State of Hawai'i
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawai'i 96813

August 11, 2017

Board of Land and Natural Resources
Honolulu, Hawai'i

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to Michelle Heupel, Australian Institute of Marine Science, for Access to State Waters to Conduct Research Activities to Characterize Elasmobranch Species Richness

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Applicant Michelle Heupel, Australian Institute of Marine Science, pursuant to § 187A-6, Hawai'i Revised Statutes (HRS), Chapter 13-60.5, Hawai'i Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and management activities to occur in Papahānaumokuākea Marine National Monument, including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following site:

- Nihoa Island
- Mokumanamana Island
- French Frigate Shoals
- Gardner Pinnacles
- Maro Reef
- Laysan Island
- Lisianski Island
- Pearl and Hermes Atoll
- Midway Atoll
- Kure Atoll

The activities covered under this permit would occur between September 6, 2017 thru September 5, 2018.

INTENDED ACTIVITIES

The applicant proposes to provide a direct measure of elasmobranch species richness and abundance through the use of baited remote underwater video surveys (BRUVs). BRUVS consist of a lightweight galvanized frame enclosing a simple camera housing made from black PVC with flat acrylic front port. Up to four individuals would be authorized to deploy BRUVS in shallow waters (< 100 feet depth) at all islands/atolls throughout PMNM. However, only two deployment

sites would be chosen depending on vessel cruise logistics aboard NOAA Ship HIIALAKAI (separately permitted under permit no. PMNM-2017-002) during a research cruise from September 6 – 30, 2017. Approximately 100 BRUVS sets will be completed in PMNM, 50 at each of two reef locations. Proposed activities include altering submerged lands (though deployment of BRUVS), touching living or dead coral, attracting living Monument resources, and swimming, snorkeling and SCUBA diving.

Collected data would be integrated into regional (Pacific Ocean) and global analyses of the status of reef shark populations. This assessment will provide a direct measure of the Papahānaumokuākea Marine National Monument (PMNM) relative to other countries and regions, including shark sanctuaries and marine parks.

To safeguard Monument resources the applicant would abide by the following PMNM Best Management Practices (BMPs) while conducting the aforementioned activities within the PMNM: Best Management Practices for Boat Operations and Diving Activities (BMP #004); Marine Wildlife Viewing Guidelines (BMP #010); Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment (BMP #011), and Maritime Heritage BMP (BMP #017).

The applicant's proposed activities directly support the Monument Management Plan (MMP) Marine Conservation Science (MCS) Action Plan Strategy MCS-1: *Continue and enhance research, characterization and monitoring of marine ecosystems* (PMNM MMP Vol. I, p. 122, 2008).

The activities described above may require the following regulated activities to occur in State waters:

- ☒ 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 submerged lands
- ☒ Touching coral, living or dead
- ☒ Attracting any living Monument resources
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

REVIEW PROCESS

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, Hawai'i Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since May 24, 2017, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Comments received from the scientific community are summarized as follows:

QUESTIONS:

1. In regards to the activity location in section5a, Maro Reef and Other are selected. What is the other location?

   The "Other" location has since been unmarked. There are no other locations being proposed.

2. Where's the biosecurity protocols, like cleaning the gear between sites and how they are going to do that to ensure they don't introduce new things to the area or move things around?

   All PMNM biosecurity best management practices (BMP) outlined in PMNM BMP 011: Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment, would be strictly followed.

3. The sample size is not big enough to get meaningful data. If BRUVS can be deployed in a way that no corals or fish will be negatively impacted, can the sample size be increased?

   The sample sizes used in this study have been determined by a statistician as being adequate and robust enough to allow comparison among sampling sites. Thus the sample size is appropriate and does not need to be increased. Although there are only 2 sites where activities would occur in the PMNM, 50 BRUVS deployments will be completed at each site and these data will be compared to equivalent numbers of BRUVS deployments in other locations around the world.

4. What is the soak time? Will it be monitored in any way?

   The soak time is 60 minutes and the deploying tender will be in the region of all drops for the duration of the soak period. All BRUVS units are fitted with an orange surface float for easy visual location.

5. How are the videos analyzed? For quantitative analysis of BRUVS data, relative abundances of recorded organisms are often estimated using MaxN. As this project mostly targets large predators, the use of MaxN does not seem appropriate. If each individual in a video is counted, how does the applicant ensure that the same individual is not counted twice? Will there be any size estimation of each individual for biomass estimation, analysis of size distribution etc.

   Videos are all analyzed and annotated in customized software (Annotator, EventMeasure) to record species, sex/stage and abundance. The use of MaxN for this study is appropriate. This has been tested within the project team through comparison of MaxN versus Mean Count estimates. In addition, multiple studies have published relative abundance data for sharks using MaxN indicating this is an acceptable metric within the scientific community (see below). No stereo units will be deployed during the PMNM sampling so size won't be measured.

