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

June 23, 2023

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, Hawaii Revised Statutes (HRS), Chapter 13-60.5, Hawaii 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 Northwestern Hawaiian Islands State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- French Frigate Shoals (Lālo)
- Laysan Island (Kamole)
- Lisianski Island (Kapou)
- Maro Reef (Kamokuokamohoali‘i)
- Pearl and Hermes Atoll (Manawai)
- Kure Atoll (Hōlanikū)

The activities covered under this permit would be authorized to occur via two separate 30-day cruises, the first between July 5 to August 1, 2023, and the second between August 26 to September 21, 2023. Expedition dates may vary 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).

In 2022 PMDP independently executed two large-scale underwater remote-islands marine debris removal missions to PMNM, successfully removing over 200,000 pounds of marine debris and cleaning and restoring over 2,700 acres of shallow coral reef habitat, under their own (PMDP) permit.

It is expected that PMDP would remove approximately 135,000 pounds (~67 tons) of marine debris per 30-day cruise, amounting a total of ~270,000 pounds or ~134 tons of marine debris to be removed from the Monument in 2023.

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).

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. 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.

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.

As discussed above, 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, the project can focus their 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), the project expects 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 the proposed project corresponds directly to the duration of the project.

Methods/Procedures:

<u>In-Water Marine Debris Survey and Removal Operations:</u>

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.

- 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 the 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 was approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant. 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.

<u>Shoreline Marine Debris Survey and Removal Operations:</u>
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 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 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.

All transport and disposal activities are discussed in-depth in the Supplemental Chondria Biosecurity Plan that was 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).

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 Oʻahu 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 Hawaiʻi 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 Hawaiʻi 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).

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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
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

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).

Compliance Information Form (CIS Form) Updates

Note – In previous years a Compliance Information Form (CIS Form) would have been included with BLNR submittal with various pieces of information on project personnel, vessels utilized to access the PMNM, vessel inspection dates and associated vessel details, entry dates into the PMNM, etc. This information is often fluid and changing and updated on a daily basis, and therefore partially complete forms were often included as an attachment for the BLNR meeting in past years. In 2023 a transition was made to storing this information on a dynamic google spreadsheet; static PDF copies will no longer be included with the BLNR submittal, but the

information can be now provided upon request with the most up-to-date data as it is modified up until the departing of the vessel for the PMNM. Some preliminary information for this expedition is as follows – other info can be requested as described above (if necessary):

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. Updated CIS data will be provided prior to each entry into the Monument.

REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai‘i Division of Aquatic Resources, Hawai‘i Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application was posted on the Monument website in the spring of 2023, 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:

1. Marine debris operations collection at Midway Atoll (Kuaihelani) will not be permitted between June and the end of September 2023 due to the Midway Seabird Protection Program ("mouse project")

   Removed from the biosecurity plan (and permit). No PMDP operations will be conducted at Kuaihelani (Midway Atoll) in 2023.

2. Ensure operations end at Manawai (Peral and Hermes)

   Clarified in the biosecurity plan (and permit). Manawai is scheduled as the last stop.

3. How frequently has C. tumulosa been found on marine debris in the past, resulting in leaving said debris in place? Tracking this information would be helpful if not already done.

   Chondria tumulosa has been identified on less than 10 nets total (2021-2022).

4. What makes the container water tight – is it the rubber gaskets on each seam? Are there tests that have been conducted on the containers or other applications they've been used in that shows how they are water-tight?

Walls are welded water-tight, with one hinged door with a rubber gasket. These containers are specifically made to transport water, waste (sewer), sludge, and other liquid trash, and proved to be water-tight last year (2022).

5. What is the mechanism to drain the container – is it pumped out or does a drain open on the bottom or side?

   Three (3) 4-inch welded drain pipe fittings with drain ball-valves are going to be installed at the base of each container side wall, for various draining options. It is naturally draining, but can be pumped out (PMDP purchased a pump last year but did not need to use it).

6. How many containers is PMDP planning on getting?

   Three (3) new containers, which can store all of the nets (~100,000 pounds total).

