

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic
Resources Honolulu,
Hawaii 96813

May 13, 2022

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Conservation and Management Permit to Mr. James Morioka, Papahānaumokuākea Marine Debris Project (PMDP) for Access to State Waters to Survey and Remove Marine Debris and Disentangle Marine Life as Needed within the Waters of the Northwestern Hawaiian Islands

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument Conservation and Management Permit to Mr. James Morioka, Papahānaumokuākea Marine Debris Project (PMDP), pursuant to §187 A-6, Hawai 'i Revised Statutes (HRS), Chapter 13-60.5, Hawai 'i Administrative Rules (HAR), and all other applicable laws and regulations.

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

- French Frigate Shoals (Lalo)
- Laysan Island (Kamole)
- Lisianski Island (Kapou)
- Maro Reef (Kamokuakamohoali'i)
- Pearl and Hermes Atoll (Manawai)
- Midway Atoll (Kuaihelani)
- Kure Atoll (Hōlanikū)

The activities covered under this permit would be authorized to occur via two separate 30-day cruises, the first between July 1 - September 30, 2022, and the second between August 24 - September 24, 2022. Expedition dates may vary between 2022-2023 if unforeseen interruptions or delays occur.

INTENDED ACTIVITIES

The proposed permit activities would allow for large scale marine debris survey and removal operations within Papahānaumokuākea Marine National Monument (Monument) via the NOAA Northwestern Hawaiian Islands (NWHI) Marine Debris Project (hereinafter referred

to as the ‘Project’). The Project began in 1996 and was led by NOAA Fisheries and other agency partners through 2021. The Project has demonstrated over time the necessity of large-scale marine debris removal operations for the protection and safety of marine wildlife, specifically the endangered Hawaiian monk seal and threatened green sea turtle. Between 2015-2021, the Project was co-led and co-managed by James Morioka (Executive Director, Papahānaumokuākea Marine Debris Project (PMDP)), and Kevin O’Brien (President and Founder, PMDP), while still operating under NOAA, prior to the creation of PMDP in 2019. PMDP is proposing to lead the Project in the PMNM indefinitely, after partnering with NOAA, U.S. Fish and Wildlife Services (USFWS) and the State of Hawai‘i Department of Land and Natural Resources (DLNR) on three successful field marine debris removal missions in 2020-2021 (operating under the Co-Trustee permit).

It is expected that PMDP would remove approximately 56 metric tons (MT) of marine debris per 30-day cruise, amounting a total of 112 MT of marine debris removed from the Monument in 2022.

Specific objectives of the Papahānaumokuākea Marine Debris Project (PMDP) are as follows:

- Survey for and remove derelict fishing gear (DFG) from shallow (0-30 ft depth) coral reef environments at locations listed above.
- Survey for and remove DFG, plastics, and other entanglement hazards from shoreline habitats at locations listed above.
- Evaluate the rates of marine debris accumulation and assess abundance and distribution on coral reefs and shorelines.
- Assess ecological impacts of DFG on coral reef environments through photographic surveys.
- Disentangle protected wildlife, which includes Hawaiian monk seals, green sea turtles, and sea birds, from marine debris when human intervention is required/possible (if permissible).
- Utilize Unmanned Aerial Systems (UAS) surveys to assist in the detection of marine debris to increase operational efficiency and assess abundance and distribution of marine debris on coral reefs and shorelines (if permissible under current regulations).
- Capture photos and video for outreach and education purposes

PMDP intends to film / photograph protected wildlife (including Hawaiian monk seals, sea turtles, and sea birds) interacting or being affected by the threats of marine debris, while strictly following all PMNM BMPs. All footage (film / photograph) will be provided to the four Co-Managing agencies (NOAA, U.S. Fish and Wildlife Services, State of Hawai‘i, Office of Hawaii Affairs) upon return from PMNM.

If protected wildlife is entangled in marine debris, PMDP will (if permitted as Co-Investigators on the NOAA National Marine Fisheries Services (NMFS) permits) work with partners at the NOAA Pacific Islands Fisheries Science Center (PIFSC) Protected Species Division (PSD), U.S. Fish and Wildlife Services and the State of Hawai‘i to assess the threat and mitigate hazards to

the best of their ability. If seals or turtles become critically entangled, then PMDP personnel (trained with the NOAA NMFS PIFSC PSD) may intervene and prevent potentially fatal outcomes through disentanglement.

PMDP is also proposing to conduct Unmanned Aerial Systems (UAS, commonly referred to as ‘drones’) surveys of derelict fishing nets on coral reefs, using a Splash Drone 4 UAS (back-up UAS is the DJI Mavic Air Pro 2) (if permissible under current regulations). The study was piloted by the Project in 2018, mapping over 2 sq. km. of coral reef area (stitching hundreds of photographs to create a detailed mosaic) to detect derelict fishing nets on the reefs, and ground-truthing the imagery for nets with divers in the water. The Project demonstrated that the proof of concept for aerial net detection could be successful, and PMDP looks to capture more imagery so that artificial intelligence (AI) detection software used to detect derelict fishing nets on shallow water coral reef environments can be enhanced through machine-learning.

PURPOSE AND NEED

The proposed activities would be in support of priorities identified in Monument management and recovery plans, included but not limited to: 1) Papahānaumokuākea Marine National Monument (PMNM) Management Plan (hereinafter referred to as the MMP) (specifically 3.3: Reducing Threats to Monument Resources – 3.3.1: Marine Debris (MD) Action Plan – “Reduce the adverse effects of marine debris to PMNM resources and reduce the amount of debris entering the North Pacific Ocean”), 2) Hawai‘i Marine Debris Action Plan (HI-MDAP), 3) Recovery Plan for the Hawaiian Monk Seal, 4) Mai Ka Po Mai: A Guidance Document for Papahānaumokuākea, 5) Endangered Species Act of 1973 (ESA) and 6) Marine Mammal Protection Act of 1972 (MMPA).

The Hawaiian Archipelago (specifically the PMNM) is centrally located within the world’s largest ocean gyre, the North Pacific Gyre and thus becomes a large depository for marine debris. The PMNM is also home to more than 7,000 marine species, 25% of which are endemic, found only in the Hawaiian Archipelago. Marine debris and derelict fishing gear adversely affect the wildlife and habitats of the PMNM either by directly entangling or harming marine animals (seals, turtles, whales, fish, and invertebrates) or adversely impacting corals via large nets rolling across fragile coral ecosystems. Additionally, there is a serious and growing concern for the entanglement of monk seals, particularly with no formal Project currently led by NOAA. Since 1996, the Project (formerly led by NOAA Fisheries and other agencies) has conducted large-scale marine debris removals to mitigate the entanglement and ingestion threat to protected wildlife and damage to coral reefs, and has removed a total of 1,059 metric tons (2.3 million pounds) of marine debris from the PMNM (136 metric tons or 300,000 pounds of which PMDP supported in 2020-2021) and disentangled countless marine animals. Many endangered animals such as Hawaiian monk seals are alive today due to marine debris removal efforts, disentanglements, and rehabilitation efforts.

PROCEDURES/METHODS:

In-Water Marine Debris Survey and Removal Operations:

Two methods are utilized for the in-water survey and removal of derelict fishing gear (DFG):

- Tow-board Surveys: Tow-board surveys, regularly referred to ‘manta tow’, allows for

rapid visual surveys in shallow water (0-30 ft depth) and maximum area coverage. This method requires two divers to use breath-hold techniques while being towed behind a 19-ft inflatable boat at 1-2 knots across fringing, barrier, or back reefs.

- **Swim Surveys:** Swim surveys are primarily utilized within atoll lagoons around reticulated reefs or in areas which are too shallow or intricate to conduct tow-board operations effectively.

For both methods (detailed above), divers conduct surveys until DFG is visually located entangled on the reef. Once located, the net location (latitude and longitude), net characteristic (type, length, width, height, depth, foul level, coral growth) and habitat characterization data are collected. A debris removal decision-tree is then used to determine whether removal of the net is appropriate and will not cause additional damage to the reef. If removal is deemed appropriate, divers cut the DFG free from the substrate while minimizing impact to the entangled coral and surrounding reef habitat. Once the DFG is free from the reef, it is loaded by hand into the inflatable boats for transport back to the ship (and ultimately transported back to Honolulu, HI for proper disposal).

Note: If the nuisance algae, *Chondria tumulosa*, is identified on the marine debris or in the nearby habitat (currently identified at Pearl and Hermes Atoll – Manawai and Midway Atoll – Kuaihelani), its specific location within the atoll/island will be marked with a Global Positioning System (GPS) unit, and the marine debris will be left in place (until further guidance is provided by the MMB). Shoreline marine debris removal operations at islands/atolls with *Chondria tumulosa* will follow the strict Best Management Practices To Minimize the Spread of *Chondria Tumulosa* (BMP #020). All relevant activities will additionally adhere to a Supplemental *Chondria* Biosecurity Plan (included as an attachment) that will be approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant. The current plan attached to this BLNR submittal is a draft plan, which will be finalized before the activity is conducted. Select modifications proposed through the Agency Review question and answer phase (on pages 8-20), will be integrated into the final draft. Should *Chondria tumulosa* be identified at a sampling site, biosecurity protocols stipulated in BMP #020 and the approved biosecurity plan will be initiated for disinfection and cleaning prior to departing that sampling area.

Shoreline Marine Debris Survey and Removal Operations:

Shoreline Surveys: PMDP staff will walk the shorelines (between low-tide line and vegetation on shore) of the islands and atolls within PMNM to survey for and remove marine debris. The Project primarily focuses on surveying for and removing entanglement and ingestion hazards to wildlife. Once the marine debris is identified, collected, and staged at a ‘pick-up point’, the 19-ft. inflatable boats approach accessible shorelines to safely load with the marine debris to transport back to the ship (and ultimately transport back to Honolulu, HI for sorting, data collection, and proper disposal).

Aerial Marine Debris Survey Operations:

Unmanned Aerial Systems (UAS) Surveys: UAS surveys are expected to take place at all islands/atolls (if permissible under current regulations), and deployed and retrieved from the inflatable boat. Strict UAS protocols and BMPs will be followed and enforced for aerial survey

operations. Flights will take place between 100 ft. minimum (over land or reef) and 400 ft. maximum altitude (if permissible).

Wildlife Disentanglement Operations:

The Project often encounters marine wildlife entangled in marine debris. Marine wildlife in the PMNM are protected and managed by the State and Federal government, and are protected by laws, rules and regulation that prohibit the interaction and intervention with wildlife. If permitted, PMDP staff who are fully qualified, certified, and trained to handle, restrain, and disentangle marine wildlife will assess the situation and report its outcomes to the appropriate office for guidance and next steps.

- **Hawaiian Monk Seal Disentanglement Operations:** Hawaiian monk seals are often entangled in marine debris and require intervention and disentangling to allow for survival. If/when an entangled Hawaiian monk seal is identified, the PMDP staff will notify the NOAA NMFS PIFSC PSD Hawaiian Monk Seal Research Program (HMSRP) of the entangled seal. A full assessment of the seal's health and surrounding habitat will be conducted and relayed to the HMSRP office. James Morioka (Executive Director, PMDP) is a professionally trained Hawaiian monk seal handler (worked for HMSRP 2011-2013) and has helped handle and/or disentangle dozens of seals in the PMNM. In collaboration with PMDP, James Morioka helped handle and disentangle two adult, female, Hawaiian monk seals in 2021. If permitted, James Morioka would lead a team to handle, restrain, and disentangle the endangered seal through: 1) manual restraint, 2) hoop-net restraint, or 3) stretcher-net restraint protocols and procedures.
- **Marine Turtle Disentanglement Operations:** Marine turtles are often entangled in marine debris, particularly in shallow water coral reef environments. If a turtle is entangled, the team will assess the turtle and its surrounding environment. If permitted, and the disentangling scenario does not cause further risk to the staff and Project, the team will handle the turtle, holding its head above water so that it can breathe effectively, and complete their disentanglement.

Marine Debris Transport and Disposal:

The majority (90%) of the marine debris removed from the environments of PMNM will be appropriately disposed of through NOAA's existing partnership with Schnitzer Steel Co. and H-Power/Covanta Energy in the Nets-to-Energy Program. Schnitzer Steel Co. provides in-kind services/no-cost solutions to chop up the marine debris (particularly derelict fishing nets) into manageable sizes before it is incinerated at H-Power/Covanta to create electricity (renewable energy) for homes on O'ahu. Disposal operations may be modified pending the agreements on methods outlined in the final draft of the Supplemental Chondria Biosecurity Plan.

All transport and disposal activities are discussed in-depth in the Agency Review portion of this document, and will adhere to a final version of Supplemental Chondria Biosecurity Plan that will be approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant (included as an attachment). The current plan attached to this BLNR submittal is a draft plan, which will be finalized before the activity is conducted. Select modifications proposed through the Agency Review question and answer

phase (on pages 8-20), will be integrated into the final draft.

PMDP is also actively seeking creative, alternative options to properly dispose of the marine debris collected in the PMNM. PMDP has created a local educational initiative to recycle/upcycle shoreline plastics and DFG into new, recyclable products designed and produced by students:

- Ocean Plastics Student Makerspace: PMDP has partnered with windward O‘ahu high schools to build small-scale recycling machines to shred, melt and mold ocean plastics from PMNM into new products designed by the students. All products created at the Plastics Makers Space are developed to increase awareness of the size and scale of the marine debris issue in PMNM, and to help actively engage the local community with ways to combat the problem here in the Main Hawaiian Islands. The volume of plastics processed by this method is small, however, and the Hawai‘i Nets to Energy Partnership remains the primary method of disposal for the vast majority of marine debris removed from PMNM
- Throughout the duration of the cruises, photos and videos will be captured for outreach and education purposes. All photos and videos will be made available to the MMB and/or whomever is interested in them. All photos and videos around wildlife or protected habitat will be reviewed and vetted by the appropriate agency or organization.

COLLECTION OF SPECIMENS

If the Monument Management Board (MMB) or *Chondria* Working Group request samples of *Chondria tumulosa* observed and collected in the field (either at established islands/atolls like Pearl and Hermes Atoll or Midway Atoll or newly established/discovered sites) for genetic testing, the specimens will go straight to the University of Hawai‘i at Manoa (in collaboration with the University of Charleston) for genetic sampling.

Whirlpack bags and containers for secondary containment will be used for collection and specimens will be preserved in the field (*in-situ*) as follows, and then transported back to Honolulu using the larger vessel, M/V *Imua*:

Four samples (4” x 4” x 4” sample, softball size):

1. Freeze (frozen as-is).
2. Salted fresh (salted with table salt as-is).
3. Ethanol (preserved in ethanol as-is).
4. Dried (dried at room temperature in the dark as-is).

ADHERANCE TO FINDINGS CRITERIA, BMPs, AND OTHER SAFETY PROTOCOLS:

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

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- Anchoring a vessel
- 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

NOAA completed a Programmatic Environmental Assessment (PEA or EA) under the National Environmental Policy Act (NEPA), and a Finding of No Significant Impact (FONSI) in June 2005 (valid for an indefinite amount of time) for the Project. PMDP's operations follow all existing NOAA protocols and procedures in place for the safe execution of the mission. All Papahānaumokuākea Marine Debris Project (PMDP) activities proposed will be carried out with strict safeguards for the natural, cultural, and historic resources of the Monument as required by Presidential Proclamation 8031, and other applicable policies and standard operating procedures. All agencies will receive PMDP's detailed field protocols and best management practices (BMP). These practices and procedures will minimize or eliminate disturbance to wildlife, flora, habitat, and cultural and historic resources.

PMDP conducts rigorous PMNM (biological and environmental), ship, small boat, and free-dive/snorkel operational training before conducting at-sea field operations. This training regimen emulates the rigorous training that James Morioka (PMDP Executive Director) and Kevin O'Brien (PMDP President) led at NOAA for all field staff in preparation for field operations between 2007-2021. This includes all marine debris removal activities, but also how to safeguard and minimize impacts to other natural and cultural resources. This will be further supported through PMNM pre-access and cultural briefings for all staff. In addition, a PMNM approved Resource Monitor will accompany all permitted activities to provide oversight and ensure compliance with permit conditions and BMPs.

As in previous years of the Project, the UAS will be operated by trained and certified staff, and all relevant PMNM BMPs and protocols specific to deployment, retrieval, and operations of the UAS will be followed. The UAS will be deployed and recovered from a small boat. The minimum altitude the UAS will fly over the reef or land is 100 ft and the maximum altitude will be 400 ft. Interactions with birds and other wildlife will be closely monitored and should significant interactions occur, UAS operations will be halted.

Careful biosecurity quarantine procedures (outlined under PMNM BMP 007) will be followed and enforced at each island where personnel land on shore or boats and divers are put in the water. This includes use of gear purchased new and dedicated to each island/atoll. Thorough cleaning, biosecurity, and safe storage protocols are followed between field missions.

PMDP has collaborated with the Native Hawaiian community (which is expected to continue in perpetuity), specifically with the Office of Hawaiian Affairs (OHA) and PMNM's Native Hawaiian Program Specialist, Kalani Quiocho, to develop a culture-based strategy for the

Project, to increase inclusivity and collaboration with the Native Hawaiian community in terms of facilitating access to the PMNM, generating culture-based outreach materials, and observing traditional protocols and procedures while in the field.

All footage (film / photograph) will be provided to the four Co-Managing agencies (NOAA, U.S. Fish and Wildlife Services, State of Hawai‘i, Office of Hawaii Affairs) upon return from PMNM.

The applicant would abide by the following PMNM Best Management Practices (BMPs) while conducting the aforementioned activities within the PMNM: Marine Alien Species Inspection standards for Maritime Vessels (BMP #001), Human Hazards to Seabirds Briefing (BMP #003), Best Management Practices for Boat Operations and Diving Activities (BMP #004), Protocols to Reduce Impact to the Laysan Finch (BMP #005), General Storage and Transport Protocols for Collected Samples (BMP #006), Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles (BMP #009), Marine Wildlife Viewing Guidelines (BMP #010), Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment (BMP #011), Precautions for Minimizing Human Impacts on Endangered Land Birds (BMP #012), Nonnative Species Inspection Requirements at Midway Atoll (BMP #015), Best Management Practices for Maritime Heritage Sites (BMP #017), Rodent Prevention and Inspection Standards for Permitted Vessels (BMP #018), Best Management Practices To Minimize the Spread of *Chondria Tumulosa* (BMP #020).

REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii 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 was posted on the Monument Web site in the spring of 2022, 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

MMB Agency Reviewer Questions and Applicant Responses:

Application

No comments, approved plan as is:
NOAA, FWS, OHA, DAR

Did not approve plan as is, required follow up questions to be answered.
None

Supplemental *Chondria Tumulosa* Biosecurity Plan Review per BMP 020:

Sent for Agency Review 3.9.22 with responses due 3.25.22

No comments, approved plan as is:

NOAA, FWS, OHA

Did not approve plan as is, required follow up questions to be answered.

DAR

DAR Questions and responses listed below:

General Questions

1.) Confirming that the main changes to the *Chondria* biosecurity plan for the marine debris removal activity this year are the following:

- The debris will be pre-inspected for *Chondria* fragments at P&H and Midway – if incidence of *Chondria* is detected on either marine debris itself or on surrounding environment, then marine debris will not be collected/will be left in place.
- Instead of having one dedicated container for the marine debris from P & H and Midway for the entire trip, there will instead be a 40 ft. “bleaching container” where all the debris from P & H and Midway gets treated with bleach and then after the treatment duration time, the nets will be lifted out of this container and moved into another 20 ft. “storage container” that is dry (no bleaching occurs) where it will stay to be transported for the remaining duration of the trip. Once the ship arrives in Honolulu the nets that were previously bleached and have now been sitting in the 20 ft. storage container will be lifted out of the 20 ft. storage container (uncontained while being lifted/bundle of nets will not be in a tarp/cargo net) and lifted from the ship onto a Roll-Off Containers on the dock. Tarps will be laid under the path of the crane route to catch any excess water/or bleached algae (if present) that would potentially fall from the nets while being craned.

