

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 5 – August 1, 2023 and August 26 - September 21, 2023)

Proposed Method of Entry (Vessel/Plane): PMDP will be contracting a vessel similar to the Merchant Vessel (M/V) or Platform Supply Vessel (PSV) *Imua* or *Kahana II* 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 in the Papahānaumokuākea Marine National Monument (listed in order from east to west): Lālo (French Frigate Shoals), Kamokuokamohoali‘i (Maro Reef), Kamole (Laysan Island), Kapou (Lisianski Island), Manawai (Pearl and Hermes Atoll), Kuaihelani (Midway Atoll), and Hōlanikū (Kure Atoll). Hereinafter all islands and atolls will be referred to by their Hawaiian names.

Estimated number of individuals (including Applicant) to be covered under this permit: 16 PMDP staff and 7 M/V *Imua* crew (likely the chartered vessel) per cruise.

Estimated number of days in the Monument: 60

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 now positioned 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, and leading and executing two successful field missions independent of any other agency staff, in 2022. It is expected that PMDP would remove approximately 50 tons (100,000 pounds) of marine debris per 30-day cruise amounting a total of 100 tons (200,000 pounds) of marine debris removed from the Monument in 2023.

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 Kamokuokamohoali‘i (Maro Reef), Manawai (Pearl and Hermes Atoll), Kuaihelani (Midway Atoll), and Hōlanikū (Kure Atoll).
- Surveying for and removing DFG, plastics, and other entanglement hazards from shoreline habitats at Lālo (French Frigate Shoals), Kamole (Laysan Island), Kapou (Lisianski Island), Manawai (Pearl and Hermes Atoll), Kuaihelani (Midway Atoll), and Hōlanikū (Kure Atoll).
- 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, sea turtles, and sea birds, from marine debris when human intervention is required/possible.

- Utilize small Unmanned Aerial Systems (sUAS) 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.
 - Potential partnership with the University of Hawaii at Manoa is in discussion to utilize sUAS surveys to quantify and characterize shoreline marine debris in PMNM.

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-3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument’s management activities.
 - 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 our 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.
- Ho‘oku‘i-4: Manage data to support Monument and community based management.

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 ‘āina.
- 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 2-2: Support, facilitate, and conduct Hawaiian methods of science and research.
- 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.

Papahānaumokuākea is where Kānaka Maoli (Native Hawaiian people) descend from. It is an extension of their genealogy that traces back to the elemental energies that gave birth to the Pae ‘āina Hawai‘i (Hawaiian archipelago). When travelling into Papahānaumokuākea, we are reconnecting with our ancestral ties leaving the Ao (light, day; the realm of humans) and returning to the Pō (dark, night; the realm of the gods) for this is a place our kūpuna have frequented for thousands of years. Referring to the Kumulipo, a Hawaiian cosmogonical genealogy chant tells of the connection between the two realms in which people now encompass the lower half of the archipelago. The Kumulipo not only portrays to us our connections but also our place in this system. He ali‘i ka ‘āina, He kauwa ke kanaka, The land is the chief, man is the servant. As man we need to mālama (care for) Papahānaumokuākea. It is our kūleana (responsibility) that needs to be fulfilled to keep the system pono (balanced). In our efforts of cleaning marine debris we maintain our cultural and genealogical connection to not just Papahānaumokuākea but for all Hawai‘i.

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

[REDACTED]

Kevin O'Brien (CV attached)
President and Founder

[REDACTED]

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

[REDACTED]

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

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

Papahānaumokuākea Marine Debris Project (PMDP) – U.S. 501(c)(3) non-profit organization.
University of Hawai'i at Hilo – Tropical Conservation Biology and Environmental Sciences.

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), Field PI, Diver and Small Boat Operator
2. Kevin O'Brien (PMDP, President), Co-Field PI, Diver and Small Boat Operator
3. Ka'ehukai (Grant) Goin, 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
17. Back-up TBD (PMDP), Diver and Small Boat Operator
18. Back-up TBD (PMDP), Diver and Small Boat Operator

19. Dennis Hans Bishop (Hawai'i Resource Group – HRG), Captain, M/V *Imua*
20. TBD (HRG), First Mate, M/V *Imua*
21. TBD (HRG), Second Mate, M/V *Imua*
22. TBD (HRG), Lead Engineer, M/V *Imua*
23. TBD (HRG), Deckhand, M/V *Imua*
24. TBD (HRG), Deckhand, M/V *Imua*
25. TBD (HRG), Cook, M/V *Imua*

Note – There will be a total of 23 individuals per cruise. Of the 23 individuals, 16 individuals (berthing limitations) will be from PMDP, and 7 individuals likely from Hawai'i Resource Group (HRG, M/V Imua) for each of the proposed 30-day missions to the PMNM (July 5 – August 1, 2023 and August 26 - September 21, 2023). 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 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 to wildlife and mitigate risks and 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 (Morioka and O’Brien have both served in the PMNM Resource Monitor role) will accompany all permitted activities to provide oversight and ensure compliance with permit conditions and BMPs.