7. Confirming the same container(s) used on the 1st trip during the summer would not be used on 2nd trip (if trips are only one month apart) – PMDP will have different containers for 2nd trip because nets will desiccate and store in the containers for > 90 days?

   The containers will be used for both trips. Currently, PMDP does NOT plan on visiting any CMZs during Mission #1. Therefore, the containers full of non-CMZ nets will be unloaded at the Net Shed immediately after Mission #1 and prepped for Mission #2. Once PMDP visits CMZs on Mission #2, the containers will be stored on site, storing the nets to be desiccated.

8. Can PMDP provide more information on the new tool or method to cut the net – what does the tool/method consist of – is it used underwater as the divers are cutting the net free from the reef or above the water before putting the net on the small boat, or while upon the small boat?

   Last year, when fulfilling this additional cutting requirement as per the Biosecurity Plan, we found that most of our large nets were of appropriate acceptance size for H-Power/Covanta. There were only a handful of nets that required one or two additional cuts (in half), before they were of appropriate acceptance size. The tool that we used on the ship last year was a wire saw, which worked very well before we had our ship craning incident which caused us to have a safety stand-down. We have been working with the University of California at Berkeley Fung Fellowship Program (Engineering Department) for two semesters now (Spring 2022 and Spring 2023), and we hope to expedite the development of the new cutting tool, to cut the larger net masses net in the water, before pulling the net into the small boat. We would like to reiterate that we do not wish to expose our staff to any additional risk and hazards involving the ship's crane operations, if it can be avoided.

9. Could the new tool potentially increase fragmentation of algae while cutting if used underwater or above the water's surface (or would it be comparable to previous method)?

No. The new tool will not increase fragmentation of algae (more than cutting a net with a serrated dive knife) if used underwater or above the water's surface.

10. Follow-up question about the tool: Are you able to provide more details about what the new cutting tool is? Such as: Is it a new electrically powered saw or a modified wire saw of some sort?

    For the 2023 field missions, with the progress we have been making, it will likely be a modified manual wire saw with a manual tensioning tool. The tensioning tool allows the net mass to have continual spread as the divers use the wire saw to cut the net mass in half (or pieces).

11. Are any mitigation measures implemented while discharging the bleach water – i.e. is the discharge of the bleach water conducted in intervals or does it happen while the vessel is in transit so it disperses over a large area? Or does it occur in one attempt while the vessel is stopped or in motion?

    The discharge of water is slow, because of the drain hole size (3-4"). All bleach water discharge happens while the ship is transiting at 10 kts, so it disperses over a large area. This also causes concern for water sloshing in the containers (even with a lid) during the transit if we conduct a 72-hour bleach treatment.

12. Is there an estimate on the total volume of bleach water that would be potentially discharged?

    Each container is 48.8 cubic yards, which can hold up to 9,800 gallons of water when the container is empty. With each container filled to 75%, we predict each container may require up to 4,500-5,000 gallons each, for a total of 13,500-15,000 gallons. There are also concerns from the chartered vessel about fresh water supply if bleach water is lost during the transit back to the MHI.

13. Can PMDP provide more info on the process to clean out the container at the PMDP Headquarters site near Kapaa Quarry and the disposition of remaining algal fragments, sand, scraps of net or debris in the container (if applicable)?

    The container can be dropped on a tarp, where it will then be cleaned out (vacuum, brush/sweep, bleach.... then rinse, clean). The drain pipe covers will be installed so that the container cannot leak. All dry content is shoveled into a bucket and treated with bleach water (to kill any scrap algal fragments) before being transferred into contractor bags and disposed of at the local transfer station. The hinged door will be closed, and the entire container will be treated with bleach water using the backpack sprayer. Once the bleach treatment of the container is complete, all valve/drain pipe components will be soaked in bleach, and the container will be rinsed with fresh water.

14. When disinfecting the containers at the PMDP headquarters site (after offloading the nets /debris at H-Power), what kind of mitigation measures will PMDP implement to prevent the escape of algal fragments, sand, scraps of net or debris to nearby water bodies/Kawainui Marsh, after being rinsed out from the container during the disinfection process?