Goetze, J. S., and L. A. F. Fullwood. "Fiji's largest marine reserve benefits reef sharks." Coral Reefs 32.1 (2013): 121-125.

Espinoza, Mario, et al. "Quantifying shark distribution patterns and species-habitat associations: implications of marine park zoning."PloS One 9.9 (2014): e106885.

Ruppert, Jonathan LW, et al. "Caught in the middle: combined impacts of shark removal and coral loss on the fish communities of coral reefs." PloS One 8.9 (2013): e74648.

Santana-Garcon, Julia, et al. "Calibration of pelagic stereo-BRUVs and scientific longline surveys for sampling sharks." Methods in Ecology and Evolution 5.8 (2014): 824-833.

Klages, J., et al. "The influence of gummy sharks, Mustelus antarcticus, on observed fish assemblage structure." Environmental Biology of Fishes 97.2 (2014): 215-222.

Bond, M. E., E. A. Babcock, et al. (2012). "Reef sharks exhibit site-fidelity and higher relative abundance in marine reserves on the Mesoamerican Barrier Reef." Plos One 7(3): e32983.

6. While the use of BRUVS are certainly preferred to other invasive sampling procedures, I have some concerns about deploying the system in coral reef environments. Given that the system is dropped from a boat, rather than placed by SCUBA divers, how does the applicant ensure corals are not damaged? Has there been any incident of the frame getting rolled over by sharks or other large organisms and damaging corals? I have also experienced a weighted line attached to a buoy getting stuck due to currents and surges in the NWHI, needing to send down someone to retrieve it. How is the frame retrieved if it gets stuck at depths deeper than a snorkeling depth? I am particularly concerned about high rugosity environments such as Acropora coral reefs at FFS.

   The frames used in this project have been specially designed for use in reef environments with the intent of causing as little disturbance to the surrounding environment as possible. The frames have individual stalk legs rather than sled-like legs to avoid crushing coral, frame tipping, etc. Frames are carefully weighted to ensure they are heavy enough to remain in place, but not so heavy that they cause damage. Deployment from the tender is done with the person dropping the unit controlling descent and placement by observation through a bathyscope (view bucket). This method allows BRUVS placement in sand patches adjacent to fragile coral outcrops or branching corals and avoidance of crevices on coral drop-offs. AIMS health and safety procedures do not allow diver placement of units due to the potential risks associated with diving in a bait plume, therefore this method is the most suitable operational procedure. We do not have any evidence of coral damage based on previous deployments and have used this methodology within sensitive areas of the Great Barrier Reef Marine Park (amongst other protected sites).

The frame design of the BRUVS includes a high yoke which is designed to keep ropes out of habitat and prevent tangling. Floating rope is used to avoid sinking and tangling. In conjunction with careful deployment we have not had any entanglements based on over 1600 deployments on coral reefs.

7. The application states "It is the long-term intention of this project that data be made publicly available." I understand the need for scientists to publish their findings first in scientific journals, but is there any time frame for data to become publicly available?

   The project is scheduled to conclude at the end of 2018 so data will be made available after that point if not before. Timing of data release will likely relate to progress (video processing) and status of sampling in other regions as the project is global in nature. We have agreed to provide regional data to project partners for their use prior to public release of data. The same arrangement could be made here if access to the data is required/requested.

COMMENTS / RECOMMENDATIONS:

1. This study has a sample size of 2, and with such a low sample size they cannot:

   "Collect data on the relative abundance of reef sharks within the Monument"
   "assess the status of shark populations relative to other nations"
   "This comparison will provide an indication of how shark and ray populations in PMNM compare with other locations in the Pacific and beyond."
   "Using data from BRUVS to record the presence and abundance of reef sharks and rays within the PMNM. These data can be used by managers to determine the health and status of shark populations within PMNM relative to other coral reef regions."

   All of these above statements are not true with such a small sample size.

   As indicated above, the sampling design has been informed by a statistician and therefore is robust and appropriate for the proposed analyses:

   The sample sizes used in this study have been determined by a statistician as being adequate and robust enough to allow comparison among sampling sites. Thus the sample size is appropriate and does not need to be increased. Although there are only 2 sites where activities would occur in the PMNM, 50 BRUVS deployments will be completed at each site and these data will be compared to equivalent numbers of BRUVS deployments in other locations around the world.

2. The BRUVS should be placed by hand and only left out for short periods of time. The researchers should make sure they are not in areas with high coral cover or coral that can be harmed by sharks moving the BRUVS.