Response: confirmed, this step is consistent with the protocols in place last year.

2.) Will the 40 ft. “bleaching container” be lined (last year the container had a pool liner on the inside of the container)?

Response: The ‘bleaching container’ will not be lined, as it is welded together and 100% water-tight (it is a repurposed sludge dewatering tank). Last year, in 2021, we used an existing open-top 20-ft container, which was not water-tight, therefore we were required to utilize a pool liner to ensure it was water-tight.

3.) Will the 20 ft. “storage container” be lined with a similar pool liner?

Response: There are no plans to line the 20-ft containers with pool liners, as the best available science states that the algae will not / cannot survive the 12-hr bleach treatment.

- 4.) If either the 40ft. or 20 ft. container is lined – does the liner get removed in Honolulu and taken to the incinerator?

Response: If the container is to be lined, the liner will be incinerated directly, as it was last year.

- 5.) If the containers are not lined - how and when do the 40 ft. bleaching container and 20 ft. storage container get fully cleaned/drained – do they get sprayed down out at sea up at P & H or Midway or when the ship docks in Honolulu – do both containers stay on the boat indefinitely, and used for future expeditions around the MHI or into the PMNM?

Response: There are no plans to line the containers. The 'bleaching container' will be fully drained (only container requiring draining) during the transit from the PMNM to Honolulu (outside the PMNM boundaries). Similarly to last year, after all of the marine debris has been offloaded, the ship will go out to the open ocean beyond 3 nautical miles from shore, to clean all of the containers (three 20-ft open-top containers and one bleaching container) and the deck of the ship using the fire suppression system aboard the ship.

Follow-up DAR questions:

- DAR would like to observe the process of off-loading the Bagsters into the Roll-Off containers when the vessel arrives in Honolulu.
- DAR may want to collect EDNA – DAR would like to collect pools of water or samples of algae that may be present in the 20ft. or 40 ft. containers on the vessel before or after nets are offloaded
- Once DAR knows the approximate offload date, we can work towards finding someone who would be interested in processing samples for eDNA

Response: We welcome DAR to observe the offload and collect eDNA samples as necessary.

- 6.) Would it be possible to re-bag the nets into contractor bags and 3 mil Supersacks after they are bleached in the 40 ft. bleaching container and transferred to the 20 ft. storage container, so that the nets will be in a bag when craned from the ship into the Roll-Off Containers on the docks in Honolulu? Or would there be any other way to contain the nets while they are transferred from the ship to the Roll-Off Containers on the dock once in Honolulu?

Response: It will logistically be improbable to re-bag all of the nets into Supersacks and/or contractor bags after the bleach treatment. However, if containment during the craning at the dock is the biggest concern, we can certainly propose "re-bagging" the nets into Waste Management Bagsters: (<https://www.wm.com/us/en/home/bagster>) to reduce risk during craning operations at the dock.

DAR follow-up question:

- DAR is in support of loading the dry nets (after sitting in the containers during the transit) into Bagsters on the deck of the vessel (i.e. craning nets from the 20 ft. or 40 ft. containers into Bagsters on the vessel deck) after the ship has arrived in Honolulu.

Response: This is manageable. Once we have DAR on-site to observe the offload, if this step seems insignificant, or is causing more disturbance to the net itself at the dock, maybe we can discuss eliminating this altogether.

- 7.) How and when do the Roll-Off Containers that held the bleached nets from P & H and Midway while being transported to cutting facility/incineration facility get fully cleaned/drained – do they get sprayed down out at the incineration facility?

Response: The roll-off containers are cleaned and maintained by the cutting facility. It would be assumed that all possibility of live Chondria getting into the roll-off containers would be eliminated due to the rigorous bleach treatment.

- 8.) How close to the water is the cutting facility where the nets from P&H or Midway may potentially get cut up into smaller pieces? Are the nets cut up in an open area/uncontained on the ground (i.e. is it possible fragments from the cutting process could enter a water way)?

Response: The cutting facility is right down the road from a water way. Their facility chops up the nets in a large open yard area enclosed by cinderblock / concrete walls (similar to the waste management transfer reuse stations). There is no possibility of net fragments entering waterways from the cutting facility. Once the nets are chopped up, they will be transported next door to the incineration facility for incineration.

DAR follow-up question:

- DAR would like to see where the nets are cut up and the proximity to waterway. Is there any alternative to cutting the nets at the cutting facility – the facility is really close to a waterway on the map – looks like a canal runs along their base yard. Is it possible to cut the nets at the incineration facility (further away from waterway)? Or would there be a way to cut the nets in a more contained space than an open yard area where runoff may occur?

Response: Unfortunately, the cutting facility only cuts the nets at their site, and can't utilize the incineration facility lot. No alternative to the cutting the amount of marine debris we bring back other than the cutting facility. However, we can trail the cutting facility truck from the dock to their facility to observe and report if any debris or water is lost during transit on the road.

- 9.) Will either the 40 ft. “bleaching container” or the 20 ft. “storage container” have lids during the transit back to Honolulu?

Response: The 20-ft containers will not have lids. The ‘bleaching container’ does not have a lid, but we are not opposed to fabricating a “cover” similar to a boat cover to prevent rain water

intrusion or bleach water extrusion.

DAR follow-up question:

- DAR is in support of a waterproof cover (fabric or solid) over the 20 ft. non-water tight container(s)

Response: Copy

Specific Questions relating to page 3 – 5 of the *Chondria* Biosecurity Plan

Transport to Larger Support Ship (pgs. 3-4):

- *If the marine debris (derelict fishing nets) is removed from the shallow-water coral reefs:*
 - *The helicopter sling cargo nets full of marine debris (derelict fishing net), will be transported via small boat to the larger support ship.*
 - *The helicopter sling cargo nets will be craned out of the small boat (tied up along the port-side of the ship) into the '40-yard (22-ft x 7.5-ft x 8-ft outside dimensions) Open-Top Bleach Container' (staged on the starboard-side of the ship) as a "bundle" (see 40-yard Open-Top Bleach Container photo in appendix). The 40-yard Open-Top Bleach Container is a modified roll-off bin (sludge dewatering unit, or similar) created to serve as a water-tight bleach tank with a valve to excess the bleach water safely after use. **A large heavy-duty tarp will be laid-out across the beam of the ship's deck (between the small boat and bleach container), underneath the path that the suspended load will cross, to prevent any potential *Chondria* from dripping underneath the wooden slats of the deck of the ship.***
 - *The helicopter sling cargo nets (bundles of marine debris) will soak overnight (minimum 12 hours) in the highly chlorinated bleach solution (estimated to be between 35-45% hypochlorite bleach solution), in the 40-yard Open-Top Bleach Container.*

Disposal (pg. 5):

- *If the marine debris (derelict fishing nets) was removed from the shallow-water coral reefs and/or shoreline and is staged in 20-ft Open-Top Debris Containers on the deck of the larger support ship:*
 - *The nets will be craned directly from the deck of the larger support ship into 'Roll-Off Containers' staged on the ship's dock. **A cargo net lined with a tarp will be stretched across the gap between the Ship and Dock to prevent any water/material from potentially dripping/falling into the water during transport.***

- *The roll-off containers will be transported from Kewalo Basin to the cutting facility in Kapolei, so that the large net bundles can be cut into smaller pieces.*
- *The net pieces will be transported directly from the cutting facility to the incineration facility (next door) to be incinerated.*

Questions:

- 10.) For **bolded** sections in above excerpts: What is done with this tarp and the potentially contaminated water or algae fragments afterwards? I.e. how is any residual water/ drippings or algae fragments disposed of / cleaned up?

Response: The tarp is secured in place on the deck with a shallow lip (enough to prevent water to escape the tarp, but not enough to become a tripping hazard on the working deck area) made of lumber. After operations each day, the tarp area is swept, vacuumed, and cleaned, with all bio fragments going over-board at the end of each day's operation. The working deck area and the pathway where the net bundle "drips" is then treated with a highly concentrated bleach solution daily. At the end of the mission, the tarp is soaked in the bleaching container and then disposed of.

- 11.) What preventative measures are there to confirm this excess water /algae fragments do not run off the tarp and onto the deck of the vessel while at P&H or Midway or into the water (during operations in Honolulu)?

Response: The tarp is secured in place on the deck with a shallow lip to prevent excess water and algae fragment run off. However, because it is in the middle of the working deck of the ship, the lip cannot be so great that it becomes a tripping hazard and an overall greater risk/hazard to the job. For operations in Honolulu, it can be assumed that all potential algae is dead.

DAR remaining issue surrounding cutting up the nets:

- First preference: take them whole straight to the incineration facility. We have concerns related to the cutting facility site. There is an adjacent waterway with debris in the waterway looking at satellite imagery. The debris is pushed right up next to the fence line on the cutting facility site, which may indicate potential spread from the site to the waterway. We are unsure of how the drainage of the lot works- we see puddles on the satellite energy too. We have questions about the machine that cuts up the debris- we imagine that will leave fibers within the mechanics of the chopping machine.
- If taking it to the cutting facility to cut up is the ONLY option then: How will they ensure all Chondria debris and residual (water, fragments of the net) are contained during processing and fully removed after processing?

Response: Thank you for your responses. I understand where DAR's concerns are coming from.

I do want to reiterate that there are multiple Chondria mitigation measures in place, to ensure that there will be no Chondria present at the cutting facility site. Although these methods aren't backed with scientifically proven data, you can assume that with a thorough inspection and survey of the habitat and net, the chance of coming into contact has been reduced significantly (I would say it's safe to say 95% elimination of risk). Of the remaining 5% risk that there may be Chondria present, we believe we are going above and beyond to ensure that any fragment or spore would be absolutely eliminated during the 25-50% sodium hypochlorite bleach soak (9 times the concentration of the recommended treatment) treatment for 12 hours (72 times the soak duration recommended).

If we want to get on a call again, I'd suggest that, so that there are no delays in resolution.

DAR follow up question:

- *Would you be able to provide us more detail on what exactly will happen at the cutting facility. For example, are the nets being cut by hand or machine? We were guessing machine. If so, how is it being loaded? What is it being loaded from? Where is it being loaded from? Where is the cut net being deposited? What is it being deposited in? Any details in addition to answers to the questions you could provide would be appreciated.*

Response: Thank you very much for your email. I'll do my best to answer these questions. I think we should all plan a visit to the cutting facility and the incineration facility in the near future so we can hear directly from them.

My answer below is pulling from my visit to the cutting facility in 2015, and from conversations with the Operations Manager there:

More detail on what exactly happens at the cutting facility: It is my understanding that the roll-off containers are trucked into the cutting facility open lot. The truck is then unloaded in a partially covered, cinderblock surrounded lot, where the net (and metal) cutting occurs. They take their cutting facility machinery, which are essentially large jaws with many blades that "chop" the net into smaller chunks. Then smaller chunks of net will then be front loaded back into a cutting facility roll-off container, and then it will be transported to the incineration facility where it is dropped right in the incineration pile.

Nets cut by hand or machine?: Nets are cut by machines.

How is it loaded?: It is my understanding that it is front loaded into a roll-off container. I can confirm with the cutting facility, but I remember them pushing the load through an opening in the floor so all particles drop directly into the truck.

What is it being loaded from?: From the partially covered lot where they "chop" all the net and scrap metal.

Where is it being loaded?: In the partially covered lot where they "chop" all the net and scrap metal.

*Where is cut net being deposited: Incineration facility, in the incineration pile
Please let me know if you have any questions or would like to meet again.*

I've attached some photos taken by NOAA during a visit in 2012 which shows the machine that snips up the nets (excavator with special jaw attachments) and the general area where we've seen nets piled up against the cinderblock containment. The other photo is one showing a load of snipped up nets being dumped into the incineration pile at incineration facility from that same visit.



PMDP Response on 4/19/2022 (note all correspondence below have been edited to take out personal information):

Below are the mitigation steps that the PMDP biosecurity plan is predicated upon:

Step 1. Visual Inspection Before Removal. *We visually inspect any marine debris encountered in the water at PHR and Midway carefully for Chondria. If Chondria is present, the net will be left in place and not touched or handled. This step alone is likely to greatly reduce the chances of Chondria being present at all on the small boats or the ship (or being spread to Oahu).*

Best-case scenario when we remove a net: There is no Chondria present on it.

Worst case scenario: Chondria is present cryptically, as spores, or in small amounts that went undetected.

Step 2. Bleaching Regimen. *Upon return to the ship, we will then soak each net that has been removed (again, presumed to already be free of Chondria) in a 25-50% bleach solution for 12 hours, fully submerged. This bleaching regimen is approximately 72 times longer in duration, and 4-8 times higher bleach concentration than the protocol for bleaching CMZ field/dive gear and boats that is currently required by the BMP's.*

Best case scenario: There was no Chondria present on the net in the first place and everything comes out of the wash sparkly white.

Worst case scenario: There was Chondria present on a net, but it is killed by exposure to bleach. Outlier scenario: somehow this very high level of bleaching allows some Chondria to survive.

*Step 3. **Desiccation.** The debris is then stored in an open-top container where it will be desiccate for between 4-20 days (depending on date of removal in the cruise schedule).*

Best case scenario: There was no Chondria present on the nets to begin with, step serves as extra benefit.

Worst case scenario: There was Chondria present, the bleach didn't kill it, but the Chondria is rendered dead by desiccation.

*Step 4. **Secondary Containment.** If required, secondary containment bagsters will be utilized for offload and transition from ship-to-shore in Honolulu.*

Best case scenario: There was no Chondria present on the net to begin with, step serves as extra benefit.

Worst case scenario: There was Chondria present on the net, the bleach regimen didn't kill it, and it survived desiccation. Secondary containment will prevent any Chondria from entering the harbor during offload. I'm no expert, but it is my assumption that any Chondria that makes it this far in the process is likely to be very weakened and is less likely to be viable.

*Step 5. **Further Desiccation.** Once transported to the cutting facility, the net will continue to desiccate until cutting/processing is finished and it can be incinerated. Precipitation and runoff is possible here, but if there is still a major concern for the actual legitimate spread of Chondria at this final stage (after 4 prior steps), then I'm not sure what sort of measures we could actually put in place that could put to rest the possibility of spread.*

Question #1. Are the first 4 mitigation steps insufficient to serve as a robust biosecurity plan based on the best available science?

If the 4 steps are deemed insufficient, then the discussions of the cutting facility layout, supervision of bin transport to the cutting facility, visits to the facilities, etc. are valid and should be undertaken. If the answer is that the 4 steps are sufficient (or even exceed the requirements of other Chondria activities), then getting into the minutia of the cutting facility and steps 5, 6, and beyond should be unnecessary and we should collectively put that discussion to bed. It seems like a simple Yes or No consensus on this question is needed.

Also, I think we need to address the question of:

Question #2. Are we thinking about the treatment of gear/equipment/boats/debris in a standardized way across the different activities that could be undertaken in a CMZ, and how does this inform our answer to the question above?

For example, research scuba divers working in a CMZ in the presence of Chondria, who are in

contact with the reef, and who may have gear, tools, wetsuits, etc. in contact with the algae itself (and may have fragments or spores on that gear) are required to bleach the gear and boats with 6% bleach solution for 10 minutes. After that it must remain dry for 30 days but then may be allowed back into state waters. Additionally, small boats used in a CMZ do not require secondary containment when being craned to shore or during transport to a facility for storage- a process during which they may drip or encounter precipitation. If we were to apply those practices to the debris project, a short 10 minute 6% bleach treatment and then a 30 day dry desiccation period would be sufficient measures for us to dump the debris back into state waters off Oahu (obviously something we would never do), but a good comparison for us to consider when answering question #1 as to whether the 4 proposed steps are sufficient.

PMDDP is in no way implying that we need to relax any sort of biosecurity measures when it comes to the marine debris project, but only uses this comparison to help us to frame where in the mitigation process we draw the line for the threat being mitigated "beyond a reasonable doubt".

DAR responses on 4/20/2022

1) Are the first 4 mitigation steps insufficient to serve as a robust biosecurity plan based on the best available science? DAR acknowledges abundant mitigation steps are being implemented but cannot confirm that the steps will provide 100% biosecurity at this time.

- **Visual inspection for Chondria** - Nets are known to accumulate biofouling and harbor tiny organisms within the net mass that are not always visible. *Chondria tumulosa* was first seen growing cryptically. So it is DAR's determination that there is there a chance that upon visual inspection fragments or spores too small to see are entrapped in the debris. What percentage of chance is unknown.
- **Bleaching & desiccation** - DAR understands that this protocol likely will kill most things. However, we are being cautious on this round because we do not know for sure if this is the case. For example, there may be air pockets (plastic containers/bags/debris) which are not exposed to the bleach within the net conglomerates. This is why we thought a site visit to the cutting facility might help to alleviate or confirm concerns- maybe seeing the state of the nets and the containment of the facility could inform our decisions.

2) Are we thinking about the treatment of gear/equipment/boats/debris in a standardized way across the different activities that could be undertaken in a CMZ, and how does this inform our answer to the question above?

- **Consistency with other protocols outlined in the current BMP for Chondria** - The proposed activity differs a bit from other activities - the nets are cut up immediately upon return adjacent to a waterway that has an outflow to the sea - this may be a point of risk should there be live Chondria present. Other differences may be that the nets have been underwater attached to the reef for 12+ months and have many crevices/cryptic areas, whereas the small boats are used temporarily in the monument, have less crevices/ cryptic areas and have the ability to be scrubbed, in addition to the bleaching procedure, and 30 day desiccation period.

As monitoring tools develop - like eDNA for Chondria tumulosa, DAR can be more informed that our protocols are working well - and it may be possible to relax some of them. But until then DAR is erring on the side of caution - should this species establish and bloom in the Main Hawaiian Islands it could be devastating.

DAR's requests are as follows:

DAR's preference is that you do not bring the nets to be cut up and instead bring them directly to incineration. Please inquire with incineration plant to see if incinerating the individual net bundles already contained in the bagsters is possible. Note: The intention of this request is not make the facility think they may be liable, but to find the best mitigative measures to implement.

If requesting this is not possible or incineration plant is not able to accept the nets in the bagsters unless they are cut, is there a certain size limit that can be incinerated? What is the largest volume or mass they are willing to incinerate. If direct incineration is not possible, these are our requirements moving forward with utilizing a place where cutting would occur:

1) DAR staff would like to conduct a pre-visit to place where cutting would occur in the next month to evaluate how much the area where the nets will be staged and cut is contained. The site visit may result in modifications to the method if additional mitigation measures can be implemented. We understand at this point it would be difficult for PMDP to take a half-day to

take people from the State to tour cutting facility at this time, but let's coordinate a time that works for both our organizations.

2.) DAR requests that any transportation will need to happen on a clear/dry day to the extent practicable. Please provide a rainy day backup plan if there is inclement weather on the day of offloading/transporting. This could include postponing the offloading, providing additional tarps during transport and at cutting facility, etc. DAR will need to approve this rainy day plan before approval of the biosecurity plan.

3.) DAR staff must be present during the transportation from the dock to cutting facility to monitor and record any fragment loss or runoff during transport.