    The container can be dropped on a tarp, where it will then be cleaned out (vacuum, brush/sweep, bleach.... then rinse, clean). The drain pipe covers will be installed so that the container cannot leak. All dry content is shoveled into a bucket and treated with bleach water (to kill any scrap algal fragments) before being transferred into contractor bags and disposed of at the local transfer station. The hinged door will be closed, and the entire container will be treated with bleach water using the backpack sprayer. Once the bleach treatment of the container is complete, all valve/drain pipe components will be soaked in bleach, and the container will be rinsed with fresh water.

15. Would it be possible to make sure all rinse water is sterilized/disinfected and gets released from the container through a hose directly to sewer and to contain any additional algal fragments, sand, scraps of net or debris for disposal? Or if this is not possible – if the rinse water containing algal fragments, sand, scraps of net or debris was to be discharged on the surrounding ground, would it be possible for this to occur in an area with berms or to create berms to contain/prevent the runoff of any material/water in the area and to provide info on the distance to the nearest water body in this area?

    The container and all of its components are dry-cleaned first, and then treated with bleach using a back-pack sprayer. We then rinse the container, and are confident that the rinse water does not need to be contained, but can work on an appropriate plan to directly dispose of it in the sewer.

16. Can you please provide final details on the differences between the 2022 (last year) and 2023 (proposed this year) nuisance algae biosecurity plan based on feedback the MMB agency review and discussion with the vessel?

    <u>2022:</u>
    • Marine debris (nets) from CMZ were soaked in PMDP's bleach container with 10% sodium hypochlorite (bleach) solution for 1 hour

    • After bleach treatment, the nets were craned from bleach container into open-top containers (not water-tight) for transport to Honolulu

    • PMDP's bleach container was drained overboard in "bleach removal zone"

    • Upon arrival in Honolulu, the nets were individually bagged on deck and craned from the ship into roll-off dumpster containers to prevent water drip

    • Roll-off dumpsters transported the nets to H-Power directly for incineration

<u>2023 (this year's proposed plan):</u>
• Marine debris (nets) from CMZ will be stored in PMDP's new water-tight containers, then bleached inside the container using 10% sodium hypochlorite (bleach) solution for 1 hour

• After bleach treatment, the container is drained overboard in "bleach removal zone", and nets will not need to be moved again.... transport to Honolulu

• Upon arrival in Honolulu, the marine debris containers will be craned wholesale (up to 40,000 pounds total weight) from the ship onto a transport truck

• Marine debris containers transport the nets to H-Power directly for incineration

As you can see, the bleach treatment is the same as last year, but has eliminated the need for nets to be moved and agitated once they are craned and stored in the containers.

We are open to bleaching the nets for longer than 1 hour (2-4 hours), but are hesitant to begin traveling back to Honolulu while the containers are full of water. There are significant concerns from the ship with ship stability and dynamic weight shifting within the containers (water sloshing back and forth within container walls transiting at 10 kts). Without the need to crane nets back out of the containers or from the ship into roll-off containers, we strongly believe this biosecurity plan is more stringent than last year.

17. Follow-up question: DAR is supportive of this protocol outlined above, but requests that the upper limit of the proposed range of hours for bleaching to occur (4 hrs.) and for dry bleach pellets/pucks to be placed between each new layer of nets placed in the container each day, up until the final day when bleach with water will be added (as proposed in an earlier plan) – if this is still possible?

    Yes, we can follow DAR's requests.

18. What are our thoughts on the likelihood that ghost nets containing C. tumulosa could act as a vector to transport it to other reef systems within the Pacific? Does it present more of a risk to leave marine debris in the Monument if it, or the surrounding area, is found to contain C. tumulosa? If this type of debris were to be collected what additional measures could PMDP deploy (such as expandable load bars within the containers to hold the debris down or submersible pump connected to pvc pipes with holes that would spray the beach solution over the debris mass continuously).