   The Australian Institute of Marine Science does not allow diver deployment of BRUVS due to the potential risks of having divers moving weighted equipment and swimming

within the bait plume of the BRUV. Some of the areas we work attract large numbers of sharks very quickly making it unsafe for divers to be in the vicinity of the unit. BRUVS are hand-deployed and retrieved from small vessels using a bathyscope, which is the safest and most appropriate method to ensure positioning to avoid coral damage. Soak times are 60 minutes which has been determined to be statistically appropriate for the comparisons we plan to make and ensure consistency among global sampling sites.

3. Shallow water BRUVS will not give us any more info that towed diver and other SCUBA fish surveys. CREP has very good data on shallow water sharks. Deeper BRUVS would fill in a data gap on potential deep water sharks and rays that are thus far undetected. Some new species might be detected by the shallow water BRUVS, but this method is not a catch all, or a silver bullet.

   No method is a catchall for estimating marine species abundance and there are inherent biases with every approach. BRUVS are biased to attracting large piscivores and under-sampling herbivores. Similarly, diver surveys are known to have biases where some species, notably sharks, are either attracted to or avoid divers biasing counts. Therefore multiple methods are our best approach to obtaining more realistic estimates. Combining the proposed BRUV surveys with existing UVC data will provide a more comprehensive understanding of shark populations in the NWHI. The additional benefit is in comparing the relative abundances observed in PMNM with those of other regions to see how the numbers of sharks in shallow reef environments compare when examined using identical methodology. Sampling for all Global FinPrint locations has been restricted to less than 40m for comparison purposes.

4. BRUVS should be placed in areas that will not be impacted if they are moved by the species being recorded.

   Agree and noted.

5. If a shark moves a BRUV it would have the potential to damage the substrate and corals. This should be taken into account when they are deployed.

   Agree and noted. We will try to avoid scenarios that allow flipping and areas where damage could be incurred, such as branching corals.

6. Looking at the Global FinPrint website, they seem to share highlight videos from different study sites. It will be great if the NWHI videos are added to their website.

   Highlight videos from the NWHI can be included on the FinPrint web site, our Twitter posts and Vimeo.

7. All deployments must be made on sandy substrate, and at a distance from coral reefs that will prevent damage from ropes or anchors associated with the BRUVS.

I cannot guarantee that BRUVS will not be set on coral. Sampling is conducted in less than 40m of water so we can view where BRUVS are dropped and control placement, but to only deploy on sand would bias the sampling and results of the research. Restriction to sand might also limit the depth strata that we can sample (e.g. only at the reef base) which will not allow comparison to sampling in other sites which has varied in depth and habitat. We will not deploy BRUVS on fragile or branching corals which are highly susceptible to damage. Working with experienced NOAA staff on the cruise we will carefully select the 2 sampling sites and actively avoid sensitive areas such as Acropora beds.

8. The applicant needs to ensure that the BRUVS are properly weighted to prevent movement caused by currents or tidal changes. If the applicant notices a position change after any retrieval, additional weight must be added prior to the next deployment to prevent the BRUVS from moving.

   Agree and noted. This is standard practice in our sampling and units are designed to be as low impact as possible. BRUVS positions each day will be planned in consideration of tides and currents.

9. Shark populations in the NWHI have been quantitatively assessed in deep waters, but not on shallow reefs (as is being proposed). It is also highly beneficial to have the Monument represented in a global study that allows for comparisons of its shark populations with those from other regions.

   Agree.

Comments received from the Native Hawaiian community are summarized as follows:

Cultural reviews support the acceptance of this application. No concerns were raised.

Comments received from the public are summarized as follows:

No comments were received from the public on this application.

Additional reviews and permit history:
Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g., MMPA, ESA, EA) Yes ☒ No ☐
If so, please list or explain:

- The proposed activities are incompliance with the National Environmental Policy Act.
- The proposed activities are in compliance with the National Historic Preservation Act.
- A request is currently underway to the National Marine Fisheries Service (NMFS) to cover all proposed activities under PMNM's programmatic ESA Section 7 informal consultation. The outcome of this consultation may require the applicant to adhere to other NMFS-prescribed conditions. Such conditions would be reflected in the PMNM permit, prior to issuance.

- An informal review of all aforementioned activities following section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1855(b)) was completed on July 5, 2017 by NOAA National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO). NMFS PIRO concurred proposed activities would have no more than minimal impact to Essential Fish Habitat.

- The Department has made an exemption determination for this permit in accordance chapter 343, HRS, and Chapter 11-200, HAR. See Attachment ("DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO MICHELLE HEUPEL, AUSTRALIAN INSTITUTE OF MARINE SCIENCE, FOR ACCESS TO STATE WATERS FOR RESEARCH ACTIVITIES INTENDED TO CHARACTERIZE ELASMOBRANCH SPECIES RICHNESS UNDER PERMIT PMNM-2017-021."

