukee Banks. Southeast Hancock is also referred to as Equator Seamount or as Townsend Cromwell Seamount. Zapadnaya in some sources is referred to as Bank 11 or as Helsley Seamount. All positions from SBN earthref.org. *NOAA Report (2008), ong = ongoing. ns = not surveyed on previous explorations for precious corals in the NWHI. **Data from Clark et al. (2007) and Clark and Tittensor (2010) were provided as estimates split into 1-degree latitude and longitude grid cell boxes and given as metric tons (mt). Values for each feature were taken as the grid cell they fell into. SA = Surface area given as area within 300-600m depth range, C = circumference for the 600m depth contour.

Feature Name	Posit Lat N	Posit Long E/W	*Last Year Trawled	Coral Obs	Total Catch **mt	SA (km ²)	Catch per km ²	C (km)
Koko Smt	35 15.0	171 35.0	Ong	ns	92500	3874	24	397.7
Yuryaku Smt	32 40.2	172 16.2	Ong	ns	98000	72.7	1348	41.2
Kammu	32 10.0	173 00.0	Ong	ns	28000	610.3	46	166.7
NW Hancock	30 16.2	178 43.2	1986 - ong	ns	98300	5.6	17558	9.2
SE Hancock	29 47.4	179 04.2	1986	ns	92500	10.9	8525	16.3
Zapadnaya	28 54.0	-179 36.0	1977	Yes	11500	42.3	272	33.2
Pioneer Bank	26 00.0	-173 26.0	Never	Yes		143.0		103.1
W Northampton	25 30.6	-172 24.6	Never	ns		81.48		85.8
E Northampton	25 22.2	-172 04.2	Never	ns		37.96		53.7



All nine of the seamount locations.



Three seamount locations within the PMNM boundary waters.