4.) Please find out how long the process of cutting at the facility will take. If the nets will be sitting outside exposed to wind and rain for several days/weeks, there is a greater chance of runoff. As such, if the area where the cutting is going to happen is not enclosed (warehouse or roof of some sort), tarps must be placed inside the cinder block barrier to create a catch-all for runoff. Tarps will then need to be properly disposed of as well. If the tarps are not possible this can be eliminated/modified, but we wanted to hear your thoughts on the nets sitting outside exposed for several days if that is the case.

5.) PMDP staff must clean up/sweep any remaining net fragments from the site once cutting is finished to ensure remaining fragments do not end up in the waterway or become attached to other debris that enters the facility. A DAR staff member will also be present to inspect and confirm this clean up. PMDP staff are to report any loss of fragments or runoff observed during this process so that we can attempt to mitigate or improve protocols for future activities.

PMDP Response on 4/21/2022

Update: PMDP spoke with cutting and incineration facility and determined that special conditions needed for biosecurity may be difficult to implement at various stages of the cutting and incineration process.

If it is DAR's position that the debris still poses a threat after the 4 biosecurity steps, and additional measures are mandatory, PMDP would like to pursue either:

1. Desiccation of the debris for 30-365 days on land in the PMNM. This warrants further discussion, or;

2. Direct-to-Incineration *The incineration plant are able to handle bundles of net that are 3ft x 3ft x 3ft directly without additional cutting. However, they will not be able to accept net bundles inside super sacks, so the net bundles will need to be loose (uncontained) and visible to the incineration foreman that day. So the solution there would be to cut each net removed from a CMZ into these 3'x3'x3' chunks, and offload from the ship inside secondary containment (bagsters) that would then be dumped out into the truck bin for direct transport to incineration plant.*

For background understanding: Cutting these nets up into 3'x3'x3' chunks is something that is likely an order of magnitude more difficult to do than the PMDP standard procedure. Cutting these bigger net bundles (some can weigh 2,000-4,000 lbs each) is very time consuming due to the loose, amorphous nature of the net strands and the difficulty of tensioning them properly for cutting. The only time there is sufficient deck space on the ship to undertake cutting operations like this is during the operational workday when all the boats are off the deck and in the water, which means keeping one of our boat teams back to do. This reduces the removal project's productivity by 25% (which may be an acceptable hit to take? Not sure). The other, most viable cutting option is that the cutting takes place on the deck of the ship during offload at the pier in Honolulu. The extra time that this will take would likely mean that we would need to add a day to the offload schedule, (requiring additional funding), or this extra day comes at the expense of a debris removal day.

PMDP crew have removed and processed approximately 1 million pounds of derelict fishing nets previously over the years, and the professional [subject matter expert] opinion is that the process of cutting these nets into smaller bundles on the deck of the ship (whether in PMNM or in Honolulu) increases the potential for fragmentation and unintended introduction of fragments to the deck of the ship or to the water. Handling and cutting this stuff is messy, and the fewer times it needs to be moved or handled, the better. In the PMDP personnel opinion, the risk of this cutting operation poses a much higher risk than does the pile of net sitting in a base yard. Post-processing of these nets is seen as an absolute last resort for us, which is why we had pitched such a robust mitigation plan to enable our normal disposal process.

A third option:

3. Sending debris directly to the landfill. *This disposal method is obviously the worst possible optics for the program, and we have not explored this option in detail, but if runoff from the landfill is not a concern, this option would be a preferred alternative to 3'x3' cutting/incineration for CMZ debris.*

ENVIRONMENTAL COMPLIANCE

NEPA / HEPA: (check-one)

- Categorical Exclusion / Exempt Class: 1 & 5
- EA
- EIS

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 NOAA, USFWS, ONMS, DAR, DOFAW and OHA staff.

RECOMMENDATION:

Based on the attached proposed declaration of exemption prepared by the department after consultation with and advice of those having jurisdiction and expertise for the proposed permit actions:

1. That the Board declare that the actions which are anticipated to be undertaken under this permit will have little or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment.
2. Upon the finding and adoption of the department's analysis by the Board, that the Board review and accept the declaration of exemption for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200.1, HAR.
3. That the Board authorize and approve a Conservation and Management Permit to Mr. James Morioka, Papahānaumokuākea Marine Debris Project, for Access to State Waters to survey and remove marine debris and disentangle marine wildlife as needed within the waters of the Northwestern Hawaiian Islands, with the following special conditions:
 - a. 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.
 - b. 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.
 - c. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols as well as BMPs and the final version of a Supplemental Chondria Biosecurity Plan (included as an attachment) that will be approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) Note: Draft plan is attached to this BLNR submittal; select modifications proposed through the Agency Review question and answer phase (on pages 8-20), will be integrated into the final draft.
 - d. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
 - e. 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 Marine Refuge.

- f. If there is any Hawaiian monk seal or any other protected species in the area when performing any permitted activity shall cease until the animal(s) depart the area, except as permitted for specific management of that species.
- g. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.
- h. The permittee is required to follow all applicable Federal, State, and County laws with respect to the COVID-19 emergency response that apply at the time of departure and return. In issuance of this permit, the State of Hawaii is not otherwise monitoring or regulating permittee's compliance with COVID-19 laws and is not responsible for the health and safety of crew members, researchers or other occupants of the vessel associated with this permit.

Respectfully submitted,



Brian J. Neilson, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL



Suzanne D. Case, Chairperson
Board of Land and Natural Resources

Attachments:

- 1) Declaration of Exemption ("DE") from the Preparation of an Environmental Assessment under the Authority of Chapter 343, HRS & Chapter 11-200.1 HAR
- 2) PMNM Application
- 3) Draft Supplemental Chondria Biosecurity Plan
- 4) CIS Form (to be attached at the BLNR Meeting on May 13, 2022)

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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FIRST DEPUTY

M. KALEO MANUEL
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

May 13, 2022

TO: Division of Aquatic Resources File

THROUGH: Suzanne D. Case, Chairperson

FROM: Brian J. Neilson, Administrator 
Division of Aquatic Resources

SUBJECT:

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200.1 HAR, FOR A PAPAHAUNAUMOKUĀKEA MARINE NATIONAL MONUMENT CONSERVATION AND MANAGEMENT PERMIT TO MR. JAMES MORIOKA, PAPAHAUNAUMOKUĀKEA MARINE DEBRIS PROJECT (PMDP) FOR ACCESS TO STATE WATERS TO SURVEY AND REMOVE MARINE DEBRIS AND DISENTANGLE MARINE LIFE AS NEEDED WITHIN THE WATERS OF THE NORTHWESTERN HAWAIIAN ISLANDS UNDER PERMIT PMNM-2022-006.

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200.1, HAR:

Project Title: Papahānaumokuākea Marine National Monument Conservation and Management Permit to Mr. James Morioka, Papahānaumokuākea Marine Debris Project (PMDP), for Access to State Waters to Survey and Remove Marine Debris and Disentangle Marine Life as Needed within the Waters of The Northwestern Hawaiian Islands.

Permit Number: PMNM-2022-006

Project Description: Proposed permit activities would occur over two 30-day expeditions at multiple locations in the Monument and would allow for large scale marine debris survey and removal operations within Papahānaumokuākea Marine National Monument (Monument) via the NOAA Northwestern Hawaiian Islands (NWHI) Marine Debris Project (hereinafter referred to as the 'Project').

The Project began in 1996 and was led by NOAA Fisheries and other agencies partners through 2021. The Project has demonstrated over time the necessity of large-scale marine debris removal operations for the protection and safety of marine wildlife, specifically the endangered Hawaiian monk seal, threatened green sea turtle, and other marine wildlife. Between 2015-2021, the Project was co-led and co-managed by James Morioka (Executive Director, Papahānaumokuākea Marine Debris Project (PMDP)), and Kevin O'Brien (President and Founder, PMDP), prior to the creation of PMDP in 2019. PMDP is proposing to lead the Project in the PMNM indefinitely, after partnering with NOAA, U.S. Fish and Wildlife Services (USFWS) and the State of Hawai'i Department of Land and Natural Resources (DLNR) on three successful field marine debris removal missions in 2020-2021.

It is expected that PMDP would remove approximately 56 metric tons (MT) of marine debris per 30-day cruise, amounting a total of 112 MT of marine debris removed from the Monument in 2022.

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

- French Frigate Shoals (Lalo)
- Laysan Island (Kamole)
- Lisianski Island (Kapou)
- Maro Reef (Kamokuakamohoali'i)
- Pearl and Hermes Atoll (Manawai)
- Midway Atoll (Kuaihelani)
- Kure Atoll (Hōlanikū)

The activities covered under this permit would be authorized to occur via two separate 30-day cruises, the first between July 1- September 30, 2022, and the second between August 24-September 24, 2022. Expedition dates may vary between 2022-2023 if unforeseen interruptions or delays occur.

INTENDED ACTIVITIES

Specific objectives of the Papahānaumokuākea Marine Debris Project (PMDP) are as follows:

- Survey for and remove derelict fishing gear (DFG) from shallow (0-30 ftdepth) coral reef environments at locations listed above.
- Survey for and remove DFG, plastics, and other entanglement hazards from shoreline habitats at locations listed above.
- Evaluate the rates of marine debris accumulation and assess abundance and distribution on coral reefs and shorelines.
- Assess ecological impacts of DFG on coral reef environments through photographic surveys.

- Disentangle protected wildlife, which includes Hawaiian monk seals, green sea turtles, and sea birds, from marine debris when human intervention is required/possible (if permissible).
- Utilize Unmanned Aerial Systems (UAS) surveys to assist in the detection of marine debris to increase operational efficiency and assess abundance and distribution of marine debris on coral reefs and shorelines (if permissible under current regulations).
- Capture photos and video for outreach and education purposes

PMDP intends to film / photograph protected wildlife (including Hawaiian monk seals, sea turtles, and sea birds) interacting or being affected by the threats of marine debris, while strictly following all PMNM BMPs. If protected wildlife is entangled in marine debris, PMDP will (if permitted as Co-Investigators on the NOAA National Marine Fisheries Services (NMFS) permits) work with partners at the NOAA Pacific Islands Fisheries Science Center (PIFSC) Protected Species Division (PSD), U.S. Fish and Wildlife Services and the State of Hawai‘i to assess the threat and mitigate hazards to the best of their ability. If seals or turtles become critically entangled, then PMDP personnel (trained with the NOAA NMFS PIFSC PSD) may intervene and prevent potentially fatal outcomes through disentanglement.

PMDP is proposing to conduct Unmanned Aerial Systems (UAS, commonly referred to as ‘drones’) surveys of derelict fishing nets on coral reefs, using a Splash Drone 4 UAS (back-up UAS is the DJI Mavic Air Pro 2) (if permissible under current regulations). The study was piloted by the Project in 2018, mapping over 2 sq. km. of coral reef area (stitching hundreds of photographs to create a detailed mosaic) to detect derelict fishing nets on the reefs, and ground-truthing the imagery for nets with divers in the water. The Project demonstrated that the proof of concept for aerial net detection could be successful, and PMDP looks to capture more imagery so that artificial intelligence (AI) detection software used to detect derelict fishing nets on shallow water coral reef environments can be enhanced through machine-learning.

Purpose and Need

The proposed activities would be in support of priorities identified in Monument management and recovery plans, included but not limited to: 1) Papahānaumokuākea Marine National Monument (PMNM) Management Plan (hereinafter referred to as the MMP) (specifically 3.3: Reducing Threats to Monument Resources – 3.3.1: Marine Debris (MD) Action Plan – “Reduce the adverse effects of marine debris to PMNM resources and reduce the amount of debris entering the North Pacific Ocean”), 2) Hawai‘i Marine Debris Action Plan (HI-MDAP), 3) Recovery Plan for the Hawaiian Monk Seal, 4) Mai Ka Po Mai: A Guidance Document for Papahānaumokuākea, 5) Endangered Species Act of 1973 (ESA) and 6) Marine Mammal Protection Act of 1972 (MMPA).

The Hawaiian Archipelago (specifically the PMNM) is centrally located within the world’s largest ocean gyre, the North Pacific Gyre and thus becomes a large depository for marine debris. The PMNM is also home to more than 7,000 marine species, 25% of which are endemic, found only in the Hawaiian Archipelago. Marine debris and derelict fishing gear adversely affect the wildlife and habitats of the PMNM either by directly entangling or harming marine animals (seals, turtles, whales, fish, and invertebrates) or adversely impacting corals via large nets rolling across fragile

coral ecosystems. Additionally, there is a serious and growing concern for the entanglement of monk seals, particularly with no formal Project currently led by NOAA. Since 1996, the Project (formerly led by NOAA Fisheries and other agencies) has conducted large-scale marine debris removals to mitigate the entanglement and ingestion threat to protected wildlife and damage to coral reefs, and has removed a total of 1,059 metric tons (2.3 million pounds) of marine debris from the PMNM (136 metric tons or 300,000 pounds of which PMDP supported in 2020-2021) and disentangled countless marine animals. Many endangered animals such as Hawaiian monk seals are alive today due to marine debris removal efforts, disentanglements, and rehabilitation efforts.

Methods/Procedures:

In-Water Marine Debris Survey and Removal Operations:

Two methods are utilized for the in-water survey and removal of derelict fishing gear(DFG):

- **Tow-board Surveys:** Tow-board surveys, regularly referred to ‘manta tow’, allows for rapid visual surveys in shallow water (0-30 ft depth) and maximum area coverage. This method requires two divers to use breath-hold techniques while being towed behind a 19-ft inflatable boat at 1-2 knots across fringing, barrier, or back reefs.
- **Swim Surveys:** Swim surveys are primarily utilized within atoll lagoons around reticulated reefs or in areas which are too shallow or intricate to conduct tow- board operations effectively.

For both methods (detailed above), divers conduct surveys until DFG is visually located entangled on the reef. Once located, the net location (latitude and longitude), net characteristic (type, length, width, height, depth, foul level, coral growth) and habitat characterization data are collected. A debris removal decision-tree is then used to determine whether removal of the net is appropriate and will not cause additional damage to the reef. If removal is deemed appropriate, divers cut the DFG free from the substrate while minimizing impact to the entangled coral and surrounding reef habitat. Once the DFG is free from the reef, it is loaded by hand into the inflatable boats for transport back to the ship (and ultimately transported back to Honolulu, HI for proper disposal).

Note: If the nuisance algae, *Chondria tumulosa*, is identified on the marine debris or in the nearby habitat (currently identified at Pearl and Hermes Atoll – Manawai and Midway Atoll – Kuaihelani), its specific location within the atoll/island will be marked with a Global Positioning System (GPS) unit, and the marine debris will be left in place(until further guidance is provided by the MMB). Shoreline marine debris removal operations at islands/atolls with *Chondria tumulosa* will follow the strict Best Management Practices To Minimize the Spread of *Chondria Tumulosa* (BMP #020). All relevant activities will additionally adhere to a Supplemental *Chondria* Biosecurity Plan (included as an attachment) that will be approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant. The current plan attached to this BLNR submittal is a draft plan, which will be finalized before the activity is conducted. Select modifications proposed through the Agency Review question and answer phase (on pages 8-20), will be integrated into the final draft. Should *Chondria tumulosa* be identified at a sampling site, biosecurity protocols stipulated in BMP #020

and the approved biosecurity plan will be initiated for disinfection and cleaning prior to departing that sampling area.

Shoreline Marine Debris Survey and Removal Operations:

Shoreline Surveys: PMDP staff will walk the shorelines (between low-tide line and vegetation on shore) of the islands and atolls within PMNM to survey for and remove marine debris. The Project primarily focuses on surveying for and removing entanglement and ingestion hazards to wildlife. Once the marine debris is identified, collected, and staged at a 'pick-up point', the 19-ft inflatable boats approach accessible shorelines to safely load with the marine debris to transport back to the ship (and ultimately transport back to Honolulu, HI for sorting, data collection, and proper disposal).

Aerial Marine Debris Survey Operations:

Unmanned Aerial Systems (UAS) Surveys: UAS surveys are expected to take place at all islands/atolls, and deployed and retrieved from the inflatable boat. Strict UAS protocols and BMPs will be followed and enforced for aerial survey operations. Flights will take place between 100 ft minimum (over land or reef) and 400 ft maximum altitude (if permissible under current regulations).

Wildlife Disentanglement Operations:

The Project often encounters marine wildlife entangled in marine debris. Marine wildlife in the PMNM are protected and managed by the State and Federal government, and are protected by laws, rules and regulation that prohibit the interaction and intervention with wildlife. If permitted, PMDP staff who are fully qualified, certified, and trained to handle, restrain, and disentangle marine wildlife will assess the situation and report its outcomes to the appropriate office for guidance and next steps.

- **Hawaiian Monk Seal Disentanglement Operations:** Hawaiian monk seals are often disentangled in marine debris and require intervention and disentangling to allow for survival. If/when an entangled Hawaiian monk seal is identified, the PMDP staff will notify the NOAA NMFS PIFSC PSD Hawaiian Monk Seal Research Program (HMSRP) of the entangled seal. A full assessment of the seal's health and surrounding habitat will be conducted and relayed to the HMSRP office. James Morioka (Executive Director, PMDP) is a professionally trained Hawaiian monk seal handler (worked for HMSRP 2011-2013) and has helped handle and/or disentangle dozens of seals in the PMNM. In collaboration with PMDP, James Morioka helped handle and disentangle two adult, female, Hawaiian monk seals in 2021. If permitted, James Morioka would lead a team to handle, restrain, and disentangle the endangered seal through: 1) manual restraint, 2) hoop-net restraint, or 3) stretcher-net restraint protocols and procedures.
- **Marine Turtle Disentanglement Operations:** Marine turtles are often entangled in marine debris, particularly in shallow water coral reef environments. If a turtle is entangled, the team will assess the turtle and its surrounding environment. If permitted, and the disentangling scenario does not cause further risk to the staff and Project, the team will handle the turtle, holding its head above water so that it can breathe effectively, and

complete their disentanglement.

Marine Debris Transport and Disposal:

The majority (90%) of the marine debris removed from the environments of PMNM will be appropriately disposed of through NOAA's existing partnership with Schnitzer Steel Co. and H-Power/Covanta Energy in the Nets-to-Energy Program. Schnitzer Steel Co. provides in-kind services/no-cost solutions to chop up the marine debris (particularly derelict fishing nets) into manageable sizes before it is incinerated at H-Power/Covanta to create electricity (renewable energy) for homes on O'ahu. Disposal operations may be modified pending the agreements on methods outlined in the final draft of the Supplemental Chondria Biosecurity Plan.

All transport and disposal activities are discussed in-depth in the Agency Review portion of this document, and will adhere to a final version of Supplemental Chondria Biosecurity Plan that will be approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant (included as an attachment). The current plan attached to this BLNR submittal is a draft plan, which will be finalized before the activity is conducted. Select modifications proposed through the Agency Review question and answer phase (on pages 8-20), will be integrated into the final draft.

PMDDP is also actively seeking creative, alternative options to properly dispose of the marine debris collected in the PMNM. PMDDP has created a local educational initiative to recycle/upcycle shoreline plastics and DFG into new, recyclable products designed and produced by students:

- Ocean Plastics Student Makerspace: PMDDP has partnered with windward O'ahu high schools to build small-scale recycling machines to shred, melt and mold ocean plastics from PMNM into new products designed by the students. All products created at the Plastics Makers Space are developed to increase awareness of the size and scale of the marine debris issue in PMNM, and to help actively engage the local community with ways to combat the problem here in the Main Hawaiian Islands. The volume of plastics processed by this method is small, however, and the Hawai'i Nets to Energy Partnership remains the primary method of disposal for the vast majority of marine debris removed from PMNM
- Throughout the duration of the cruises, photos and videos will be captured for outreach and education purposes. All photos and videos will be made available to the MMB and/or whomever is interested in them. All photos and videos around wildlife or protected habitat will be reviewed and vetted by the appropriate agency or organization.