Has Applicant been granted a permit from the State in the past? Yes ☐ No ☒
If so, please summarize past permits:

Have there been any a) violations: Yes ☐ No ☒
b) Late/incomplete post-activity reports: Yes ☐ No ☒

Are there any other relevant concerns from previous permits? Yes ☐ No ☒

STAFF OPINION

PMNM staff is of the opinion that the Applicant has properly demonstrated valid justification for their application and should be allowed to enter the NWHI State waters and conduct the activities therein as specified in the application with certain special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Research Permit General Conditions. All suggested special conditions have been vetted through the legal counsel of the Co-Trustee agencies (see Recommendation section).

MONUMENT MANAGEMENT BOARD OPINION

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by PMNM staff.

RECOMMENDATION:

That the Board authorize and approve a Research Permit to Michelle Heupel, Australian Institute of Marine Science, with the following special conditions:

1. This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.

2. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.

3. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols attached to this permit.

4. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.

5. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State NWHI Marine Refuge.

6. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

Respectfully submitted,

Maria Carnevale
State Co-Manager
Papahānaumokuākea Marine National Monument

APPROVED FOR SUBMITTAL

SUZANNE CASE
Chairperson

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: Michelle Heupel
Affiliation: Australian Institute of Marine Science

Permit Category: Research
Proposed Activity Dates: September 6-30, 2017
Proposed Method of Entry (Vessel/Plane): NOAA ship Hi'ialakai
Proposed Locations: Shallow water reef (<100 feet depth). Exact locations dependent on NOAA field cruise destinations and availability of small vessels to conduct sampling. We will deploy baited remote underwater video stations at 2 cruise destinations.

Estimated number of individuals (including Applicant) to be covered under this permit: 4

Estimated number of days in the Monument: 25

Description of proposed activities: (complete these sentences):

a.) The proposed activity would…

provide a direct measure of elasmobranch species richness and abundance through the use of baited remote underwater video surveys (BRUVS). Video footage from BRUVS also often captures rare species and provides novel data on species interactions as well as providing a record of habitat type and condition. These point samples can form the basis of comparative analysis with other coral reef ecosystems to determine trends in predator populations. Collected data will be integrated into regional (Pacific Ocean) and global analyses of the status of reef shark populations. This assessment will provide a direct measure of the Papahānaumokuākea Marine National Monument (PMNM) relative to other countries and regions, including shark sanctuaries and marine parks.

b.) To accomplish this activity we would ….

Use BRUVS to count the number of sharks present to provide an estimate of the relative abundance of sharks and rays within the PMNM. This work will: 1) improve our understanding of the status of shark and ray populations within PMNM, and 2) inform on

the health of PMNM shark and ray populations relative to other countries and locations including areas open and closed to fishing.

c.) This activity would help the Monument by …
Using data from BRUVS to record the presence and abundance of reef sharks and rays within the PMNM. These data can be used by managers to determine the health and status of shark populations within PMNM relative to other coral reef regions. BRUV deployments will be conducted with non-destructive, light weight frames in shallow regions (<40m) to match methodology applied at over 200 reefs surveyed globally as part of the Global FinPrint project which is completing the first global assessment of reef shark and ray population status to inform current and future conservation and management efforts. Data collected from PMNM will be contributed to the global data set and analyses to inform on current conservation status.

Other information or background:
This sampling method is designed to be non-invasive and non-destructive. While individuals will be attracted to the camera with bait, no individuals will be captured, collected or handled. BRUV frames have been specially designed for deployment in coral reef habitats. As such they are light weight and will be lowered and recovered by hand to ensure they are placed in suitable locations and do not damage reef substrate

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Heupel, Michelle R
Title: Senior Research Scientist

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

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

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

3. Affiliation (institution/agency/organization directly related to the proposed project):
Australian Institute of Marine Science

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):
Audrey Schlaff, Field Principal Investigator
TBD 1, Field Assistant
TBD 2, Field Assistant

Section B: Project Information

5a. Project location(s):

		Ocean Based	
☐ Nihoa Island	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Necker Island (Mokumanamana)	☐ Land-based	☒ Shallow water	☐ Deep water
☐ French Frigate Shoals	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Gardner Pinnacles	☐ Land-based	☒ Shallow water	☐ Deep water
☒ Maro Reef			
☐ Laysan Island	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Lisianski Island, Neva Shoal	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Pearl and Hermes Atoll	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Midway Atoll	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Kure Atoll	☐ Land-based	☒ Shallow water	☐ Deep water
☐ Other			

NOTE: Shallow water is defined by water less than 100 meters in depth.

☐ Remaining ashore on any island or atoll (with the exception of Sand Island,at Midway Atoll 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:
Shallow water reef (<100 feet depth). Exact locations dependent on NOAA field cruise destinations and availability of small vessels to conduct sampling. We will deploy baited remote underwater video stations at 2 cruise destinations.