    Yes, Chondria tumulosa can act as a vector to transport it to other reef systems within the Pacific, including the Main Hawaiian Islands. PMDP believes leaving large marine debris in the Monument will always present more risk to the surrounding area (habitat and wildlife). Large net masses, if left in place, will continue to destroy the local reef it is adhered to, until a large weather event moves

it to a new location. During its journey to a new location/reef, the large net mass will continue to roll across expansive shallow coral reef habitats, trampling and destroy living corals, entangling them, and picking them up in the net like a snowball. It may also pick up and carry Chondria tumulosa along the way. The ghost net may continue to drift within the atoll, outside of the atoll, within the CMZs (Kuaihelani and Manawai), but it will likely reach beyond CMZ boundaries. I believe that the procedures PMDP has in place, and with our proven professionalism and scientific background, it would be more beneficial for ghost nets with Chondria tumulosa to be removed from the reefs and shorelines, than to be left there. There will be increased risk of spreading Chondria tumulosa onto our equipment and small boats, but we feel strongly that the bleaching protocols we have in place are sufficient to ease those concerns. An example of how far these nets drift: Last year, a net was found on Kapou (Lisianski Island) with a tag from an adult female northern fur seal on St. George of Pribilof Islands in Alaska. She (the seal) was last sighted in the Aleutian Islands in 2014, and her tag was found at Kapou in 2022.

ENVIRONMENTAL COMPLIANCE

NEPA / HEPA: (check-one)

☒ Categorical Exclusion / Exempt Class: 1 & 5
☐ EA
☐ EIS

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

- An informal review of all aforementioned activities following section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1855(b)) was conducted. The outcome of this review may have require the applicant to adhere to other NMFS-prescribed conditions; such conditions would be reflected in the PMNM permit, prior to issuance.

- The proposed activities are covered under PMNM's programmatic ESA Section 7 informal consultation with National Marine Fisheries Service (NMFS). The outcome of this consultation may have required the applicant to adhere to other NMFS-prescribed conditions; such conditions would be reflected in the PMNM permit, prior to issuance.

The Department has made an exemption determination for this permit in accordance with Chapter 343, HRS, and Chapter 11-200.1, HAR. See Attachment ("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 PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT CONSERVATION AND MANAGMENT 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 UNDER PERMIT PMNM-2023-005")

Has Applicant been granted a permit from the State in the past? Yes ☒ No ☐

If so, please summarize past permits:

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

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

STAFF OPINION:

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

MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by 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 was approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB)

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 Native Hawaiian practices.

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,

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Brian J. Neilson, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL

_____

Dawn N. S. Chang, 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) Supplemental Chondria Biosecurity Plan (V3) (Final Draft 06.06.2023)

JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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CHAIRPERSON
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ACTING 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

June 23, 2023

TO: Division of Aquatic Resources File

THROUGH: Dawn N. S. Chang, 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 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 UNDER PERMIT PMNM-2023-005.

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-2023-005

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, and independently conducting two successful field marine debris removal missions 2022.

It is expected that PMDP would remove approximately 50 metric tons (MT) of marine debris per 30-day cruise, amounting a total of 100 MT of marine debris removed from the Monument in 2023.

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)
- Kure Atoll (Hōlanikū)

The activities covered under this permit would be authorized to occur via two separate 30-day cruises, the first between July 5 to August 1, 2023, and the second between August 26 to September 21, 2023. Expedition dates may vary 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).

In 2022 PMDP independently executed two large-scale underwater remote-islands marine debris removal missions to PMNM, successfully removing over 200,000 pounds of marine debris and cleaning and restoring over 2,700 acres of shallow coral reef habitat, under their own (PMDP) permit.

It is expected that PMDP would remove approximately 135,000 pounds (~67 tons) of marine debris per 30-day cruise, amounting a total of ~270,000 pounds or ~134 tons of marine debris to be removed from the Monument in 2023.

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).

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. 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.

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.

As discussed above, 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, the project can focus their 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), the project expects 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 the proposed project corresponds directly to the duration of the project.

Methods/Procedures:

<u>In-Water Marine Debris Survey and Removal Operations:</u>

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 aroundreticulated 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 the 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 was approved by the Division of Aquatic Resources (DAR) and the Monument Management Board (MMB) and will be adhered to by the applicant. 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 oftenentangled 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 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 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.