Collection of Specimens

If the Monument Management Board (MMB) or *Chondria* Working Group request samples of *Chondria tumulosa* observed and collected in the field (either at established islands/atolls like Pearl and Hermes Atoll or Midway Atoll or newly established/discovered sites) for genetic testing, the specimens will go straight to the University of Hawai'i at Manoa (in collaboration with the University of Charleston) for genetic sampling.

Whirlpack bags and containers for secondary containment will be used for collection and specimens will be preserved in the field (*in-situ*) as follows, and then transported back to Honolulu using the larger vessel, M/V *Imua*:

Four samples (4" x 4" x 4" sample, softball size):

1. Freeze (frozen as-is).
2. Salted fresh (salted with table salt as-is).
3. Ethanol (preserved in ethanol as-is).
4. Dried (dried at room temperature in the dark as-is).

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

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- Anchoring a vessel
- 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

NOAA completed a Programmatic Environmental Assessment (PEA or EA) under the National Environmental Policy Act (NEPA), and a Finding of No Significant Impact (FONSI) in June 2005 (valid for an indefinite amount of time) for the Project. PMDP's operation follows all existing NOAA protocols and procedures in place for the safe execution of the mission. All Papahānaumokuākea Marine Debris Project (PMDP) activities proposed will be carried out with strict safeguards for the natural, cultural, and historic resources of the Monument as required by Presidential Proclamation 8031, and other applicable policies and standard operating procedures. All agencies will receive PMDP's detailed field protocols and best management practices (BMP). These practices and procedures will minimize or avoid disturbance to wildlife, flora, habitat, and cultural and historic resources.

PMDP conducts rigorous PMNM (biological and environmental), ship, small boat, and free-dive/snorkel operational training before conducting at-sea field operations. This training regimen emulates the rigorous training that James Morioka (PMDP Executive Director) and Kevin O'Brien (PMDP President) led at NOAA for all field staff in preparation for field operations between 2007-2021. This includes all marine debris removal activities, but also how to safeguard and minimize impacts to other natural and cultural resources. This will be further supported through PMNM pre-access and cultural briefings for all staff. In addition, James Morioka has conducted Resource

Monitor duties on past expeditions; either this member of the personnel or another member of the personnel who has been trained in PMNM Resource Monitor duties will accompany all permitted activities to provide oversight and ensure compliance with permit conditions and BMPs.

As in previous years of the Project, the UAS will be operated by trained and certified staff, and all relevant PMNM BMPs and protocols specific to deployment, retrieval, and operations of the UAS will be followed. The UAS will be deployed and recovered from a small boat. The minimum altitude the UAS will fly over the reef or land is 100 ft and the maximum altitude will be 400 ft. Interactions with birds and other wildlife will be closely monitored and should significant interactions occur, UAS operations will be halted.

Careful biosecurity quarantine procedures (outlined under PMNM BMP 007) will be followed and enforced at each island where personnel land on shore or boats and divers are put in the water. This includes use of gear purchased new and dedicated to each island/atoll. Thorough cleaning, biosecurity, and safe storage protocols are followed between field missions.

PMDP has collaborated with the Native Hawaiian community (which is expected to continue in perpetuity), specifically with the Office of Hawaiian Affairs (OHA) and PMNM's Native Hawaiian Program Specialist, Kalani Quiocho, to develop a culture-based strategy for the Project, to increase inclusivity and collaboration with the Native Hawaiian community in terms of facilitating access to the PMNM, generating culture-based outreach materials, and observing traditional protocols and procedures while in the field.

All footage (film / photograph) will be provided to the four Co-Managing agencies (NOAA, U.S. Fish and Wildlife Services, State of Hawai'i, Office of Hawaii Affairs) upon return from PMNM.

The applicant would abide by the following PMNM Best Management Practices (BMPs) while conducting the aforementioned activities within the PMNM: Marine Alien Species Inspection standards for Maritime Vessels (BMP #001), Human Hazards to Seabirds Briefing (BMP #003), Best Management Practices for Boat Operations and Diving Activities (BMP #004), Protocols to Reduce Impact to the Laysan Finch (BMP #005), General Storage and Transport Protocols for Collected Samples (BMP #006), Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles (BMP #009), Marine Wildlife Viewing Guidelines (BMP #010), Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment (BMP #011), Precautions for Minimizing Human Impacts on Endangered Land Birds (BMP #012), Nonnative Species Inspection Requirements at Midway Atoll (BMP #015), Best Management Practices for Maritime Heritage Sites (BMP #017), Rodent Prevention and Inspection Standards for Permitted Vessels (BMP #018), Best Management Practices To Minimize the Spread of *Chondria Tumulosa* (BMP #020).

REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawaii Division of Aquatic Resources, Hawaii 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 was posted on the Monument Web site in the spring of 2022, 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

MMB Agency Reviewer Questions and Applicant Responses:

Application

No comments, approved plan as is:
NOAA, FWS, OHA, DAR

Did not approve plan as is, required follow up questions to be answered.
None

Supplemental *Chondria Tumulosa* Biosecurity Plan Review per BMP 020:

Sent for Agency Review 3.9.22 with responses due 3.25.2

No comments, approved plan as is:
NOAA, FWS, OHA

Did not approve plan as is, required follow up questions to be answered.
DAR

DAR Questions and responses listed below:

General Questions

1.) Confirming that the main changes to the *Chondria* biosecurity plan for the marine debris removal activity this year are the following:

- The debris will be pre-inspected for *Chondria* fragments at P&H and Midway – if incidence of *Chondria* is detected on either marine debris itself or on surrounding environment, then marine debris will not be collected/will be left in place.
- Instead of having one dedicated container for the marine debris from P & H and Midway for the entire trip, there will instead be a 40 ft. “bleaching container” where all the debris from P & H and Midway gets treated with bleach and then after the treatment duration time, the nets will be lifted out of this container and moved into another 20 ft. “storage container” that is dry (no bleaching occurs) where it will stay to be transported for the remaining duration of the trip. Once the ship arrives in Honolulu the nets that were previously bleached and have now been sitting in the 20 ft. storage container will be lifted

out of the 20 ft. storage container (uncontained while being lifted/bundle of nets will not be in a tarp/cargo net) and lifted from the ship onto a Roll-Off Containers on the dock. Tarps will be laid under the path of the crane route to catch any excess water/or bleached algae (if present) that would potentially fall from the nets while being craned.

Response: confirmed, this step is consistent with the protocols in place last year.

2.) Will the 40 ft. “bleaching container” be lined (last year the container had a pool liner on the inside of the container)?

Response: The ‘bleaching container’ will not be lined, as it is welded together and 100% water-tight (it is a repurposed sludge dewatering tank). Last year, in 2021, we used an existing open-top 20-ft container, which was not water-tight, therefore we were required to utilize a pool liner to ensure it was water-tight.

3.) Will the 20 ft. “storage container” be lined with a similar pool liner?

Response: There are no plans to line the 20-ft containers with pool liners, as the best available science states that the algae will not / cannot survive the 12-hr bleach treatment.

4.) If either the 40ft. or 20 ft. container is lined – does the liner get removed in Honolulu and taken to the incinerator?

Response: If the container is to be lined, the liner will be incinerated directly, as it was last year.

5.) If the containers are not lined - how and when do the 40 ft. bleaching container and 20 ft. storage container get fully cleaned/drained – do they get sprayed down out at sea up at P & H or Midway or when the ship docks in Honolulu – do both containers stay on the boat indefinitely, and used for future expeditions around the MHI or into the PMNM?

Response: There are no plans to line the containers. The ‘bleaching container’ will be fully drained (only container requiring draining) during the transit from the PMNM to Honolulu (outside the PMNM boundaries). Similarly to last year, after all of the marine debris has been offloaded, the ship will go out to the open ocean beyond 3 nautical miles from shore, to clean all of the containers (three 20-ft open-top containers and one bleaching container) and the deck of the ship using the fire suppression system aboard the ship.

Follow-up DAR questions:

- DAR would like to observe the process of off-loading the Bagsters into the Roll-Off containers when the vessel arrives in Honolulu.

- DAR may want to collect EDNA – DAR would like to collect pools of water or samples of algae that may be present in the 20ft. or 40 ft. containers on the vessel before or after nets are offloaded
- Once DAR knows the approximate offload date, we can work towards finding someone who would be interested in processing samples for eDNA

Response: We welcome DAR to observe the offload and collect eDNA samples as necessary.

- 6.) Would it be possible to re-bag the nets into contractor bags and 3 mil Supersacks after they are bleached in the 40 ft. bleaching container and transferred to the 20 ft. storage container, so that the nets will be in a bag when craned from the ship into the Roll-Off Containers on the docks in Honolulu? Or would there be any other way to contain the nets while they are transferred from the ship to the Roll-Off Containers on the dock once in Honolulu?

Response: It will logistically be improbable to re-bag all of the nets into Supersacks and/or contractor bags after the bleach treatment. However, if containment during the craning at the dock is the biggest concern, we can certainly propose “re-bagging” the nets into Waste Management Bagsters: (<https://www.wm.com/us/en/home/bagster>) to reduce risk during craning operations at the dock.

DAR follow-up question:

- DAR is in support of loading the dry nets (after sitting in the containers during the transit) into Bagsters on the deck of the vessel (i.e. craning nets from the 20 ft. or 40 ft. containers into Bagsters on the vessel deck) after the ship has arrived in Honolulu.

Response: This is manageable. Once we have DAR on-site to observe the offload, if this step seems insignificant, or is causing more disturbance to the net itself at the dock, maybe we can discuss eliminating this altogether.

- 7.) How and when do the Roll-Off Containers that held the bleached nets from P & H and Midway while being transported to cutting facility/incineration facility get fully cleaned/drained – do they get sprayed down out at the incineration facility?

Response: The roll-off containers are cleaned and maintained by the cutting facility. It would be assumed that all possibility of live Chondria getting into the roll-off containers would be eliminated due to the rigorous bleach treatment.

- 8.) How close to the water is the cutting facility where the nets from P&H or Midway may potentially get cut up into smaller pieces? Are the nets cut up in an open area/uncontained on the ground (i.e. is it possible fragments from the cutting process could enter a water way)?

Response: The cutting facility is right down the road from a water way. Their facility chops up the nets in a large open yard area enclosed by cinderblock / concrete walls (similar to the waste management transfer reuse stations). There is no possibility of net fragments entering waterways

from the cutting facility. Once the nets are chopped up, they will be transported next door to the incineration facility for incineration.

DAR follow-up question:

- DAR would like to see where the nets are cut up and the proximity to waterway. Is there any alternative to cutting the nets at the cutting facility – the facility is really close to a waterway on the map – looks like a canal runs along their base yard. Is it possible to cut the nets at the incineration facility (further away from waterway)? Or would there be a way to cut the nets in a more contained space than an open yard area where runoff may occur?

Response: Unfortunately, the cutting facility only cuts the nets at their site, and can't utilize the incineration facility lot. No alternative to the cutting the amount of marine debris we bring back other than the cutting facility. However, we can trail the cutting facility truck from the dock to their facility to observe and report if any debris or water is lost during transit on the road.

- 9.) Will either the 40 ft. “bleaching container” or the 20 ft. “storage container” have lids during the transit back to Honolulu?

Response: The 20-ft containers will not have lids. The ‘bleaching container’ does not have a lid, but we are not opposed to fabricating a “cover” similar to a boat cover to prevent rain water intrusion or bleach water extrusion.

DAR follow-up question:

- DAR is in support of a waterproof cover (fabric or solid) over the 20 ft. non-water tight container(s)

Response: Copy

Specific Questions relating to page 3 – 5 of the *Chondria* Biosecurity Plan

Transport to Larger Support Ship (pgs. 3-4):

- *If the marine debris (derelict fishing nets) is removed from the shallow-water coral reefs:*
 - *The helicopter sling cargo nets full of marine debris (derelict fishing net), will be transported via small boat to the larger support ship.*
 - *The helicopter sling cargo nets will be craned out of the small boat (tied up along the port-side of the ship) into the '40-yard (22-ft x 7.5-ft x 8-ft outside dimensions) Open-Top Bleach Container' (staged on the starboard-side of the ship) as a “bundle” (see 40-yard Open-Top Bleach Container photo in appendix). The 40-yard Open-Top Bleach Container is a modified roll-off bin (sludge dewatering unit, or similar) created to serve as a water-tight bleach tank with a valve to excess the bleach water safely*

after use. A large heavy-duty tarp will be laid-out across the beam of the ship's deck (between the small boat and bleach container), underneath the path that the suspended load will cross, to prevent any potential Chondria from dripping underneath the wooden slats of the deck of the ship.

- *The helicopter sling cargo nets (bundles of marine debris) will soak overnight (minimum 12 hours) in the highly chlorinated bleach solution (estimated to be between 35-45% hypochlorite bleach solution), in the 40-yard Open-Top Bleach Container.*

Disposal (pg. 5):

- *If the marine debris (derelict fishing nets) was removed from the shallow-water coral reefs and/or shoreline and is staged in 20-ft Open-Top Debris Containers on the deck of the larger support ship:*
 - *The nets will be craned directly from the deck of the larger support ship into 'Roll-Off Containers' staged on the ship's dock. A cargo net lined with a tarp will be stretched across the gap between the Ship and Dock to prevent any water/material from potentially dripping/falling into the water during transport.*
 - *The roll-off containers will be transported from Kewalo Basin to the cutting facility in Kapolei, so that the large net bundles can be cut into smaller pieces.*
 - *The net pieces will be transported directly from the cutting facility to the incineration facility (next door) to be incinerated.*

Questions:

- 10.) For **bolded** sections in above excerpts: What is done with this tarp and the potentially contaminated water or algae fragments afterwards? I.e. how is any residual water/ drippings or algae fragments disposed of / cleaned up?

Response: The tarp is secured in place on the deck with a shallow lip (enough to prevent water to escape the tarp, but not enough to become a tripping hazard on the working deck area) made of lumber. After operations each day, the tarp area is swept, vacuumed, and cleaned, with all bio fragments going over-board at the end of each day's operation. The working deck area and the pathway where the net bundle "drips" is then treated with a highly concentrated bleach solution daily. At the end of the mission, the tarp is soaked in the bleaching container and then disposed of.

- 11.) What preventative measures are there to confirm this excess water /algae fragments do not run off the tarp and onto the deck of the vessel while at P&H or Midway or into the water (during operations in Honolulu)?

Response: The tarp is secured in place on the deck with a shallow lip to prevent excess water and algae fragment run off. However, because it is in the middle of the working deck of the ship, the lip cannot be so great that it becomes a tripping hazard and an overall greater risk/hazard to the job. For operations in Honolulu, it can be assumed that all potential algae is dead.

DAR remaining issue surrounding cutting up the nets:

- First preference: take them whole straight to the incineration facility. We have concerns related to the cutting facility site. There is an adjacent waterway with debris in the waterway looking at satellite imagery. The debris is pushed right up next to the fence line on the cutting facility site, which may indicate potential spread from the site to the waterway. We are unsure of how the drainage of the lot works- we see puddles on the satellite energy too. We have questions about the machine that cuts up the debris- we imagine that will leave fibers within the mechanics of the chopping machine.
- If taking it to the cutting facility site to cut up is the ONLY option then: How will they ensure all Chondria debris and residual (water, fragments of the net) are contained during processing and fully removed after processing?

Response: Thank you for your responses. I understand where DAR's concerns are coming from.

I do want to reiterate that there are multiple Chondria mitigation measures in place, to ensure that there will be no Chondria present at the cutting facility site. Although these methods aren't backed with scientifically proven data, you can assume that with a thorough inspection and survey of the habitat and net, the chance of coming into contact has been reduced significantly (I would say it's safe to say 95% elimination of risk). Of the remaining 5% risk that there may be Chondria present, we believe we are going above and beyond to ensure that any fragment or spore would be absolutely eliminated during the 25-50% sodium hypochlorite bleach soak (9 times the concentration of the recommended treatment) treatment for 12 hours (72 times the soak duration recommended).

If we want to get on a call again, I'd suggest that, so that there are no delays in resolution.

DAR follow up question:

- Would you be able to provide us more detail on what exactly will happen at the cutting facility. For example, are the nets being cut by hand or machine? We were guessing machine. If so, how is it being loaded? What is it being loaded from? Where is it being loaded from? Where is the cut net being deposited? What is it being deposited in? Any details in addition to answers to the questions you could provide would be appreciated.

Response: Thank you very much for your email. I'll do my best to answer these questions. I think we should all plan a visit to the cutting facility and the incineration facility in the near future so we can hear directly from them.

My answer below is pulling from my visit to the cutting facility in 2015, and from conversations with the Operations Manager there:

More detail on what exactly happens at the cutting facility: It is my understanding that the roll-off containers are trucked into the cutting facility open lot. The truck is then unloaded in a partially covered, cinderblock surrounded lot, where the net (and metal) cutting occurs. They take their cutting facility machinery, which are essentially large jaws with many blades that "chop" the net into smaller chunks. Then smaller chunks of net will then be front loaded back into a cutting facility roll-off container, and then it will be transported to the incineration facility where it is dropped right in the incineration pile.

Nets cut by hand or machine?: Nets are cut by machines.

How is it loaded?: It is my understanding that it is front loaded into a roll-off container. I can confirm with the cutting facility, but I remember them pushing the load through an opening in the floor so all particles drop directly into the truck.

What is it being loaded from?: From the partially covered lot where they "chop" all the net and scrap metal.

Where is it being loaded?: In the partially covered lot where they "chop" all the net and scrap metal.

*Where is cut net being deposited: Incineration facility, in the incineration pile
Please let me know if you have any questions or would like to meet again.*

I've attached some photos taken by NOAA during a visit in 2012 which shows the machine that snips up the nets (excavator with special jaw attachments) and the general area where we've seen nets piled up against the cinderblock containment. The other photo is one showing a load of snipped up nets being dumped into the incineration pile at incineration facility from that same visit.



PMDP Response on 4/19/2022 (note all correspondence below have been edited to take out personal information):

Below are the mitigation steps that the PMDP biosecurity plan is predicated upon:

Step 1. Visual Inspection Before Removal. *We visually inspect any marine debris encountered in the water at PHR and Midway carefully for Chondria. If Chondria is present, the net will be left in place and not touched or handled. This step alone is likely to greatly reduce the chances of Chondria being present at all on the small boats or the ship (or being spread to Oahu).*

Best-case scenario when we remove a net: There is no Chondria present on it.

Worst case scenario: Chondria is present cryptically, as spores, or in small amounts that went undetected.

Step 2. Bleaching Regimen. *Upon return to the ship, we will then soak each net that has been removed (again, presumed to already be free of Chondria) in a 25-50% bleach solution for 12 hours, fully submerged. This bleaching regimen is approximately 72 times longer in duration, and 4-8 times higher bleach concentration than the protocol for bleaching CMZ field/dive gear and boats that is currently required by the BMP's.*

Best case scenario: There was no Chondria present on the net in the first place and everything comes out of the wash sparkly white.

Worst case scenario: There was Chondria present on a net, but it is killed by exposure to bleach. Outlier scenario: somehow this very high level of bleaching allows some Chondria to survive.