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 our proposed activity is to conduct video surveys to collect data on the number, type, and abundance of sharks and rays within the Papahānaumokuākea Marine National Monument (PMNM). This information is critical to understanding how effective protected areas such as the PMNM are at conserving these species. This research is part of an international initiative - Global FinPrint - which is sampling reef habitats around the world to compare the status and abundance of shark and ray populations. Data collected during this project will be used to determine how effective closed areas are for reef sharks and rays as well as indicating areas of near pristine conditions for these species. This comparison will provide an indication of how shark and ray populations in PMNM compare with other locations in the Pacific and beyond. As pressures on our ocean ecosystems increase and populations of top predators continue to decline this data and analysis is crucial to understanding how effective current conservation and management approaches are and where future interventions will be required.

*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species? Yes ☐ No ☒

If so, please list the species you specifically intend to target.
This project primarily targets sharks and as such may record scalloped hammerheads. Other protected species in the area (e.g. sea turtles) may also be captured on video, although they are not the target of this research.

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 activity is designed to be low impact and non-extractive. The use of lightweight frames and hand hauling ensure that BRUVS units are placed carefully and appropriate to the habitat type to reduce physical impacts. A small amount of bait (1 kg)

is used to attract predatory fish species to the camera to increase capacity to record species of interest (i.e. sharks). The attraction is short-term with bait effects dissipating within the 1 hour soak time of the BRUV set. We are only requesting permission to sample at two sites within PMNM. Thus the spatial and temporal extent of the activity is limited to an amount suitable to allow comparison to other regions. Our research team is highly experienced and has used this exact method in marine protected areas in several other countries including the Great Barrier Reef Marine Park and Palau Shark Sanctuary.

The use of a non-extractive approach (data all recorded via video camera) limits impacts on habitats and populations and should not impose on cultural, natural or historical resources. Staff involved with this project will be respectful of local and cultural values to preserve the resources of the PMNM.

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 indicated above, this project relies on video to capture the presence of individuals on reefs within the PMNM. The activities conducted are designed not to diminish any of the cultural, natural, historical qualities of the PMNM. Our goal is to collect data on the relative abundance of reef sharks within the Monument. These data will be used to assess the status of shark populations relative to other nations (e.g. American Samoa, Palau, Federated States of Micronesia). It is intended that the data collected in this project will be useful to the management and conservation objectives of PMNM and other marine protected areas within the Pacific. We are only requesting permission to sample at two sites within PMNM during a single research cruise to minimize impacts and maximize data collection. As shark populations continue to decline around the world, collection of this data is crucial to defining the efficacy of marine protected areas for these populations.

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 within the Monument. The data required are location specific to provide an understanding of population status in protected areas closed to fishing, such as the PMNM, with areas open to fishing and other pressures. Without data from protected areas we will lack an understanding of how well they are working to support shark populations. These questions are directly relevant to current and future management of the Monument.

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 management value of the collected data and capacity to assess PMNM relative to other Pacific locations outweigh the transient and minimal impact of this sampling. The sampling will have little or no impact on Monument resources, quality or ecological

integrity as has been shown in previous research in other coral reef ecosystems. Understanding the status and relative abundance of sharks in the PMNM will be highly beneficial and relevant to global shark management and conservation efforts.

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

This activity is restricted to a single NOAA cruise within the Monument. We will use the single cruise to conduct all BRUVS sampling with no need for additional time within the PMNM.

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

The PI (M Heupel) is an established expert in shark biology and ecology with over 20 years research experience, has extensive experience working in coral reef ecosystems and has been working with BRUVS and BRUVS data for over 5 years. She is also one of 6 PIs in the Global FinPrint project, selected for her expertise in this area. Field PI (A Schlaff) has over a decade of experience working in coral reef ecosystems conducting various types of sampling and survey methodology including BRUVS. She has the skills, expertise and experience to conduct these tasks and train volunteers to assist. The Australian Institute of Marine Science (AIMS) is a pioneer in the use of BRUVS technology being one of the first institutes in the world to apply this approach. Extensive sampling using this technique has been conducted within the Great Barrier Reef, Ningaloo Reef (Western Australia) and internationally via the Global FinPrint project. This method is simple, non-invasive and low impact. Deployment and retrieval are easily done and volunteers are regularly trained to assist AIMS staff. In short we are a highly qualified team employing a simple and easy to complete non-invasive sampling methodology.

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.

This research is funded by the Global FinPrint project funded by Paul G. Allen via Vulcan philanthropy. This project and the Australian Institute of Marine Sciences have the resources to support this sampling and mitigate any potential impacts from its conduct.