All transport and disposal activities are discussed in-depth in the Supplemental Chondria Biosecurity Plan that was 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).

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 Oʻahu 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 awarenessof 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 Hawaiʻi 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 Hawaiʻi 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).

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
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

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 diversare 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 thefield.

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).

Compliance Information Form (CIS Form) Updates

Note – In previous years a Compliance Information Form (CIS Form) would have been included with BLNR submittal with various pieces of information on project personnel, vessels utilized to access the PMNM, vessel inspection dates and associated vessel details, entry dates into the PMNM, etc. This information is often fluid and changing and updated on a daily basis, and therefore partially complete forms were often included as an attachment for the BLNR meeting in past years. In 2023 a transition was made to storing this information on a dynamic google spreadsheet; static PDF copies will no longer be included with the BLNR submittal, but the information can be now provided upon request with the most up-to-date data as it is modified up until the departing of the vessel for the PMNM. Some preliminary information for this expedition is as follows – other info can be requested as described above (if necessary):

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. Updated CIS data will be provided prior to each entry into the Monument.

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 2023, 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:

1. Marine debris operations collection at Midway Atoll (Kuaihelani) will not be permitted between June and the end of September 2023 due to the Midway Seabird Protection Program ("mouse project")

   Removed from the biosecurity plan (and permit). No PMDP operations will be conducted at Kuaihelani (Midway Atoll) in 2023.

2. Ensure operations end at Manawai (Peral and Hermes)

   Clarified in the biosecurity plan (and permit). Manawai is scheduled as the last stop.

3. How frequently has *C. tumulosa* been found on marine debris in the past, resulting in leaving said debris in place? Tracking this information would be helpful if not already done.

   Chondria tumulosa has been identified on less than 10 nets total (2021-2022).

4. What makes the container water tight – is it the rubber gaskets on each seam? Are there tests that have been conducted on the containers or other applications they've been used in that shows how they are water-tight?

   Walls are welded water-tight, with one hinged door with a rubber gasket. These containers are specifically made to transport water, waste (sewer), sludge, and other liquid trash, and proved to be water-tight last year (2022).

5. What is the mechanism to drain the container – is it pumped out or does a drain open on the bottom or side?

   Three (3) 4-inch welded drain pipe fittings with drain ball-valves are going to be installed at the base of each container side wall, for various draining options. It is naturally draining, but can be pumped out (PMDP purchased a pump last year but did not need to use it).

6. How many containers is PMDP planning on getting?

   Three (3) new containers, which can store all of the nets (~100,000 pounds total).

7. Confirming the same container(s) used on the 1st trip during the summer would not be used on 2nd trip (if trips are only one month apart) – PMDP will have different containers for 2nd trip because nets will desiccate and store in the containers for > 90 days?

   The containers will be used for both trips. Currently, PMDP does NOT plan on visiting any CMZs during Mission #1. Therefore, the containers full of non-CMZ nets will be unloaded at the Net Shed immediately after Mission #1 and prepped for Mission #2. Once PMDP visits CMZs on Mission #2, the containers will be stored on site, storing the nets to be desiccated.

8. Can PMDP provide more information on the new tool or method to cut the net – what does the tool/method consist of – is it used underwater as the divers are cutting the net free from the reef or above the water before putting the net on the small boat, or while upon the small boat?

   Last year, when fulfilling this additional cutting requirement as per the Biosecurity Plan, we found that most of our large nets were of appropriate acceptance size for H-Power/Covanta. There were only a handful of nets that required one or two additional cuts (in half), before they were of appropriate acceptance size. The tool that we used on the ship last year was a wire saw, which worked very well before we had our ship craning incident which caused us to have a safety stand-down. We have been working with the University of California at Berkeley Fung Fellowship Program (Engineering Department) for two semesters now (Spring 2022 and Spring 2023), and we hope to expedite the development of the new cutting tool, to cut the larger net masses net in the water, before pulling the net into the small boat. We would like to reiterate that we do not wish to expose our staff to any additional risk and hazards involving the ship's crane operations, if it can be avoided.