Step 3. Desiccation. *The debris is then stored in an open-top container where it will be desiccate for between 4-20 days (depending on date of removal in the cruise schedule).*

Best case scenario: There was no Chondria present on the nets to begin with, step serves as extra benefit.

Worst case scenario: There was Chondria present, the bleach didn't kill it, but the Chondria is rendered dead by desiccation.

Step 4. Secondary Containment. *If required, secondary containment bagsters will be utilized for offload and transition from ship-to-shore in Honolulu.*

Best case scenario: There was no Chondria present on the net to begin with, step serves as extra benefit.

Worst case scenario: There was Chondria present on the net, the bleach regimen didn't kill it, and it survived desiccation. Secondary containment will prevent any Chondria from entering the harbor during offload. I'm no expert, but it is my assumption that any Chondria that makes it this far in the process is likely to be very weakened and is less likely to be viable.

Step 5. Further Desiccation. *Once transported to the cutting facility, the net will continue to desiccate until cutting/processing is finished and it can be incinerated. Precipitation and runoff is possible here, but if there is still a major concern for the actual legitimate spread of Chondria at this final stage (after 4 prior steps), then I'm not sure what sort of measures we could actually put in place that could put to rest the possibility of spread.*

Question #1. Are the first 4 mitigation steps insufficient to serve as a robust biosecurity plan based on the best available science?

If the 4 steps are deemed insufficient, then the discussions of the cutting facility layout, supervision of bin transport to the cutting facility, visits to the facilities, etc. are valid and should be undertaken. If the answer is that the 4 steps are sufficient (or even exceed the requirements of other Chondria activities), then getting into the minutia of the cutting facility and steps 5, 6, and beyond should be unnecessary and we should collectively put that discussion to bed. It seems like a simple Yes or No consensus on this question is needed.

Also, I think we need to address the question of:

Question #2. Are we thinking about the treatment of gear/equipment/boats/debris in a standardized way across the different activities that could be undertaken in a CMZ, and how does this inform our answer to the question above?

For example, research scuba divers working in a CMZ in the presence of Chondria, who are in contact with the reef, and who may have gear, tools, wetsuits, etc. in contact with the algae itself (and may have fragments or spores on that gear) are required to bleach the gear and boats with 6% bleach solution for 10 minutes. After that it must remain dry for 30 days but then may be allowed back into state waters. Additionally, small boats used in a CMZ do not require secondary containment when

being craned to shore or during transport to a facility for storage- a process during which they may drip or encounter precipitation. If we were to apply those practices to the debris project, a short 10 minute 6% bleach treatment and then a 30 day dry desiccation period would be sufficient measures for us to dump the debris back into state waters off Oahu (obviously something we would never do), but a good comparison for us to consider when answering question #1 as to whether the 4 proposed steps are sufficient.

PMDF is in no way implying that we need to relax any sort of biosecurity measures when it comes to the marine debris project, but only uses this comparison to help us to frame where in the mitigation process we draw the line for the threat being mitigated "beyond a reasonable doubt".

DAR responses on 4/20/2022

1) Are the first 4 mitigation steps insufficient to serve as a robust biosecurity plan based on the best available science? DAR acknowledges abundant mitigation steps are being implemented but cannot confirm that the steps will provide 100% biosecurity at this time.

- **Visual inspection for Chondria** - Nets are known to accumulate biofouling and harbor tiny organisms within the net mass that are not always visible. *Chondria tumulosa* was first seen growing cryptically. So it is DAR's determination that there is there a chance that upon visual inspection fragments or spores too small to see are entrapped in the debris. What percentage of chance is unknown.
- **Bleaching & desiccation** - DAR understands that this protocol likely will kill most things. However, we are being cautious on this round because we do not know for sure if this is the case. For example, there may be air pockets (plastic containers/bags/debris) which are not exposed to the bleach within the net conglomerates. This is why we thought a site visit to the cutting facility might help to alleviate or confirm concerns- maybe seeing the state of the nets and the containment of the facility could inform our decisions.

2) Are we thinking about the treatment of gear/equipment/boats/debris in a standardized way across the different activities that could be undertaken in a CMZ, and how does this inform our answer to the question above?

- **Consistency with other protocols outlined in the current BMP for Chondria** - The proposed activity differs a bit from other activities - the nets are cut up immediately upon return adjacent to a waterway that has an outflow to the sea - this may be a point of risk should

there be live Chondria present. Other differences may be that the nets have been underwater attached to the reef for 12+ months and have many crevices/cryptic areas, whereas the small boats are used temporarily in the monument, have less crevices/ cryptic areas and have the ability to be scrubbed, in addition to the bleaching procedure, and 30 day desiccation period.

As monitoring tools develop - like eDNA for Chondria tumulosa, DAR can be more informed that our protocols are working well - and it may be possible to relax some of them. But until then DAR is erring on the side of caution - should this species establish and bloom in the Main Hawaiian Islands it could be devastating.

DAR's requests are as follows:

DAR's preference is that you do not bring the nets to be cut up and instead bring them directly to incineration. Please inquire with incineration plant to see if incinerating the individual net bundles already contained in the bagsters is possible. Note: The intention of this request is not make the facility think they may be liable, but to find the best mitigative measures to implement.

If requesting this is not possible or incineration plant is not able to accept the nets in the bagsters unless they are cut, is there a certain size limit that can be incinerated? What is the largest volume or mass they are willing to incinerate. If direct incineration is not possible, these are our requirements moving forward with utilizing a place where cutting would occur:

- 1) DAR staff would like to conduct a pre-visit to place where cutting would occur in the next month to evaluate how much the area where the nets will be staged and cut is contained. The site visit may result in modifications to the method if additional mitigation measures can be implemented. We understand at this point it would be difficult for PMDP to take a half-day to take people from the State to tour cutting facility at this time, but let's coordinate a time that works for both our organizations.

- 2.) DAR requests that any transportation will need to happen on a clear/dry day to the extent practicable. Please provide a rainy day backup plan if there is inclement weather on the day of offloading/transporting. This could include postponing the offloading, providing additional tarps during transport and at cutting facility, etc. DAR will need to approve this rainy day plan before approval of the biosecurity plan.

3.) DAR staff must be present during the transportation from the dock to cutting facility to monitor and record any fragment loss or runoff during transport.

4.) Please find out how long the process of cutting at the facility will take. If the nets will be sitting outside exposed to wind and rain for several days/weeks, there is a greater chance of runoff. As such, if the area where the cutting is going to happen is not enclosed (warehouse or roof of some sort), tarps must be placed inside the cinder block barrier to create a catch-all for runoff. Tarps will then need to be properly disposed of as well. If the tarps are not possible this can be eliminated/modified, but we wanted to hear your thoughts on the nets sitting outside exposed for several days if that is the case.

5.) PMDP staff must clean up/sweep any remaining net fragments from the site once cutting is finished to ensure remaining fragments do not end up in the waterway or become attached to other debris that enters the facility. A DAR staff member will also be present to inspect and confirm this clean up. PMDP staff are to report any loss of fragments or runoff observed during this process so that we can attempt to mitigate or improve protocols for future activities.

PMDP Response on 4/21/2022

Update: PMDP spoke with cutting and incineration facility and determined that special conditions needed for biosecurity may be difficult to implement at various stages of the cutting and incineration process.

If it is DAR's position that the debris still poses a threat after the 4 biosecurity steps, and additional measures are mandatory, PMDP would like to pursue either:

1. Desiccation of the debris for 30-365 days on land in the PMNM. *This warrants further discussion, or;*

2. Direct-to-Incineration *The incineration plant are able to handle bundles of net that are 3ft x 3ft x 3ft directly without additional cutting. However, they will not be able to accept net bundles inside super sacks, so the net bundles will need to be loose (uncontained) and visible to the incineration foreman that day. So the solution there would be to cut each net removed from a CMZ into these 3'x3'x3' chunks, and offload from the ship inside secondary containment (bagsters) that would then be dumped out into the truck bin for direct transport to incineration plant.*

For background understanding: Cutting these nets up into 3'x3'x3' chunks is something that is likely an order of magnitude more difficult to do than the PMDP standard procedure. Cutting these bigger net bundles (some can weigh 2,000-4,000 lbs each) is very time consuming due to the loose, amorphous nature of the net strands and the difficulty of tensioning them properly for cutting. The

only time there is sufficient deck space on the ship to undertake cutting operations like this is during the operational workday when all the boats are off the deck and in the water, which means keeping one of our boat teams back to do. This reduces the removal project's productivity by 25% (which may be an acceptable hit to take? Not sure). The other, most viable cutting option is that the cutting takes place on the deck of the ship during offload at the pier in Honolulu. The extra time that this will take would likely mean that we would need to add a day to the offload schedule, (requiring additional funding), or this extra day comes at the expense of a debris removal day.

PMDP crew have removed and processed approximately 1 million pounds of derelict fishing nets previously over the years, and the professional [subject matter expert] opinion is that the process of cutting these nets into smaller bundles on the deck of the ship (whether in PMNM or in Honolulu) increases the potential for fragmentation and unintended introduction of fragments to the deck of the ship or to the water. Handling and cutting this stuff is messy, and the fewer times it needs to be moved or handled, the better. In the PMDP personnel opinion, the risk of this cutting operation poses a much higher risk than does the pile of net sitting in a base yard. Post-processing of these nets is seen as an absolute last resort for us, which is why we had pitched such a robust mitigation plan to enable our normal disposal process.

A third option:

3. Sending debris directly to the landfill. *This disposal method is obviously the worst possible optics for the program, and we have not explored this option in detail, but if runoff from the landfill is not a concern, this option would be a preferred alternative to 3'x3' cutting/incineration for CMZ debris.*

Environmental Compliance:

NEPA / HEPA: (check-one)

- Categorical Exclusion / Exempt Class: 1 & 5
- EA
- EIS

Other Consultations: (ESA/MMPA Section 7; NHPA Section 106, etc.)

- A request is currently underway for 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)). The outcome of this review may require the applicant to adhere to other NMFS-prescribed conditions. Such conditions would be reflected in the PMNM permit, prior to issuance.
- 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-

exemption type has been interpreted to include activities related to the surveying and removal of marine debris, and disentanglement of marine wildlife, as needed and as described above.

The proposed activities here appear to fall squarely under the general exemption type identified under HAR §11-200.1-16 (a) (1) and §11-200.1-16 (a) (2), as described under the revised 2020 DLNR Exemption List (Concurred on by the Environmental Council on November 10, 2020), under the general exemption type #1 (Part 1), items #1, #2 and #31 and under the general exemption type #5 (Part 1), items #13 and #15 and (Part 2), item #4:

Type #1 (Part 1), items #1, #2 and #31, includes, respectively, the “removal of boulders, rocks, hazardous trees, marine debris, and other similar hazards necessary to maintain lands and waters in a safe condition” and the “rescue of threatened or endangered species”, and the removal and disposal of rubbish and debris from lands and waters”.

Type #5 (Part 1), items #13 and #15 and (Part 2), item #4, includes, respectively, “research that the Department declares is designed specifically to monitor, conserve, or enhance native species or native species' habitat”, “game and non-game wildlife surveys, vegetation and rare plant surveys, aquatic life surveys, inventory studies, new transect lines, photographing, recording, sampling, collection, culture, and captive propagation” and “experimental management actions that the Department declares are designed specifically to monitor, conserve, or enhance native species or native species' habitat.”

As discussed below, no significant disturbance to any environmental resource is anticipated. Thus, so long as the below considerations are met, the general exemption types should include the action now contemplated.

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.” §11-200.1-15 (d), HAR. 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. §11-200.1-13, HAR.

The applicant would abide by the PMNM Best Management Practices (BMPs) as listed in earlier section above while conducting the aforementioned activities within the PMNM. PMDP’s operation follows all existing NOAA protocols and procedures in place for this same Project when it was operated by NOAA (for which a Finding of No Significant Impact (FONSI) in June 2005 was determined), for the safe execution of the mission.

All Papahānaumokuākea Marine Debris Project (PMDP) activities proposed will be carried out with strict safeguards for the natural, cultural, and historic resources of the Monument as required by

Presidential Proclamation 8031, and other applicable policies and standard operating procedures. All agencies will receive PMDP's detailed field protocols and best management practices (BMP). These practices and procedures will minimize or avoid disturbance to wildlife, flora, habitat, and cultural and historic resources.

PMDP conducts rigorous PMNM (biological and environmental), ship, small boat, and free-dive/snorkel operational training before conducting at-sea field operations. This training regimen emulates the rigorous training that James Morioka (PMDP Executive Director) and Kevin O'Brien (PMDP President) led at NOAA for all field staff in preparation for field operations between 2007-2021. This includes all marine debris removal activities, but also how to safeguard and minimize impacts to other natural and cultural resources. This will be further supported through PMNM pre-access and cultural briefings for all staff. In addition, James Morioka has conducted Resource Monitor duties on past expeditions; either this member of the personnel or another member of the personnel who has been trained in PMNM Resource Monitor duties will accompany all permitted activities to provide oversight and ensure compliance with permit conditions and BMPs.

Careful biosecurity quarantine procedures (outlined under PMNM BMP 007) will be followed and enforced at each island where personnel land on shore or boats and divers are put in the water. This includes use of gear purchased new and dedicated to each island/atoll. Thorough cleaning, biosecurity, and safe storage protocols are followed between field missions.

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 have a Minimal or No Significant Effect on the Environment. 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 11-200.1 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.

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: James Motoharu Morioka

Affiliation: Papahānaumokuākea Marine Debris Project (PMDP) – U.S. 501(c)(3) non-profit organization

Permit Category: Conservation and Management

Proposed Activity Dates: July 1 – September 30, 2022 (two separate 30-day cruises aboard M/V *Imua* proposed for July 1-30, 2022 and August 24 - September 24, 2022)

Proposed Method of Entry (Vessel/Plane): PMDP will be contracting a vessel such as Merchant Vessel (M/V) *Imua* owned and operated by Hawai'i Resource Group (HRG). The final selection of the vessel will be made known to the Monument Management Board (MMB) as soon as the information is available, and documented on Compliance Information Sheet (CIS) forms prior to each entrance into the Monument.

Proposed Locations: Marine debris survey and removal efforts will occur across the following islands and atolls in the Northwestern Hawaiian Islands (listed in order from east to west): French Frigate Shoals (Lalo), Maro Reef (Kamokuokamohoali'i), Laysan (Kamole), Lisianski (Kapou), Pearl and Hermes Atoll (Manawai), Midway Atoll (Kuaihelani), Kure Atoll (Hōlanikū). Hereafter all islands will be referred to by their common names.

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

Up to 30 individuals request. There will be 16 PMDP staff and *likely* 6 M/V *Imua* crew per cruise, for a total of 22 individuals. To account for differences in staff between cruises we request for up to 30 individuals.

Estimated number of days in the Monument: Targeting 60 days but request maximum of 75 days to account for an unexpected delay from weather or unknown circumstance which could result in more time spent in Monument.

Description of proposed activities: (complete these sentences):

- a.) The proposed activity would...

“allow for large-scale marine debris survey and removal operations to occur in the Monument in support of priorities identified in Monument management and recovery plans, included but not limited to: 1) [Papahānaumokuākea Marine National Monument \(PMNM\) Management Plan](#) (hereinafter referred to as the MMP) (specifically 3.3: Reducing Threats to Monument Resources – 3.3.1: Marine Debris (MD) Action Plan – “Reduce the adverse effects of marine debris to PMNM resources and reduce the amount of debris entering the North Pacific Ocean”), 2) [Hawai‘i Marine Debris Action Plan \(HI-MDAP\)](#), 3) [Recovery Plan for the Hawaiian Monk Seal](#), 4) [Mai Ka Po Mai: A Guidance Document for Papahānaumokuākea](#), 5) [Endangered Species Act of 1973 \(ESA\)](#) and the 6) [Marine Mammal Protection Act of 1972 \(MMPA\)](#).”

The NOAA Northwestern Hawaiian Islands (NWHI) Marine Debris Project (hereinafter referred to as the ‘Project’) began in 1996 and was led by NOAA Fisheries and other agencies partners through 2021. The Project has demonstrated over time the necessity of large-scale marine debris removal operations for the protection and safety of marine wildlife, specifically the endangered Hawaiian monk seal, threatened green sea turtle, and other marine wildlife. Between 2015-2021, the Project was co-led and co-managed by James Morioka (Executive Director, Papahānaumokuākea Marine Debris Project (PMDP)), and Kevin O’Brien (President and Founder, PMDP), prior to the creation of PMDP in 2019. PMDP is proposing to lead the Project in the PMNM indefinitely, after partnering with NOAA, U.S. Fish and Wildlife Services (USFWS) and the State of Hawai‘i Department of Land and Natural Resources (DLNR) on three successful field marine debris removal missions in 2020-2021. It is expected that PMDP would remove approximately 56 metric tons (MT) of marine debris per 30-day cruise amounting a total of 112 MT of marine debris removed from the Monument in 2022.

b.) To accomplish this activity, we would

The Papahānaumokuākea Marine Debris Project (PMDP) will focus efforts on the following objectives:

- Surveying for and removing derelict fishing gear (DFG) from shallow (0-30 ft depth) coral reef environments at locations listed in question 5a.
- Surveying for and removing DFG, plastics, and other entanglement hazards from shoreline habitats at locations listed in question 5a.
- Evaluate the rates of marine debris accumulation and assess abundance and distribution on coral reefs and shorelines.
- Assess ecological impacts of DFG on coral reef environments through photographic surveys.
- Disentangle protected wildlife, which includes Hawaiian monk seals, green sea turtles, and sea birds, from marine debris when human intervention is required/possible (if permissible).
- Utilize Unmanned Aerial Systems (UAS) surveys to assist in the detection of marine debris to increase operational efficiency, and assess abundance and distribution of marine debris on coral reefs and shorelines (if permissible).

- Capturing photos and video for outreach and education purposes.

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

“supporting priorities identified in Monument management and recovery plans, included but not limited to: 1) [Papahānaumokuākea Marine National Monument \(PMNM\) Management Plan](#), 2) [Hawai‘i Marine Debris Action Plan \(HI-MDAP\)](#), 3) [Recovery Plan for the Hawaiian Monk Seal](#), 4) [Mai Ka Po Mai: A Guidance Document for Papahānaumokuākea](#), 5) [Endangered Species Act of 1973 \(ESA\)](#) and the 6) [Marine Mammal Protection Act of 1972 \(MMPA\)](#).”

1. Papahānaumokuākea Marine National Monument (PMNM) Management Plan (MMP) ([Link HERE](#))

Led by Monument Management Board (MMB)

Volume 1: December 2008

3.1: Understanding and Interpreting the NWHI.

- 3.3.1: Marine Conservation Science Action Plan.
 - Strategy Marine Conservation Science (MCS)-1: Continue and enhance research, characterization and monitoring of marine ecosystems for the life of the plan, as appropriate.
 - Activity MCS-1.1: Continue to characterize type and spatial distributions of shallow-water marine habitats to inform protection and management efforts.
 - MCS-1.2: Continue monitoring of shallow-water coral reef ecosystems to protect ecological integrity.
 - MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.
 - Theme of Natural Resources Science Plan (NRSP): Research on human impacts (marine debris).
 - MCS-3: Communicate results of research and monitoring over the life of the plan.
 - MCS-3.3: Include an educational component in marine research expeditions.
 - MCS-3.4: Use materials gathered and created through research to develop or enhance education and outreach products.
- 3.1.2: Native Hawaiian Culture and History (NHCH) Action Plan.
 - NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan.
 - NHCH-2.3: Facilitate cultural field research and cultural education opportunities annually.
 - NHCH-2.6: Continue to facilitate Native Hawaiian cultural access.
 - NHCH-3: Increase cultural resource management capacity across MMB agencies over the life of the plan.