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 we propose are ideal for achieving research goals while minimizing impact. Other sampling methods to determine shark abundance involve invasive fishing procedures (hooking, tagging and release) and multiple sampling trips to try to estimate numbers of individuals. BRUVS collect data that can be used to estimate relative abundance without requiring capture and handling of individuals. This approach minimizes direct impacts to individuals and reduces the sampling duration to a single

trip. Therefore the methods and procedures are optimized to be low impact and high output for the time and area sampled.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?
This sampling will be conducted aboard a NOAA research vessel and in compliance with all marine vessel requirements

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.
As indicated above, this research is video sampling only and will have no destructive impacts to the coral reef ecosystem. There are no other issues that should make issuance of a permit inappropriate.

8. Procedures/Methods:
Approximately 100 BRUV sets will be completed in PMNM, 50 at each of two reef locations. Sharks and rays will be attracted via a bait arm attached to the BRUVS frame and be recorded on video. BRUVS consist of a lightweight galvanized frame enclosing a simple camera housing made from black PVC with flat acrylic front port. Bait arms (20-25mm plastic conduit) are attached before deployment. The bait arm has a 35 cm plastic mesh bait canister containing 1 kg of crushed tuna. BRUVS are deployed with ropes and inflatable orange surface floats and are retrieved with by hand hauling. One to two BRUVS in each set are fitted with a current meter to record current direction and strength in situ.

BRUVS are deployed from small boats on selected areas of shark and ray habitat to measure species richness and relative abundance. BRUV deployments are designed for 60 minutes soak time and video recording prior to retrieval. Like direct underwater counts, the immediate habitat type is visible when videos are reviewed, and the timing and abundance of shark and ray appearances/occurrences are recorded using the time code stamped on the video. Replay, pause and zoom functions allow researchers to closely examine species and individuals for identification.

Each day, typically 3-4 sets of 6 BRUVS per set can be achieved (e.g. 24/day), and in general the steps are:

1) Prepare BRUVS and deploy carefully on the seabed with floats and ropes attached by lowering them overboard whilst vessel is out of gear
2) Continue until all 6 units are deployed
3) After a soak time of 60 minutes begin retrieval of the first unit by picking up floats and lines by steaming upwind or up current and retrieving the float and rope
4) Hand-haul the BRUV to the surface slowly, open housing to turn off camera and stack/store BRUVS units ready for redeployment

Sampling will occur in coral reef habitat in depths < 40m to match sampling protocols at other Global FinPrint sampling sites. Exact locations of sampling will be dependent on

the NOAA cruise schedule and availability of small vessels and crew for deployment. Individual deployment locations of each BRUV will be dependent on the bottom substrate, habitat, depth and current. As much as possible, BRUVS will be deployed at locations with moderate to low current considering tidal cycles. Permission to snorkel is requested in case there is a need to get in the water and scout for suitable deployment locations, but this is typically accomplished via a view bucket from the surface. Request to snorkel is a precautionary measure in case it is required.

The methods used in this study meet Australian national standards for BRUVS deployments and represent 'best practice' sampling protocols in this field.

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:

Scientific name:

& size of specimens:

Collection location:

☐ Whole Organism ☐ Partial Organism

9b. What will be done with the specimens after the project has ended?

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

• 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?
N/A

11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:
The sampling conducted for the Global FinPrint initiative is part of an international collaboration. The data will be published and shared widely with international research teams. Project PIs would be happy to provide results to PMNM. It is the long-term intention of this project that data be made publicly available unless there is a reason or request not to release data. As such the data collected during this cruise will be widely shared and applicable.

12a. List all specialized gear and materials to be used in this activity:
baited remote underwater video units (frames, cameras, camera housings, bait arms, weights, lines, floats, current meter); snorkel gear (mask, fins, snorkel); viewing bucket for BRUV placement

12b. List all Hazardous Materials you propose to take to and use within the Monument:
N/A

13. Describe any fixed installations and instrumentation proposed to be set in the Monument:
N/A

14. Provide a time line for sample analysis, data analysis, write-up and publication of information:
Video analysis, data analysis and at least one publication using this data should be complete within 12-18 months of the survey. Timing of publications will depend in part on survey work at other FinPrint sites to facilitate global comparisons. We hope to produce several high impact publications as a result of this research.

15. List all Applicants' publications directly related to the proposed project:
Simpfendorfer CA and Heupel MR (2016) Ecology: The upside-down world of coral reef predators. Current Biology 26, R701–R718

Espinoza M, Lédée EJI, Heupel MR, Tobin AJ and Simpfendorfer CA (2015) Contrasting movements and habitat connectivity of reef-associated sharks using acoustic telemetry: implications for marine reserve design. Ecological Applications 25: 2101-2118

Espinoza M, Cappo M, Heupel MR, Tobin A and Simpfendorfer CA (2014) Shark distribution, habitat association and implications of marine park zoning. PLoS One 9:e106885 DOI 10.1371/journal.pone.0106885