PMDP is proposing to conduct small Unmanned Aerial Systems (sUAS, commonly referred to as ‘drones’) surveys of derelict fishing nets on coral reefs, using a [Splash Drone 4 UAS](#) (back-up sUAS 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 sUAS will be operated by trained and certified staff, and all relevant PMNM BMPs and protocols specific to deployment, retrieval, and operations of the sUAS will be followed. The sUAS will be deployed and recovered from a small boat. The minimum altitude the sUAS 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, sUAS 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*), a 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.

Papahānaumokuākea is the perfect example of ‘āina momona (fat lands, fertile or rich lands). We can see how our ‘āina should be producing resources, and because of this it holds a multitude of cultural importance. Coming from the worldview of Kānaka Maoli understanding these mauka to makai (mountain to sea, land to ocean) is critical for indigenous knowledge. The thriving ecosystems and habitats of Papahānaumokuākea are a physical reminder which helps in understanding the stories, history, and relationships the kūpuna practiced. It is a living space Kānaka Maoli can reconnect and expand on cultural practices. The removal of marine debris will protect, perpetuate, and grow this special place, the ecosystem, and the cultural resources for the future generations.

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.

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 (>57 tons removed annually). 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. With an incredibly diverse community here in Hawai‘i, building an understanding and a love for PMNM, can establish authentic and sustainable support for these activities as a result. The outreach and education component of the proposed marine debris removal activities cannot be understated. As a protected area, the public is unable to visit PMNM, therefore, these oral, written and visual stories brought back to our community from PMNM are even more important for building and growing a stewardship community. Additionally, we would like to support Native Hawaiians access PMNM, providing opportunities as members of the marine debris field team. This is important for creating a new model 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 57 tons (52 metric tons) 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 ~1,000,000 pounds.

PMDP took the first step in 2022 to tackle the legacy, backlogged marine debris, while maintaining pace with the 57 tons of new marine debris which accumulates each year. The trend of PMDP removing more than 57 tons of marine debris from PMNM each year is expected through 2027. PMDP hopes that once all of the backlogged marine debris is eliminated, we can focus our efforts on shoreline marine debris (currently unquantified) and conduct regular maintenance on the coral reef ecosystems.

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 6,500 pounds of marine debris removed. Therefore, if all of the elements align, each PMDP 30-day mission can effectively remove ~135,000 pounds (~67 tons). If PMDP can continue to conduct two 30-day missions annually (60 days at sea, and ~270,000 pounds of marine debris removed annually), we expect to scale-back operations to “maintenance mode”. 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’s fiscal year 2022 budget of \$2,100,000 enabled PMDP to execute two large-scale underwater remote-islands marine debris removal missions to PMNM, successfully removed over 200,000 pounds of marine debris and cleaning and restoring over 2,700 acres of shallow coral reef habitat.

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 Manawai -- Pearl and Hermes Atoll and Kuaihelani -- Midway Atoll), 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:

Three (3) 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.
- Diver Propulsion Vehicle (DPV) Surveys: DPV assisted swim surveys may be utilized within atoll lagoons around reticulated reef areas to cover more reef area per unit of time, allowing for more marine debris to be removed from the environment.

For all three 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, Hawaii for sorting, data collection, and proper disposal).

Aerial Marine Debris Survey Operations:

- Small Unmanned Aerial Systems (sUAS) Surveys: sUAS surveys are expected to take place at all islands/atolls and deployed and retrieved from the inflatable boat. These surveys are to identify high-density debris accumulation areas, marine debris items of interest, and to attempt to quantify and characterize the marine debris currently on shorelines of the islands and atolls within Papahānaumokuākea Marine National Monument. Strict sUAS 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 handled and disentangle two adult, female, Hawaiian monk seals in 2021. If permitted, James Morioka would lead a team to handle, restrain, and

disentangled 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 disentanglement 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 or through Hawaii's Department of Transportation "Nets to Roads" project, through Hawaii Pacific University's Center for Marine Debris Research. 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.

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:

Manawai (Pearl and Hermes Atoll), Kuaihelani (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 Manawai (Pearl and Hermes Atoll) or Kuaihelani (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

1/31/2023

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