- NHCH-3.4: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management.
- NHCH-5: Provide cultural outreach and educational opportunities to serve the Native Hawaiian community and the general public over the life of the plan.
 - NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs.
 - NHCH-5.2: Develop a culturally based strategy for education and outreach within the Native Hawaiian community.

3.2: Conserving Wildlife and Habitats.

- 3.2.1: Threatened and Endangered Species (TES) Action Plan.
 - TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.
 - TES-1.1: Support marine debris removal activities to promote recovery.
 - TES-1.3: Conserve Hawaiian monk seal habitat.
 - TES-1.5: Support outreach and education on Hawaiian monk seals.
 - TES-2: Determine the status of cetacean populations and verify and manage potential threats over the life of the plan.
 - TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans in the Monument.
 - TES-3: Ensure that nesting populations of green turtles at source beaches are stable or increasing over the life of the plan.
 - TES-3.2: Protect and manage nesting and basking habitat.
 - TES-3.3: Protect and manage marine habitat, including foraging areas and migration routes.
- 3.2.2: Migratory Birds (MB) Action Plan.
 - MB-2: Minimize the impacts of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan.
 - MB-2.5: Work with partners to reduce the impact of commercial and sport fisheries outside the Monument on migratory bird populations.
- 3.2.3: Habitat Management and Conservation (HMC) Action Plan.
 - HMC-1: Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem, using best available information about pre-disturbance conditions.
 - HMC-1.1: Identify and prioritize restoration needs in shallow water reef habitats impacted by anthropogenic disturbances within 5 years.

3.3: Reducing Threats to Monument Resources.

- 3.3.1: Marine Debris (MD) Action Plan.
 - MD-1: Remove and prevent marine debris throughout the life of the plan.
 - MD-1.1: Continue working with partners to remove marine debris in the Monument and reduce additional debris entering the Monument.
 - MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI.
 - MD-1.3: Develop and implement a 5-year marine debris removal and prevention strategy for the Monument.
 - MD-2: Investigate the sources, types, and accumulation rates of marine debris within 5 years.
 - MD-2.1: Work with partners on marine debris studies.
 - MD-2.2: Develop and standardize marine debris monitoring protocols for marine and terrestrial habitats.
 - MD-3: Develop outreach materials regarding marine debris within 2 years.
 - MD-3.1: Work with partners to continue to develop and implement an outreach strategy for marine debris.
- 3.3.2: Alien Species (AS) Action Plan (specifically for ‘nuisance’ algae, *Chondria tumulosa* at Midway Atoll and Pearl and Hermes Atoll).
 - AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of eradication or control all nonnative organisms in the Monument over the life of the plan.
 - AS-1.1: Complete an Integrated Alien Species Management Plan (IASMP).
 - AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.
 - AS-2: Engage in active surveillance to monitor existing infestations and to detect new infestations of alien species over the life of the plan.
 - AS-2.1: Survey distributions and populations of known alien species at regular intervals.
 - Develop and implement monitoring protocols for early detection and characterization of new infestations.
 - AS-3: Establish and enforce quarantine procedures appropriate for each site and habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation of nonindigenous species over the life of the plan.
 - AS-3.1: Enforce the use of existing quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument.
 - AS-8: Conduct and facilitate research designed to answer questions regarding invasive species detection, effects on ecosystems, and alien species prevention, control, and eradication over the life of the plan.
 - AS-8.1: Support and conduct research on alien species detection and the effects of invasive species on native ecosystems.
 - AS-8.2: Support and conduct research on invasive species prevention, control methods, and eradication techniques.

- AS-9: Engage Monument users and the public in preventing the introduction and spread of alien species.
 - AS-9.2: Integrate alien species information into general Monument outreach materials.
- AS-10: Participate in statewide and Pacific regional alien species efforts.
 - AS-10.1: Build relationships with other resource managers and invasive species experts in the State, nation, and other countries based on shared challenges concerning invasive species.
- 3.3.4: Emergency Response and Natural Resource Damage Assessment (ERDA) Action Plan.
 - ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.
 - ERDA-1.4: Participate in damage assessment programs and training throughout the life of the plan.
 -

3.5: Coordinating Conservation and Management Activities.

- 3.5.1: Agency Coordination (AC) Action Plan.
 - AC-2: Establish and support cooperative management agreements with agency partners.
 - AC-2.2: Establish agreements for coordinated management and conduct cooperative management operations.
 - AC-2.3: Develop interagency agreements, grants, and memoranda of agreement as needed to carry out specific program priorities.
 - AC-3: Promote international, national, and local agency collaborations to increase capacity building and foster networks that will improve management effectiveness.
 - AC-3.2: Network with other marine protected areas in the Pacific.
- 3.5.2: Constituency Building and Outreach Action Plan.
 - CBO-1: Develop and implement an integrated communications strategy, based on assessment of ongoing activities and future needs, to coordinate outreach and engage Monument constituencies within 5 years.
 - CBO-1.1: Develop an integrated communications strategy based on an assessment of ongoing activities and future needs.
 - CBO-1.2: Continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument's resources and activities.
 - CBO-1.4: Incorporate new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystems literacy and conservation in the Monument within 5 years.
 - CBO-1.5: Research and implement new technologies and tools to increase public understanding of the NWHI ecosystems within 5 years.

- CBO-2: Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan.
 - CBO-2.2: Continue to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument.
 - CBO-2.3: Support other entities' efforts to broaden knowledge of and appreciation for Monument resources and management priorities.
- CBO-3: Continue initiatives that allow Monument constituencies to be more involved in the Monument and enhance opportunities for long-term engagement over the life of the plan.
 - CBO-3.1: Continue to seek out and participate in events that reach a broader audience and provide constituents with knowledge of the Monument.
 - CBO-3.3: Continue to seek out and support partnership opportunities that focus on Oceania-related issues.
 - CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through the Office of Hawaiian Affairs.
 - CBO-3.8: Continue to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council (RAC) through NOAA's Office of National Marine Sanctuaries until the Monument Alliance is established.
- 3.5.3: Native Hawaiian Community Involvement (NHCI) Action Plan.
 - NHCI-2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.
 - NHCI-2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians,
 - NHCI-3: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management annually for the life of the plan.
 - NHCI-3.1: Engage the Native Hawaiian community to identify how traditional knowledge will be integrated into Monument activities.
 - NHCI-3.2: Use and integrate Native Hawaiian traditional knowledge in Monument management activities.
- 3.5.4: Ocean Ecosystems Literacy (OEL) Action Plan.
 - OEL-1: Develop and implement educational programs in Hawai'i to increase ocean ecosystems literacy and promote stewardship values within 5 years.
 - OEL-1.3: Develop an ocean stewardship program for middle school and high school students within 5 years.
 - OEL-2: Develop and implement new tools to "bring the place to the people", with a focus on students, within 3 years.

- OEL-2.1: Identify and prioritize research and development projects to increase ocean ecosystems literacy and conservation in the NWHI.
- OEL-2.2: Use telepresence for educational and outreach activities within 5 years.

3.6: Achieving Effective Monument Operations.

- 3.6.3: Coordinated Field Operations (CFO) Action Plan.
 - CFO-2: Enhance interagency planning and coordination for field operations in support of Monument protection and management, and develop protocols and processes that will be utilized throughout the life of the plan.
 - CFO-2.1: Develop interagency agreements to facilitate effective field coordination throughout the Monument.
 - CFO-2.2: Develop and implement standardized field operations protocols.
 - CFO-2.4: Annually coordinate field operations to efficiently deploy personnel and share resources among agency partners.

2. **Hawai‘i Marine Debris Action Plan (HI-MDAP) ([Link HERE](#))**

Led by NOAA Marine Debris Program (MDP)
December 2021

Goal 1: Prevention.

- Strategy 1.1: Change consumer behavior through outreach and education.
 - Action 1.1.1: Use social media as a platform for outreach.
 - 1.1.2: Conduct education and outreach to the general public, residents, military community, and visitors through, but not limited to, presentations, news events, featured speakers, and film screenings.
 - 1.1.6: Conduct education and outreach at schools and universities.
 - 1.1.6: Provide education on alternative products, make them accessible, and promote their use.
 - 1.1.8: Work with Hawai‘i Marine Debris Action Plan (HI-MDAP) researchers to support one another in sharing accurate scientific information to the local community.
 - 1.1.9: Educate the public on marine debris generated through the commercial fishing industry, encourage increased understanding of where seafood comes from and how to support local fishers.

Goal 2: Ocean-based Marine Debris.

- 2.1: Conduct education and outreach to ocean users on proper and legal waste management at sea.
 - 2.1.5: Educate and promote consumer understanding of the marine debris costs associated with certain fisheries and seafood choices.

- 2.2: Identify funding and provide low-cost and convenient disposal options for fishing gear and solid waste.
 - 2.2.6: Partner in the Hawai‘i Nets-to-Energy program.
- 2.3: Identify fishing materials and practices designed to reduce marine debris.
 - 2.3.1: Gather and share best management practices for coastline fishing gear and methods.
 - 2.3.2: Learn more about smart fish aggregating devices (FAD).
- 2.4: Create public-private partnerships to develop industry standards for reducing marine debris.
 - Engage with fisheries and gear manufacturers that are determined to be the source of derelict fishing gear washing into Hawai‘i.
- 2.7: Effectively respond to abandoned and derelict vessels.
 - 2.7.2: Enhance interagency coordination for addressing abandoned and derelict vessels and maintain an abandoned and derelict vessel inventory for remote or difficult to access coastlines.

Goal 3: Removal.

- 3.1: Utilize effective methods to locate marine debris accumulation.
 - 3.1.1: Continue to support the advancement of at-sea detection for marine debris through remote sensing.
 - 3.1.2: Continue monitoring efforts in the Papahānaumokuākea Marine National Monument to identify accumulation sites.
 - 3.1.6: Conduct annual aerial shoreline surveys and ground truthing (if UAS aerial surveys are permitted).
 - 3.1.7: Tag derelict fishing gear with GPS buoys to determine their location and potential marine debris accumulations.
- 3.3: Use available information to prioritize cleanup sites.
 - 3.3.2: Continue engagement with county, state and federal marine wildlife representatives regarding their high-priority regions/seasons by island.
- 3.4: Develop capacity for marine debris removal and disposal.
 - 3.4.1: Create and update island-specific flow chart options depicting the disposal and collaboration process.
 - 3.4.3: Expand the development and capacity to repurpose and recycle salvaged marine debris into infrastructure, materials, and products across all islands.
 - 3.4.8: Create a shared understanding within and outside of the Hawai‘i Marine Debris Action Plan community, on what happens to debris after disposal.
- 3.5: Increase communication and collaboration to efficiently remove marine debris.
 - 3.5.4: Provide financial and logistical support for large-scale marine debris removal in the Papahānaumokuākea Marine National Monument.
 - 3.5.6: Develop and maintain a network of nongovernmental organizations and other partner on-water resources that can perform regular near-shore

debris mass surveys, removal training, and removal operations, and coordinate disposal of debris found with shore-based cleanup partners.

Goal 4: Research

- 4.1: Develop an understanding of marine debris physical and chemical traits, life cycle, sources, transport, fate, quantity, and accumulation rate.
 - 4.1.1: Conduct shoreline and in-water surveys regularly, and share data and survey methods to determine accumulation rates.
 - 4.1.4: Use spatial mapping to compare areas of high removal effort to standing debris accumulations in order to evaluate the impact of cleanups and site monitoring.
 - 4.1.7: Better identify sources of hagfish traps to determine the best prevention efforts.
 - 4.1.8: Create a database of derelict fishing gear types and metrics in Hawai‘i in order to try and identify the fishery or manufacturer sources.
 - 4.1.11: Identify funding to continue sourcing derelict fishing gear marine debris and scaling up a centralized detection, removal, research, and repurposing program.
- 4.2: Develop or identify standardized methods or best management practices for applicable aspects of research to ensure data can be meaningfully analyzed.
 - 4.2.5: Identify standardized shoreline and in-water monitoring protocols throughout Hawai‘i.
 - 4.2.8: Develop a method to identify gear types from derelict fishing gear.
- 4.3: Enhance and advance research on the ecological impacts of marine debris.
 - 4.3.1: Research the interaction of invasive species with marine debris, including species identification, impacts, transport, and fate.
 - 4.3.3: Monitor and assess information on the impacts of entanglement on wildlife.
 - 4.3.4: Monitor and assess information on the impacts of marine debris to habitats.
 - 4.3.6: Use structure-from-motion (SFM) imagery to quantify the volume of coral reef damage by derelict fishing gear strikes in Kaneohe Bay.
- 4.4: Improve research on the economic impacts of marine debris.
 - 4.4.5: Research the economic impacts of derelict fishing gear in Hawai‘i.
- 4.5: Evaluate the effectiveness of mitigation, outreach, and removal efforts of marine debris.
 - 4.5.2: Investigate the effectiveness of marine debris and plastic education and outreach.
- 4.6: Support communication and collaboration of research to all stakeholders.
 - 4.6.1: Improve collaboration and data sharing amongst the local marine debris community through the publishing, compiling, and sharing of marine debris research completed in Hawai‘i state and regional waters.
 - 4.6.4: Explore and share funding opportunities and develop partnerships to approach funding opportunities.
 - 4.6.5: Collaborate with international partners for marine debris research.

- 4.6.6.: Participate in international conferences, partnerships, and other avenues of information sharing to highlight the relevance of marine debris in Hawai‘i.

3. Recovery Plan for the Hawaiian Monk Seal (*Monachus schauinslandi*) ([Link HERE](#))

August 2007

Led by NOAA National Marine Fisheries Service

Recovery Goal: The goal of this revised recovery plan is to assure the long-term viability of the Hawaiian monk seal in the wild, allowing initially for reclassification to threatened status, and, ultimately, removal from the List of Endangered and Threatened Wildlife.

Significant threats that face this species: Entanglement of seals in marine debris has and continues to result in significant levels of seal mortality.

- Strategy 1: Improve the survivorship of females, particularly juveniles, in sub-populations of the NWHI. To do this requires:
 - Continuing actions to remove marine debris and reduce mortality of seals due to entanglement.

Recommended short-term actions:

- Strategy 2: Prevent entanglements of monk seals.
 - Action 2.1: Continue programs that facilitate the disentanglement of animals.
 - 2.2: Continue removing potentially hazardous debris.
 - 2.2.1: Continue focused clean-up effort on high entanglement risk zones in the water.
 - 2.2.1.1: Monitor marine debris accumulation rates and identify areas of greatest potential risk.
 - 2.2.1.2: Remove debris from beaches.
 - 2.3: Reduce the amount of debris.
 - 2.3.2: Implement education and marine debris reduction programs targeting identified sources.

4. Mai Ka Pō Mai: A Native Hawaiian Guidance Document for the Management of Papahānaumokuākea Marine National Monument ([Link HERE](#))

2021, Office of Hawaiian Affairs (added as a PMNM Co-Trustee in 2017)

Ho‘oku‘i: Papahānaumokuākea represents the rich Hawaiian heritage, cultural experiences, and wisdom that have cultivated healthy relationships among places and their peoples through time and space.

- Na Kuhikuhi (Strategies) Ho‘oku‘i-2: Ensure that policies and programs incorporate relevant cultural knowledge.

- Ho'oku'i-3: Use Hawaiian knowledge, language, values, traditions, and concepts throughout all areas of management and activities.

Kūkulu 1. Ho'omana: Papahānaumokuākea is a living spiritual foundation and natural environment for Hawaiian existence.

- Ho'omana 1-1: Manage the natural-cultural landscape through the practice of aloha aina.
- Ho'omana 1-2: Perpetuate Hawaiian cultural practices, knowledge, and values.
- Ho'omana 1-3: Enhance protections through access for Native Hawaiians.
- Ho'omana 1-4: Amplify the cultural and spiritual experience.

Kūkulu 2. Hō'ike: Papahānaumokuākea is an abundant source of ancestral knowledge and a place where experts demonstrate excellence and advance knowledge systems.

- Hō'ike 2-1: Conduct research and monitoring in a manner that incorporates multiple perspectives, knowledge systems, and values.
- Hō'ike 2-4: Promote alignment of research initiatives of the co-managing agencies and permittees to advance Hawaiian research agenda items.

Kūkulu 3. Ho'oulu: Inspire and grow thriving communities.

- Ho'oulu 3-1: Engage and collaborate with communities and leaders involved in mālama 'āina work.
- Ho'oulu 3-3: Develop partnerships and collaborations with other organizations to support Papahānaumokuākea programs and initiatives.
- Ho'oulu 3-4: Develop and support initiatives that focus on next-generation capacity building for leadership succession.

Kūkulu 4. Ho'olaha: Papahānaumokuākea provides cultural pathways and ancestral wisdom that extends through time and space.

- Ho'olaha 4-1: Develop educational programs and initiatives that are based on Hawaiian cultural values, concepts, and traditional resource management stewardship.
- Ho'olaha 4-2: Identify, share, and promote innovative research and other place-based activities in PMNM that can serve as models to inform resource management in the main Hawaiian Islands.
- Ho'olaha 4-4: Incorporate Hawaiian values, traditions, and histories into Monument communication strategies to better connect the public to the Monument.

5. Endangered Species Act, 1973 ([Link HERE](#))

Implemented by NOAA Fisheries and the U.S. Fish and Wildlife Services.

- Section 4: Designates critical habitat for the conservation of the species (endangered Hawaiian monk seal and threatened green sea turtle).
- Section 4: Developing and implementing recovery plans for listed species (endangered Hawaiian monk seal and threatened green sea turtle).

- Section 10: Cooperating with non-federal partners to develop conservation plans, safe harbor agreements, and candidate conservation agreements with assurances for the long-term conservation of species.
- Section 10: Issuing permits that authorize scientific research to learn more about listed species, or activities that enhance the propagation or survival of listed species.

6. Marine Mammal Protection Act, 1972 ([Link HERE](#))

Implemented by NOAA Fisheries, the U.S. Fish and Wildlife Services, and Marine Mammal Commission.

- NOAA Fisheries performs the following conservation and management actions:
 - Develops and implements conservation plans for species designated as depleted.
 - Develops and implements take reduction plans to minimize dead and seriously injured marine mammals in commercial fishing gear.

Other information or background:

The Hawaiian Archipelago (specifically the PMNM) is centrally located within the world's largest ocean gyre, the North Pacific Gyre. This gyre is a system of clockwise ocean currents that pull marine debris originating from all across the North Pacific Ocean, including East Asia, the Aleutian Islands, the North American West Coast, and the equatorial region, concentrating into the gyre's convergence zones. These convergence zones are located just north of the Hawaiian Islands, and with prevailing northeast tradewinds and large north swells, the PMNM becomes a large depository for marine debris.

The PMNM encompasses all of the Northwestern Hawaiian Islands (NWHI), including its islands, atolls, coral reefs, shoals, and seamounts, which contains 70% of all shallow-water coral reef habitats (<200 m) in the United States. The PMNM was named a World Heritage Site in 2010 by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and is home to more than 7,000 marine species, 25% of which are endemic, found only in the Hawaiian Archipelago.