Udyawer V, Cappo M, Simpfendorfer CA, Heupel MR and Lukoschek V (2014) Distribution of sea snakes in the Great Barrier Reef Marine Park: an assessment of sightings on baited remote underwater video stations (BRUVS). Coral Reefs 33: 777-791

Heupel MR, Knip DM, Simpfendorfer CA and Dulvy NK (2014) Sizing up the ecological role of sharks as predators. Marine Ecology Progress Series 495: 291-298

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

Papahānaumokuākea Marine National Monument
Compliance Information Sheet

1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant):

Audrey Schlaff, Field Principal Investigator, Australian Institute of Marine Science
TBD 1, Field Assistant
TBD 2, Field Assistant

2. Specific Site Location(s): (Attach copies of specific collection locations): French Frigate Shoals and Midway Atoll at depths < 40 m

3. Other permits (list and attach documentation of all other related Federal or State permits): N/A

3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation. N/A

4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information): This is a field trip associated with a global sampling campaign.

Funding source: Vulcan Philanthropy
Budgeted items: flights from Australia to Honolulu
Bait for BRUVS
Estimated cost: $8,000

5. Time frame:
Activity start: 6 September 2017
Activity completion: 30 September 2017

Dates actively inside the Monument:
From: 6 September 2017
To: 30 September 2017

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application:

Personnel schedule in the Monument:

Audrey Schlaff, Field Principal Investigator, and two field assistance will be on the NOAA vessel and within the Monument for the period of 6-30 September.

6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument:

7. Check the appropriate box to indicate how personnel will enter the Monument:

☒ Vessel
☐ Aircraft

Provide Vessel and Aircraft information: NOAA RV Hi'ialakai

8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):

☐ Rodent free, Date:
☐ Tender vessel, Date:
☐ Ballast water, Date:
☐ Gear/equipment, Date:
☐ Hull inspection, Date:

9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):
Vessel name:
Vessel owner:
Captain's name:
IMO#:
Vessel ID#:
Flag:

Vessel type:
Call sign:
Embarkation port:
Last port vessel will have been at prior to this embarkation:
Length:
Gross tonnage:
Total ballast water capacity volume (m3):
Total number of ballast water tanks on ship:
Total fuel capacity:
Total number of fuel tanks on ship:
Marine Sanitation Device:
Type:

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems:

Other fuel/hazardous materials to be carried on board and amounts:

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type:

VMS Email:
Inmarsat ID#:

* Individuals MUST ENSURE that a type-approved VMS unit is installed and that its automatic position reports are being properly received by the NOAA OLE system prior to the issuance of a permit. To make sure your VMS is properly configured for the NOAA OLE system, please contact NOAA OLE at (808) 725-6110 or (808) 725-6100.

* PERMITS WILL NOT BE ISSUED TO INDIVIDUALS ENTERING THE MONUMENT VIA VESSEL UNTIL NOAA OLE HAS CONTACTED THE MONUMENT PERMIT COORDINATOR WITH A 'POSITIVE CHECK' READING.

10. Tender information:

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors: 2 10-m launches (diesel inboard) and 2 19-ft Safeboats (gas twin outboard).

Additional Information for Land Based Operations

11. Proposed movement of personnel, gear, materials, and, if applicable, samples: N/A

12. Room and board requirements on island: N/A

13. Work space needs: N/A

DID YOU INCLUDE THESE?

- ☐ Map(s) or GPS point(s) of Project Location(s), if applicable
- ☐ Funding Proposal(s)
- ☐ Funding and Award Documentation, if already received
- ☐ Documentation of Insurance, if already received
- ☐ Documentation of Inspections
- ☐ Documentation of all required Federal and State Permits or applications for permits

DAVID Y. IGE
GOVERNOR OF HAWAI'I

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

JEFFREY PEARSON P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

August 11, 2017

TO: Division of Aquatic Resources File

THROUGH: Suzanne D. Case, Chairperson

FROM: Maria Carnevale
Papahānaumokuākea Marine National Monument

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO MICHELLE HEUPEL, AUSTRALIAN INSTITUTE OF MARINE SCIENCE, FOR ACCESS TO STATE WATERS TO CONDUCT RESEARCH ACTIVITIES TO CHARACTERIZE ELASMOBRANCH SPECIES RICHNESS UNDER PERMIT PMNM-2017-021

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200, HAR:

Project Title:
Papahānaumokuākea Marine National Monument Research Permit to Michelle Heupel, Australian Institute of Marine Science, for Access to State Waters to Conduct Research Activities to Characterize Elasmobranch Species.

Permit Number: PMNM-2017-021

Project Description:

The applicant proposes to provide a direct measure of elasmobranch species richness and abundance through the use of baited remote underwater video surveys (BRUVs). BRUVS consist of a lightweight galvanized frame enclosing a simple camera housing made from black PVC with flat acrylic front port. Up to four individuals would be authorized to deploy BRUVS in shallow waters (< 100 feet depth) at all islands/atolls throughout PMNM. However, only two deployment sites would be chosen depending on vessel cruise logistics aboard NOAA Ship HIIALAKAI (separately permitted under permit no. PMNM-2017-002) during a research cruise from September 6 – 30, 2017. Approximately 100 BRUVS sets will be completed in PMNM, 50 at each of two reef locations. Proposed activities include altering submerged lands (though deployment of BRUVS),

touching living or dead coral, attracting living Monument resources, and swimming, snorkeling and SCUBA diving.

Collected data would be integrated into regional (Pacific Ocean) and global analyses of the status of reef shark populations. This assessment will provide a direct measure of the Papahānaumokuākea Marine National Monument (PMNM) relative to other countries and regions, including shark sanctuaries and marine parks.

To safeguard Monument resources the applicant would abide by the following PMNM Best Management Practices (BMPs) while conducting the aforementioned activities within the PMNM: Best Management Practices for Boat Operations and Diving Activities (BMP #004); Marine Wildlife Viewing Guidelines (BMP #010); Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment (BMP #011), and Maritime Heritage BMP (BMP #017).

The applicant's proposed activities directly support the Monument Management Plan (MMP) Marine Conservation Science (MCS) Action Plan Strategy MCS-1: *Continue and enhance research, characterization and monitoring of marine ecosystems* (PMNM MMP Vol. I, p. 122, 2008).

Consulted Parties:
The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, Hawai'i Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since May 24, 2017, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Exemption Determination:
After reviewing HAR § 11-200-8, including the criteria used to determine significance under HAR § 11-200-12, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit; including the underwater baited surveys have been evaluated as a single action. As a preliminary matter, multiple or phased actions, such as when a group of actions are part of a larger undertaking, or when an individual project is precedent to or represents a commitment to a larger project, must be grouped together and evaluated as a single action. HAR § 11-200-7. This analysis will treat all planned activities as a single action.

2. The Exemption Class for Scientific Research with no Serious or Major Environmental Disturbance Appears to Apply. Chapter 343, HRS, and § 11-200-8, HAR, provide for a list of classes of actions exempt from environmental assessment requirements. HAR §11-200-8.A.5.

exempts the class of actions which involve "basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." The proposed study activities here appear to fall squarely under the exemption class #5, exempt item #3 as described under the Department's exemption list published on June 5, 2015. This exemption class has been interpreted to include "14. Implanting transponders and affixing tags, transmitters, markers, or other similar devices to birds, mammals, invertebrates, or aquatic organisms to record movement, longevity, growth, distribution, behavior, and other activities; taking disease or blood samples from birds, mammals, invertebrates, or aquatic organisms; and **placing remote monitoring devices (to determine animal movement), cameras, equipment and feeders.**", such as those being proposed. As discussed below, no significant disturbance to any environmental resource is anticipated in the recovery of instrumental deployment, to monitor predator movements. Thus, so long as the below considerations are met, an exemption class should include the action now contemplated.

To safeguard Monument resources the Applicant would abide by the PMNM Best Management Practices (BMPs) listed earlier in this document and detailed below. PMNM: Best Management Practices for Boat Operations and Diving Activities (BMP #004); General Storage and Transport Protocols for Collected Samples (BMP #006); Marine Wildlife Viewing Guidelines (BMP #010); and Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment (BMP #011).

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if "the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment." HAR § 11-200-8.B. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. HAR § 11-200-12. Examples of actions which commonly have a significant effect on the environment are listed under HAR § 11-200-12.

Proposed activities would be a continuation of activities permitted in the Monument from 2008 to 2015. Similar predator tagging and feeding activities have also been permitted and performed within the NWHI. Past permitted projects including similar collections and techniques have shown no adverse impacts. With that mind, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potential sensitive environment of the project area will not be significantly affected. All activities will be conducted in a manner compatible with the management direction of the Monument Proclamation in that the activities do not diminish Monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. The joint permit review process did not reveal any anticipated indirect or cumulative impacts that would occur as a result of these activities.

These activities would be conducted from the NOAA ship HI'IALAKAI (separately permitted). No other research activities have been permitted for this cruise that would target the same species and this proposed permit. Though the potential permits may occur in the same area, each project differs logistically and targets interaction with different resources. Therefore, since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

4. Overall Impacts will Probably be Minimal and Insignificant Any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific conditions attached to the permit. Specifically, all conservation and management activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources of the Monument as required by Presidential Proclamation 8031, other applicable law and agency policies and standard operating procedures.

Conclusion. Upon consideration of the permit to be approved by the Board of Land and Natural Resources, the potential effects of the above listed project as provided by Chapter 343, HRS and Chapter 11-200 HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.