Since 1996, the Project (formerly led by NOAA Fisheries and other agencies) has conducted large-scale marine debris removals in order to mitigate the entanglement and ingestion threat to protected wildlife and damage to coral reefs, and has removed a total of 1,059 metric tons (2.3 million lbs) of marine debris from the PMNM (136 metric tons or 300,000 lbs of which PMDP supported in 2020-2021) and disentangled countless marine animals. Of the estimated 1,400 remaining Hawaiian monk seals (highest documented entanglement rate of any pinniped species), an estimated 32% of them are alive today due to marine debris removal efforts, disentanglements, and rehabilitation efforts (Harting et al., 2014). The [NOAA NMFS Recovery Plan for the Hawaiian Monk Seal \(2007\)](#) reports that a minimum of 2.3 serious injuries or deaths occur each year from fishery-related marine debris.

Marine debris and derelict fishing gear affect the entire Hawaiian Archipelago and all the people and wildlife living in it. Whether entangling marine animals (seals, turtles, whales, fish, and invertebrates) or adversely impacting corals at large, derelict fishing nets roll across the reefs, marine debris is a detriment to fragile coral ecosystems (particularly in the PMNM), some of the most biologically diverse and economically valuable ecosystems on earth (Bryant et al., 1997). There is a serious and growing concern for the entanglement of monk seals, particularly with no formal Project led by NOAA. The number of monk seals found entangled has not changed nor has there been a reduction in the accumulation rates of marine debris in the PMNM. Fortunately, PMDP strives to do their part to help protect the marine environment and ocean wildlife from the effects of marine debris through the continuation of large-scale marine debris removal operations in the PMNM.

“Papahānaumokuākea’s ecosystems are increasingly under pressure from threats such as marine debris, invasive species, and climate change,” said Rick Spinrad, Ph.D., NOAA Administrator. “Designation of the monument’s waters as a national marine sanctuary would complement the efforts of the four co-trustees to safeguard the Monument’s natural, cultural, and historic values.” NOAA Considers Sanctuary off Hawaiian Islands -- (November 19, 2021)
<https://www.noaa.gov/news-release/noaa-considers-marine-sanctuary-off-hawaiian-islands>

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Morioka, James, M.

Title: Executive Director, Papahānaumokuākea Marine Debris Project (PMDP)

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

James Morioka (CV attached)

Executive Director

Papahānaumokuākea Marine Debris Project (PMDP)

SEE ORIGINAL APPLICATION FOR CONTACT INFO SEE
ORIGINAL APPLICATION FOR CONTACT INFO

Phone: SEE ORIGINAL APPLICATION FOR CONTACT INFO

Email: SEE ORIGINAL APPLICATION FOR CONTACT INFO

Kevin O'Brien (CV attached)

President and Founder

Papahānaumokuākea Marine Debris Project (PMDP)

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Phone: SEE ORIGINAL APPLICATION FOR CONTACT INFO

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

Papahānaumokuākea Marine Debris Project (PMDP)

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Email: SEE ORIGINAL APPLICATION FOR CONTACT INFO

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

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

Papahānaumokuākea Marine Debris Project (PMDP) – U.S. 501(c)(3) non-profit organization.

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):

1. James Morioka (PMDP, Executive Director), Co-Field PI, Diver and Small Boat Operator
2. Kevin O'Brien (PMDP, President), Co-Field PI, Diver and Small Boat Operator
3. TBD (PMDP), Diver and Small Boat Operator
4. TBD (PMDP), Diver and Small Boat Operator
5. TBD (PMDP), Diver and Small Boat Operator
6. TBD (PMDP), Diver and Small Boat Operator
7. TBD (PMDP), Diver and Small Boat Operator
8. TBD (PMDP), Diver and Small Boat Operator
9. TBD (PMDP), Diver and Small Boat Operator
10. TBD (PMDP), Diver and Small Boat Operator
11. TBD (PMDP), Diver and Small Boat Operator
12. TBD (PMDP), Diver and Small Boat Operator
13. TBD (PMDP), Diver and Small Boat Operator
14. TBD (PMDP), Diver and Small Boat Operator
15. TBD (PMDP), Diver and Small Boat Operator
16. TBD (PMDP), Diver and Small Boat Operator

Note – There will be a total of 22-25 individuals per cruise. Of the 22-25 individuals, 16 individuals (berthing limitations) will be from PMDP, and 6-9 individuals likely from Hawai'i Resource Group (HRG, M/V Imua) for each of the proposed 30-day missions to the PMNM (July 1-30, 2022 and August 24 - September 24, 2022). However, the actual individuals covered by this permit may exceed 22 total, if there are staffing changes that occur due to scheduling conflicts between the two proposed missions. An updated CIS form will be provided prior to each entry into the Monument.

Section B: Project Information

5a. Project location(s):

<input type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> French Frigate Shoals	<input checked="" type="checkbox"/> Land-based	<input checked="" 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 checked="" type="checkbox"/> Maro Reef	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Laysan Island	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Lisianski Island, Neva Shoal	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Pearl and Hermes Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Midway Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Kure Atoll	<input checked="" type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Monument Expansion Area			
<input type="checkbox"/> Other			

Ocean Based

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:

N/A – No staff will remain onshore on any island or atoll.

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:*

All activities described in this application are directed towards the betterment of the Papahānaumokuākea Marine National Monument and the wildlife that reside there. All of the information is then compiled to develop, implement, and assess strategies to support management and recovery plans, included but not limited to: 1) [Papahānaumokuākea Marine National Monument \(PMNM\) Management Plan](#), 2) [Hawai‘i Marine Debris Action Plan \(HI-MDAP\)](#), 3) [Recovery Plan for the Hawaiian Monk Seal](#), 4) [Mai Ka Po Mai: A Guidance Document for Papahānaumokuākea](#), 5) [Endangered Species Act of 1973 \(ESA\)](#) and the 6) [Marine Mammal Protection Act of 1972 \(MMPA\)](#).”

*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species beyond the protocols provided in PMNM Best Management Practices (<https://www.papahanaumokuakea.gov/permit/bestmanagement.html>)? Yes No
All BMPs will be strictly enforced. All footage (film / photograph) will be provided to the four Co-Managing agencies (NOAA, U.S. Fish and Wildlife Services, State of Hawai‘i, Office of Hawaii Affairs) upon return from PMNM.

If so, please list the species you specifically intend to target.

PMDP intends to film / photograph protected wildlife (including the Hawaiian monk seal, sea turtles, and sea birds) interacting or being affected by the threats of marine debris, while strictly following all PMNM BMPs. If protected wildlife is entangled in marine debris, PMDP will (if permitted as Co-Investigators on the NOAA National Marine Fisheries Services (NMFS) permits) work with partners at the NOAA Pacific Islands Fisheries Science Center (PIFSC) Protected Species Division (PSD), U.S. Fish and Wildlife Services and the State of Hawai‘i to assess the threat and mitigate hazards to the best of their ability. If seals or turtles become critically entangled, then PMDP personnel (trained with the NOAA NMFS PIFSC PSD) may intervene and prevent potentially fatal outcomes through disentanglement.

For a list of terrestrial species protected under the Endangered Species Act visit:

<http://www.fws.gov/angered/>

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:

All activities described in Section 7. Findings (below) refer to specific Best Management Practices (BMPs) or programmatic assessment/guidance documents that include, but are not limited to:

1. [PMNM BMP #001 – Marine Alien Species Inspection Standards for Maritime Vessels](#)
2. [PMNM BMP #004 – Best Management Practices for Boat Operations and Diving Activities](#)
3. [PMNM BMP #007 – Best Management Practices for Terrestrial Biosecurity](#)
4. [PMNM BMP #010 – Marine Wildlife Viewing Guidelines](#)
5. [DRAFT PMNM Chondria BMP](#)
6. [NOAA PIFSC CRED Programmatic Ecological Assessment \(PEA\) under National Environmental Policy Act \(NEPA\)](#)
7. [NOAA PIFSC CRED PEA Signatures](#)
8. [NOAA PIFSC CRED Finding of No Significant Impact \(FONSI\)](#)
9. [Cultural-based Strategy for Marine Debris Removal Operations](#)
10. [Marine Debris Removal Criteria](#)

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?

All Papahānaumokuākea Marine Debris Project (PMDP) activities proposed in this PMNM Conservation and Management permit application will be carried out with strict safeguards for the natural, cultural, and historic resources of the Monument as required by [Presidential Proclamation 8031](#), and other applicable law and agency policies and standard operating procedures. All agencies will receive PMDP’s detailed field protocols and best management practices (BMP). These practices and procedures will minimize or eliminate disturbance to wildlife, flora, habitat, and cultural and historic resources.

PMDP conducts rigorous PMNM (biological and environmental), ship, small boat, and free-dive/snorkel operational training before conducting at-sea field operations. This training regimen emulates the rigorous training that James Morioka (PMDP Executive Director) and Kevin O’Brien (PMDP President) led at NOAA for all field staff in preparation for field operations between 2007-2021. This includes all marine debris removal activities, but also how to safeguard and minimize impacts to other natural and cultural resources. This will be further supported through PMNM pre-access and cultural briefings for all staff. In addition, a PMNM approved Resource Monitor will accompany all permitted activities to provide oversight and ensure compliance with permit conditions and BMPs.

PMDP is proposing to conduct Unmanned Aerial Systems (UAS, commonly referred to as ‘drones’) surveys of derelict fishing nets on coral reefs, using a [Splash Drone 4 UAS](#) (back-up UAS is the [DJI Mavic Air Pro 2](#)) (if permissible). The study was piloted by the Project in 2018, mapping over 2 sq. km. of coral reef area (stitching hundreds of photographs to create a detailed mosaic) to detect derelict fishing nets on the reefs, and

ground-truthing the imagery for nets with divers in the water. The Project demonstrated that the proof of concept for aerial net detection could be successful, and PMDP looks to capture more imagery so that artificial intelligence (AI) detection software used to detect derelict fishing nets on shallow water coral reef environments can be enhanced through machine-learning. As in previous years of the Project, the UAS will be operated by trained and certified staff, and all relevant PMNM BMPs and protocols specific to deployment, retrieval, and operations of the UAS will be followed. The UAS will be deployed and recovered from a small boat. The minimum altitude the UAS will fly over the reef or land is 100 ft and the maximum altitude will be 400 ft. Interactions with birds and other wildlife will be closely monitored and should significant interactions occur, UAS operations will be halted.

Careful biosecurity quarantine procedures (outlined under [PMNM BMP 007](#)) will be followed and enforced at each island where personnel land on shore or boats and divers are put in the water. This includes use of gear purchased new and dedicated to each island/atoll. Thorough cleaning, biosecurity, and safe storage protocols are followed between field missions.

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?

The NOAA Northwestern Hawaiian Islands (NWHI) Marine Debris Project (referred to as the ‘Project’ and led by NOAA and other agency partners) has conducted large-scale marine debris removal operations and other conservation and management activities in the NWHI since 1996. Over the years, NOAA and other agency partners have worked extensively to develop and refine protocols for surveying, mitigating, and removing the hazards of marine debris that pose threats to wildlife and essential habitats. With these operations comes the potential to negatively impact a number of cultural and natural resources. However, NOAA completed a Programmatic Environmental Assessment (PEA or EA) under the National Environmental Policy Act (NEPA), and a Finding of No Significant Impact (FONSI) in June 2005 (valid for an indefinite amount of time) for the Project. PMDP’s operation follows all existing NOAA protocols and procedures in place for the safe execution of the mission.

For new and particularly sensitive activities (i.e. *Chondria tumulosa*, nuisance algal outbreak at Pearl and Hermes Atoll and Midway Atoll, we will direct considerable attention to sharing information with our Monument partners on the need and justification for each activity.

PMDP has collaborated with the Native Hawaiian community (which is expected to continue in perpetuity), specifically with the Office of Hawaiian Affairs (OHA) and PMNM’s Native Hawaiian Program Specialist Kalani Quioko to develop a [culture-based](#)

[strategy](#) for the Project, to increase inclusivity and collaboration with the Native Hawaiian community in terms of facilitating access to the PMNM, generating culture-based outreach materials, and observing traditional protocols and procedures while in the field.

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.

Marine debris is, and will continue to be, a *significant* threat to the PMNM without a large-scale marine debris removal effort annually (>52 metrics tons removed). Marine debris in general poses significant risks and threats to wildlife and essential habitat in Hawai‘i, but the marine debris issues facing PMNM are drastically different than those facing the Main Hawaiian Islands (MHI).

The PMNM is comprised of islands and atolls much older in origin than the MHI. These ancient islands formed over Hawai‘i’s hotspot (underwater geological volcanic island formation), as early as 30 million years ago (Hōlanikū – Kure Atoll). Over time, these islands have traveled northwest (nearly 3000 km or 1900 miles) with the movement of the Pacific tectonic plate, and have sunk back into the ocean, transforming large volcanic islands (like the Big Island of Hawai‘i) into shallow atolls, shoals, and large expansive reef areas.

The emergent land mass in the PMNM is about 15 sq. km., whereas shallow reef area (between 0-30 ft depth) is estimated to be 350 sq. km. In contrast, the MHI is estimated to have over 16,000 sq. km. of emergent land area but only ~320 sq. km. of shallow reef area. The MHI are comprised of high volcanic islands with steep reef drop-offs from shore, whereas the NWHI landscape is dominated by isolated clusters of low-lying islands, barrier reefs, and calm lagoons with expansive shallow reef formations. Therefore, the issue of in-water marine debris, primarily derelict fishing gear (DFG), negatively affects the PMNM substantially more than the MHI (nets become snagged on shallow corals vs washing onto the shorelines). In fact, recent research (of which K. O’Brien and J. Morioka are co-authors), showed that reefs in PMNM that have experienced interactions with DFG have a higher occurrence of bare (dead) substrate (Suka, et al. 2020).

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 intent of all activities proposed are to protect PMNM and its natural, historical, and cultural resources through the elimination of an anthropogenic hazard to coral reefs, wildlife and their critical habitats. PMDP strives to be an organization that exemplifies the rigorous standards required for access to the PMNM. Many safeguards are in place to minimize the potential for negative impacts to the resources of PMNM (i.e. biosecurity

measures, marine debris removal criteria, *chondria*-specific BMP's). To date, the Project has had a significant positive impact to PMNM resources and we expect this will continue into the future.

PMDP believes that the most effective model for stewardship of protected resources is to build a community that is vested in a positive outcome for Papahānaumokuākea. If a diverse community here in Hawai'i builds an understanding and a love for PMNM, then authentic and sustainable support for these activities will result. The outreach and education component of the proposed marine debris removal activities cannot be understated. As a place the public is unable to visit, the oral, written and visual stories brought back to our community from PMNM are very important for building and growing a stewardship community. Additionally, providing opportunities for Native Hawaiians to access the Monument as members of the marine debris field team is important for creating a new model for blending western science-based projects, indigenous ways of knowing, and conservation work.

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

The Project (formerly branded as the 'NOAA NWHI Marine Debris Project', led by NOAA and other agency partners) began in 1996, with large-scale operations to remove the backlog of accumulated marine debris on the shallow coral reef environments. This was done by utilizing multiple vessels over multiple months annually between 1999-2004. In 2006, NOAA deemed that the backlog of accumulated marine debris had been removed, and scaled back to 'maintenance mode' with the goal of removing 52 metric tons (MT) of marine debris annually (as per Dameron et al., 2007). Between 2006-2021, with diminishing funding and resources available to conduct annual removal missions, the removal of marine debris has fallen behind the accumulation rate, with a current backlog of marine debris estimated at ~535 MT. PMDP aims to catch up on the backlog of marine debris accumulated between 2006-2021, while simultaneously keeping pace with the 52 MT that is said to accumulate each year, over the next 10 years (2022-2031).

Each 30-day mission to the PMNM can yield approximately 21 operational days, depending on weather, scheduling, and the scope of the project. With 16 PMDP staff (4 boat teams of 4 divers), each operational day can yield an estimated ~2.7 metric tons (2,700 kg or 6,000 lbs) of marine debris removed. Therefore, each PMDP 30-day mission can effectively remove ~56 metric tons of marine debris. If PMDP can continue to conduct two 30-day missions annually (60 days and ~112 MT annually), it is expected that all marine debris accumulated between 2006-2021 and new marine debris arriving between 2022-2031 can be eliminated, allowing the project to scale back to maintenance mode from 2032-beyond. Increased funding or in-kind support that may allow additional field missions on top of the 60 day annual baseline could shorten this timeline considerably.

The above description of accumulation and backlog is referring only to in-water DFG. Shoreline DFG and plastics are not included in those estimates, but also pose a considerable challenge in terms of time and resources to address them. So, unlike many other proposed projects within PMNM, the effectiveness of our proposed corresponds directly to the duration of the project.

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

PMDP is well-positioned to lead this project safely and successfully, with experts leading both the management and field operations for the Project. James Morioka (Executive Director, PMDP) led and managed the NOAA NWHI Marine Debris Project in the PMNM for NOAA between 2015-2021, before joining the PMDP non-profit organization. Kevin O'Brien (President and Founder, PMDP) led field operations for the NOAA Marine Debris Project between 2013-2018. Over the 9 years that both Morioka and O'Brien co-led and managed the project for NOAA, they both demonstrated safety, success, attention to detail, and extensive institutional knowledge of the marine debris removal operation. James Morioka also worked as the Operations Manager and Vessel Operations Coordinator for the NOAA Pacific Islands Fisheries Science Center (PIFSC) Ecosystem Sciences Division (ESD) and has developed protocols and best practices for executing safe small boat and dive operations from the ship (larger vessel), as well as providing subject matter expertise for BMPs for PMNM, most recently in regards to the nuisance algae, *Chondria tumulosa*.

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.

PMDP was created in 2019 to effectively alleviate the Government and the PMNM Co-Trustees of the burden of solely funding and conducting removal efforts from the Monument. With diminishing resources from the Government over the last 15 years, an additional mechanism needed to be developed to enable expansion of the funding base to include sources which were unavailable to NOAA during the Project's tenure, and to create an organization that could serve as the hub for collaborative planning and execution of these missions. PMDP is now capable (in terms of staff, facilities and assets) of executing full-scale removal missions independently of government assets and resources if necessary.

PMDP's fiscal year 2021 budget of \$410,000 enabled PMDP to execute three "proof-of-concept" field missions:

October 2020: 16-day hurricane debris removal effort, Tern Island, French Frigate Shoals
March 2021: 23-day shoreline marine debris removal, all islands
September 2021: 30-day in-water and shoreline marine debris removal, all islands

These were conducted in partnership with the U.S. Fish and Wildlife Services (USFWS), the State of Hawai‘i Department of Land and Natural Resources (DLNR), and NOAA Pacific Islands Fisheries Science Center (PIFSC) respectively. In-kind support was also provided by these agencies to share costs for these three collaborative removal projects. PMDP is projecting an FY22 budget of \$2.1 million to execute two 30-day field missions to PMNM without significant in-kind support for the co-managing agencies.

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.

All activities proposed by PMDP in this permit application will follow all NOAA protocols set in place from previous years. PMDP works hard to adhere to and improve all PMNM BMPs and regulations that overlap with our activities.

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

Yes, the two vessels likely to facilitate the proposed activities are outfitted with the mobile transceiver.

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

All other approvals have been acquired for the proposed activities and all permit applicants have been in compliance with previous PMNM permits (albeit through NOAA avenues).

8. Procedures/Methods:

The following list of activities is intended to promote the PMNM and its resources. Activities may include:

Marine Debris Survey and Removal Operations:

Note: If the nuisance algae, *Chondria tumulosa*, is identified on the marine debris or in the nearby habitat (currently identified at Pearl and Hermes Atoll – Manawai and Midway Atoll – Kuaihelani), its specific location within the atoll/island will be marked with a Global Positioning System (GPS) unit, and the marine debris will be left in place (until further guidance is provided by the MMB). Shoreline marine debris removal

operations at islands/atolls with *Chondria tumulosa* will follow the strict *Chondria* BMP (included as an attachment).

In-Water Marine Debris Survey and Removal Operations:

Two methods are utilized for the in-water survey and removal of derelict fishing gear (DFG):

- Tow-board Surveys: Tow-board surveys, regularly referred to ‘manta tow’, allows for rapid visual surveys in shallow water (0-30 ft depth) and maximum area coverage. This method requires two divers to use breath-hold techniques while being towed behind a 19-ft inflatable boat at 1-2 knots across fringing, barrier, or back reefs.
- Swim Surveys: Swim surveys are primarily utilized within atoll lagoons around reticulated reefs or in areas which are too shallow or intricate to conduct tow-board operations effectively.

For both methods (detailed above), divers conduct surveys until DFG is visually located entangled on the reef. Once located, the net location (latitude and longitude), net characteristic (type, length, width, height, depth, foul level, coral growth) and habitat characterization data are collected. A debris removal decision-tree is then used to determine whether removal of the net is appropriate and will not cause additional damage to the reef. If removal is deemed appropriate, divers cut the DFG free from the substrate while minimizing impact to the entangled coral and surrounding reef habitat. Once the DFG is free from the reef, it is loaded by hand into the inflatable boats for transport back to the ship (and ultimately transported back to Honolulu, HI for proper disposal).

Shoreline Marine Debris Survey and Removal Operations:

- Shoreline Surveys: PMDP staff will walk the shorelines (between low-tide line and vegetation on shore) of the islands and atolls within PMNM to survey for and remove marine debris. The Project primarily focuses on surveying for and removing entanglement and ingestion hazards to wildlife. Once the marine debris is identified, collected, and staged at a ‘pick-up point’, the 19-ft inflatable boats approach accessible shorelines to safely load with the marine debris to transport back to the ship (and ultimately transport back to Honolulu, HI for sorting, data collection, and proper disposal).

Aerial Marine Debris Survey Operations:

- Unmanned Aerial Systems (UAS) Surveys: UAS surveys are expected to take place at all islands/atolls, and deployed and retrieved from the inflatable boat. Strict UAS protocols and BMPs will be followed and enforced for aerial survey operations. Flights will take place between 100 ft minimum (over land or reef) and 400 ft maximum altitude (if permissible).

Wildlife Disentanglement Operations:

The Project often encounters marine wildlife entangled in marine debris. Marine wildlife in the PMNM are protected and managed by the State and Federal government, and are protected by laws, rules and regulation that prohibit the interaction and intervention with

wildlife. If permitted, PMDP staff who are fully qualified, certified, and trained to handle, restrain, and disentangle marine wildlife will assess the situation and report its outcomes to the appropriate office for guidance and next steps.

- **Hawaiian Monk Seal Disentanglement Operations:** Hawaiian monk seals are often disentangled in marine debris and require intervention and disentangling to allow for survival. If/when an entangled Hawaiian monk seal is identified, the PMDP staff will notify the NOAA NMFS PIFSC PSD Hawaiian Monk Seal Research Program (HMSRP) of the entangled seal. A full assessment of the seal's health and surrounding habitat will be conducted and relayed to the HMSRP office. James Morioka (Executive Director, PMDP) is a professionally trained Hawaiian monk seal handler (worked for HMSRP 2011-2013) and has helped handle and/or disentangle dozens of seals in the PMNM. In collaboration with PMDP, James Morioka helped handle and disentangle two adult, female, Hawaiian monk seals in 2021. If permitted, James Morioka would lead a team to handle, restrain, and disentangle the endangered seal through: 1) manual restraint, 2) hoop-net restraint, or 3) stretcher-net restraint protocols and procedures.
- **Marine Turtle Disentanglement Operations:** Marine turtles are often disentangled in marine debris, particularly in shallow water coral reef environments. If a turtle is disentangled, the team will assess the turtle and its surrounding environment. If permitted, and the disentangling scenario does not cause further risk to the staff and Project, the team will handle the turtle, holding its head above water so that it can breathe effectively, and complete their disentanglement.

Marine Debris Transport and Disposal:

The majority (90%) of the marine debris removed from the environments of PMNM will be appropriately disposed of through NOAA's existing partnership with Schnitzer Steel Co. and H-Power/Covanta Energy in the Nets-to-Energy Program. Schnitzer Steel Co. provides in-kind services/no-cost solutions to chop up the marine debris (particularly derelict fishing nets) into manageable sizes before it is incinerated at H-Power/Covanta to create electricity (renewable energy) for homes on O'ahu.

PMDP is also actively seeking creative, alternative options to properly dispose of the marine debris collected in the PMNM. PMDP has created a local educational initiative to recycle/upcycle shoreline plastics and DFG into new, recyclable products designed and produced by students:

- **Ocean Plastics Student Makerspace:** PMDP has partnered with windward O'ahu high schools to build small-scale recycling machines to shred, melt and mold ocean plastics from PMNM into new products designed by the students. All products created at the Plastics Makers Space are developed to increase awareness of the size and scale of the marine debris issue in PMNM, and to help actively engage the local community with ways to combat the problem here in the Main Hawaiian Islands. The volume of plastics processed by this method is small, however, and the Hawai'i Nets to Energy Partnership remains the primary method of disposal for the vast majority of marine debris removed from PMNM.

Capturing Photos and Videos for Outreach and Education

- Throughout the duration of the cruises, photos and videos will be captured for outreach and education purposes. All photos and videos will be made available to the MMB and/or whomever is interested in them. All photos and videos around wildlife or protected habitat will be reviewed and vetted by the appropriate agency or organization.

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:
Red algae

Scientific name:
Chondria tumulosa

& size of specimens:

Collect and preserve four samples (4" x 4" x 4" sample, softball size):

1. Freeze (frozen as-is).
2. Salted fresh (salted with table salt as-is).
3. Ethanol (preserved in ethanol as-is).
4. Dried (dried at room temperature in the dark as-is).

Collection location:

Pearl and Hermes Atoll, Midway Atoll, or otherwise areas of new discoveries.

Whole Organism Partial Organism

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

If the Monument Management Board (MMB) or *Chondria* Working Group request samples of *Chondria tumulosa* observed and collected in the field (either at established islands/atolls like Pearl and Hermes Atoll or Midway Atoll or newly established/discovered sites) for genetic testing, the specimens will go straight to the University of Hawai‘i at Manoa (in collaboration with the University of Charleston) for genetic sampling.

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

• General site/location for collections:

Only if the MMB or Chondria Working Group requests collection of samples will they be collected, but most areas most likely to have *Chondria tumulosa* are Pearl and Hermes Atoll, Midway Atoll, or potentially Kure Atoll (based on ocean modeling).

- 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?
No.
- Will organisms be released?
No.

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

Collect and preserved in the field (in-situ) as such, and then transported back to Honolulu, Hawai‘i using the larger vessel, M/V *Imua*:

1. Freeze
2. Salted fresh
3. Ethanol
4. Dried

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

Genetic sampling through the University of Hawai‘i at Manoa.

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

Whirlpack bags and containers for secondary containment

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

A complete list of hazardous materials will be included in the supplemental material, but in general, is limited to:

- Pool-shock bleach (concentrated sodium hypochlorite solution)
- Ethanol
- Fuel (non-ethanol 89 grade gasoline)
- Hypalon glue (for inflatable boats)
- Motor oil (for small boats)
- Other applicable small boat support supplies (i.e. grease, adhesives, etc.)

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

None.

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

6 months maximum. Genetic sampling and information distribution can be completed within 2 weeks of arrival back to Honolulu, HI.

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

Successful application of a novel technique to quantify negative impacts of derelict fishing nets on Northwestern Hawaiian Island reefs.

Suka, R., Huntington, B., Morioka, J., O’Brien, K., Acoba, T.

(August 2020) Marine Pollution Bulletin: <https://doi.org/10.1016/j.marpolbul.2020.111312>
<https://www.sciencedirect.com/science/article/abs/pii/S0025326X20304306>

Movement and retention of derelict fishing nets in Northwestern Hawaiian Island reefs.

McCoy, K., Huntington, B., Kindinger, T., Morioka, J., O’Brien, K.

(January 2022) Marine Pollution Bulletin: <https://doi.org/10.1016/j.marpolbul.2021.113261>
<https://www.sciencedirect.com/science/article/pii/S0025326X21012959>

The following publications are referenced throughout the document and are related to the proposed project:

Marine debris accumulation in the Northwestern Hawaiian Islands: An examination of rates and processes.

Dameron, O.J., Parke, M., Albins, M., Brainard, R.

(May 2007) Marine Pollution Bulletin: <https://doi.org/10.1016/j.marpolbul.2006.11.019>

Benefits derived from opportunistic survival-enhancing interactions for the Hawaiian monk seal: the silver BB paradigm.

(September 2014) Endangered Species Research: <https://doi.org/10.3354/esr00612>

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

1/31/2022
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

**DRAFT Supplemental *Chondria Tumulosa* Biosecurity Plan
Papahānaumokuākea Marine Debris Project (PMDP)**

Permit: PMNM-2022-006

PI: James Morioka, Kevin O’Brien (Papahānaumokuākea Marine Debris Project, PMDP);

Type: Conservation and Management, New Application

Title: Marine debris survey and removal operations

To be filled in by agency representative

Agency: **Insert agency**

Decision: **(chose one of the options below)**

1. Approve plan as is. Assumption is that if a plan is approved, risk and impacts would be mitigated to a level below significant (based on what is currently known about *C. tumulosa*)
2. Reject plan and provide justification with recommendations on how to move forward (this could include, but not limited to, follow-up questions for the applicant, special permit conditions, or changes to the activity).
3. Reject plan and provide justification on why no recommendations can be made at this time to allow the application to move forward

Comments: **Insert in blank space below or provide via track changes**

Supplemental Biosecurity Plan per BMP020

Proposed activities that are within the bounds of PMNM BMP (#020):

- Midway Atoll (Kuaihelani) vessel docking threshold: 72-hour (3 day) window.
- Vessels (small boats) will not conduct activities with the Main Hawaiian Islands within 30 days after departing a CMZ.
- Vessel access and operation within a CMZ:
 - All vessels (small boats) will be inspected and disinfected prior to departure (out of the water).
 - Large vessels (ship) will not anchor within a CMZ, however smaller vessels (small boats) will.
 - Vessels will not remain in contact with ocean water for more than 48 hours – will not require an antifouling paint.
 - No small boat or submerged equipment used within a CMZ will be used in the Monument or State of Hawaii waters for at least 30 days, even after disinfection protocols.
 - Repeated access to another CMZ (between Midway Atoll and Pearl and Hermes Atoll) is necessary within the span of an individual cruise, but will follow the ‘departure decontamination treatments’ between CMZs.

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- Small boat, motor, deck, and ground tackle (if utilized) will be visually inspected for algal fragments.
- Inspections and removals of any algal fragments and other organisms from all vessels, gear, and equipment will occur at least daily (nightly).
- Small boats staying within a CMZ will be hauled out of the water to reduce exposure time.
- Felt-bottom footwear will not be used, to reduce exposure to and contamination by the nuisance alga or spores.
- If personnel unexpectedly encounter *Chondria tumulosa* outside a CMZ, the permittee (James Morioka) will notify their respective PMNM permit POC (Phillip Howard).
- Measures for collection of biological samples within a *Chondria tumulosa* CMZ:
 - There will be no intentional collections of *Chondria tumulosa* or other benthic samples, unless directed to do so by the MMB (if *Chondria tumulosa* is discovered at another location).
 - No live specimens of *Chondria tumulosa* will be transported outside a CMZ, unless directed to collect and transport by the MMB.
 - There are no research projects working with live *Chondria tumulosa*.

Proposed activities that do not fall within the bounds of PMNM BMP (#020):

Marine debris collections and transport within a *C. tumulosa* Mitigation Zone (CMZ):

The following depicts the necessary steps (surveying, staging, transport, containment, and disposal) for removing marine debris from a CMZ:

Important notes:

- If *Chondria tumulosa* is visually identified on the marine debris or surrounding habitat, then the marine debris will be left in place and not removed.
- If marine debris is removed from the environment, it is assumed that there is no presence of *Chondria tumulosa*, and additional mitigation steps (i.e. treatment and containment) will be taken to ensure no algal fragments or spores will survive beyond the CMZ that it originated from.
- All 'Nets' removed from both in-water and from the shorelines of a CMZ will be treated in a '40-yard (22-ft x 7.5-ft x 8-ft outside dimensions) water-tight Bleach Container' with 35-45% hypochlorite bleach solution for more than 12 hours. This process for bleaching the marine debris is 6-7x times more powerful (concentrated) for a duration 72x times longer than the recommended treatment to successfully kill all potential living *Chondria tumulosa* (6% hypochlorite bleach solution for 10 minutes). The Bleach Container will be constructed from a modified 40-yard roll-off dumpster that has been adapted with a watertight bulkhead and drain valve, similar to a commercial sludge de-watering tank. It is assumed that all 'Net' marine debris will have no presence of *Chondria tumulosa* following the mitigation, treatment, and containment steps.

Surveying:

- Throughout marine debris survey and removal operations (in-water and shoreline), if any *Chondria tumulosa* is identified on the marine debris or surrounding habitat, the marine debris will be left in place and not removed.

Note: The next steps (staging, transport, containment, and disposal) are referring to marine debris that does **not** have any suspected *Chondria tumulosa* present.

Staging:

- If the marine debris (derelict fishing nets) is to be removed from the **shallow-water coral reefs:**
 - The net will be carefully cut off of the reef by marine debris free-divers.
 - The net will be manually hauled into the deck of the small boat.
 - The nets will be staged in a 'Helicopter Sling Cargo Net' (see **Helicopter Sling Cargo Net** photo in appendix) and tarp in the deck of the small boat.
- If the marine debris is to be removed from the **shoreline:**
 - If the marine debris is shoreline plastics or other non-net material:
 - Only the dry (above high tide line) and desiccated shoreline marine debris will be removed.
 - The marine debris will be bagged on-shore in heavy-duty 3-mil Contractor Bags (see **Contractor Bag** photo in appendix).
 - The contractor bags full of marine debris will be carried over the water and placed into a 3-mil heavy-duty Supersack (see **Supersack** photo in appendix). In the event that a debris item is too big to be first bagged in contractor bags, a second Supersack within the first Supersack will be used as secondary containment.
 - The Supersacks will be staged on top of a helicopter sling cargo net and tarp in the deck of the small boat.
 - If the shoreline marine debris is derelict fishing nets:
 - The marine debris will be manually hauled from the shoreline into the helicopter sling cargo net, staged on the tarp in the deck of the small boat (these nets will be treated exactly with the same processes as the in-water nets).

Transport to Larger Support Ship:

- If the marine debris (derelict fishing nets) is removed from the **shallow-water coral reefs:**
 - The helicopter sling cargo nets full of marine debris (derelict fishing net), will be transported via small boat to the larger support ship.
 - The helicopter sling cargo nets will be craned out of the small boat (tied up along the port-side of the ship) into the '40-yard (22-ft x 7.5-ft x 8-ft outside dimensions) Open-

Top Bleach Container' (staged on the starboard-side of the ship) as a "bundle" (see **40-yard Open-Top Bleach Container** photo in appendix). The 40-yard Open-Top Bleach Container is a modified roll-off bin (sludge dewatering unit, or similar) created to serve as a water-tight bleach tank with a valve to excess the bleach water safely after use. A large heavy-duty tarp will be laid-out across the beam of the ship's deck (between the small boat and bleach container), underneath the path that the suspended load will cross, to prevent any potential *Chondria* from dripping underneath the wooden slats of the deck of the ship.

- The helicopter sling cargo nets (bundles of marine debris) will soak overnight (minimum 12 hours) in the highly chlorinated bleach solution (estimated to be between 35-45% hypochlorite bleach solution), in the 40-yard Open-Top Bleach Container.
- If the marine debris is removed from the **shoreline**:
 - If the shoreline marine debris is plastic and other non-net material:
 - The Supersacks full of contractor bags full of marine debris (2 levels of containment), will be transported via small boat to the larger support ship.
 - The Supersacks will be craned out of the small boat onto the deck of the larger support ship and staged for transport back to Honolulu.
 - If the shoreline marine debris is derelict fishing nets:
 - The helicopter sling cargo nets full of marine debris will be craned out of the small boat into the 40-yard Open-Top Bleach Container and soaked overnight (same mitigation steps and processes as the in-water nets).

Containment:

- If the marine debris (derelict fishing net) was removed from the **shallow-water coral reefs**:
 - The helicopter sling cargo nets (bundles of marine debris) should have no signs of live *Chondria tumulosa* after the mitigation steps detailed above, and a 12-hour soak in the highly chlorinated bleach solution.
 - The contents (derelict fishing nets) of the helicopter sling cargo nets will be emptied into a '20-ft Open-Top Debris Container' (see **20-ft Open-Top Debris Container** photo in appendix), until arrival in Honolulu.
- If the marine debris was removed from the **shoreline**:
 - If the shoreline marine debris is plastic and other non-net material:
 - The Supersacks containing contractor bags full of marine debris (double-containment), will be placed on the deck of the larger support ship until arrival in Honolulu.
 - If the shoreline marine debris is derelict fishing nets:
 - After sufficient bleach treatment, the contents (nets) of the helicopter sling cargo net will be emptied into a 20-ft Open-Top Debris Container (these nets will be treated exactly with the same processes as the in-water nets).

Disposal:

- If the marine debris (derelict fishing nets) was removed from the **shallow-water coral reefs** and/or **shoreline** and is staged in 20-ft Open-Top Debris Containers on the deck of the larger support ship:
 - The nets will be craned directly from the deck of the larger support ship into ‘Roll-Off Containers’ staged on the ship’s dock. A cargo net lined with a tarp will be stretched across the gap between the Ship and Dock to prevent any water/material from potentially dripping/falling into the water during transport.
 - The roll-off containers will be transported from Kewalo Basin to Schnitzer Steel Co. in Kapolei, so that the large net bundles can be cut into smaller pieces.
 - The net pieces will be transported directly from Schnitzer Steel Co. to Covanta Energy/H-Power (next door) to be incinerated.
- If the marine debris was removed from the **shoreline** and is staged in Supersacks on the deck of the larger support ship:
 - The Supersacks full of contractor bags full of marine debris, will be craned directly from the deck of the larger support ship into ‘Roll-Off Containers’ (see **Roll-Off Container** photo in appendix) provided by Schnitzer Steel Co. of the Hawaii Nets-to-Energy/Waste-to-Energy Program.
 - The roll-off containers will be transported directly from Kewalo Basin to Covanta Energy/H-Power in Kapolei, so that the marine debris can be directly incinerated.

Appendix

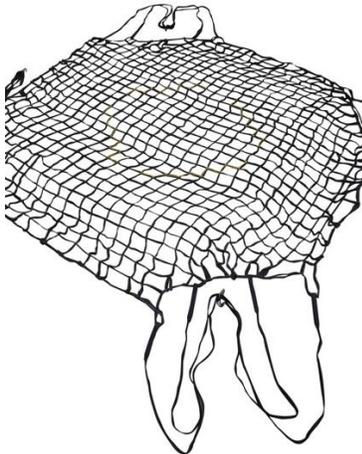
Photo 1. 3mil Contractor Bag:



Photo 2. 3mil Supersack:



Photo 3. Helicopter Sling Cargo Net



Attachment #3
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Photo 4. 40-yard Open-Top Bleach Container (22-ft x 7.5-ft x 8-ft outside dimensions)



Photo 5. 20-ft Open-Top Debris Container



Photo 6. Roll-Off Container