9. Could the new tool potentially increase fragmentation of algae while cutting if used underwater or above the water's surface (or would it be comparable to previous method)?

No. The new tool will not increase fragmentation of algae (more than cutting a net with a serrated dive knife) if used underwater or above the water's surface.

10. Follow-up question about the tool: Are you able to provide more details about what the new cutting tool is? Such as: Is it a new electrical powered saw or a modified wire saw of some sort?

    For the 2023 field missions, with the progress we have been making, it will likely be a modified manual wire saw with a manual tensioning tool. The tensioning tool allows the net mass to have continual spread as the divers use the wire saw to cut the net mass in half (or pieces).

11. Are any mitigation measures implemented while discharging the bleach water – i.e. is the discharge of the bleach water conducted in intervals or does it happen while the vessel is in transit so it disperses over a large area? Or does it occur in one attempt while the vessel is stopped or in motion?

    The discharge of water is slow, because of the drain hole size (3-4"). All bleach water discharge happens while the ship is transiting at 10 kts, so it disperses over a large area. This also causes concern for water sloshing in the containers (even with a lid) during the transit if we conduct a 72-hour bleach treatment.

12. Is there an estimate on the total volume of bleach water that would be potentially discharged?

    Each container is 48.8 cubic yards, which can hold up to 9,800 gallons of water when the container is empty. With each container filled to 75%, we predict each container may require up to 4,500-5,000 gallons each, for a total of 13,500-15,000 gallons. There are also concerns from the chartered vessel about fresh water supply if bleach water is lost during the transit back to the MHI.

13. Can PMDP provide more info on the process to clean out the container at the PMDP Headquarters site near Kapaa Quarry and the disposition of remaining algal fragments, sand, scraps of net or debris in the container (if applicable)?

    The container can be dropped on a tarp, where it will then be cleaned out (vacuum, brush/sweep, bleach.... then rinse, clean). The drain pipe covers will be installed so that the container cannot leak. All dry content is shoveled into a bucket and treated with bleach water (to kill any scrap algal fragments) before being transferred into contractor bags and disposed of at the local transfer station. The hinged door will be closed, and the entire container will be treated with bleach water using the backpack sprayer. Once the bleach treatment of the container is complete, all valve/drain pipe components will be soaked in bleach, and the container will be rinsed with fresh water.

14. When disinfecting the containers at the PMDP headquarters site (after offloading the nets /debris at H-Power), what kind of mitigation measures will PMDP implement to prevent the escape of algal fragments, sand, scraps of net or debris to nearby water bodies/Kawainui Marsh, after being rinsed out from the container during the disinfection process?

    The container can be dropped on a tarp, where it will then be cleaned out (vacuum, brush/sweep, bleach.... then rinse, clean). The drain pipe covers will be installed so that the container cannot leak. All dry content is shoveled into a bucket and treated with bleach water (to kill any scrap algal fragments) before being transferred into contractor bags and disposed of at the local transfer station. The hinged door will be closed, and the entire container will be treated with bleach water using the backpack sprayer. Once the bleach treatment of the container is complete, all valve/drain pipe components will be soaked in bleach, and the container will be rinsed with fresh water.

15. Would it be possible to make sure all rinse water is sterilized/disinfected and gets released from the container through a hose directly to sewer and to contain any additional algal fragments, sand, scraps of net or debris for disposal? Or if this is not possible – if the rinse water containing algal fragments, sand, scraps of net or debris was to be discharged on the surrounding ground, would it be possible for this to occur in an area with berms or to create berms to contain/prevent the runoff of any material/water in the area and to provide info on the distance to the nearest water body in this area?

    The container and all of its components are dry-cleaned first, and then treated with bleach using a back-pack sprayer. We then rinse the container, and are confident that the rinse water does not need to be contained, but can work on an appropriate plan to directly dispose of it in the sewer.

16. Can you please provide final details on the differences between the 2022 (last year) and 2023 (proposed this year) nuisance algae biosecurity plan based on feedback the MMB agency review and discussion with the vessel?

    <u>2022:</u>

    • Marine debris (nets) from CMZ were soaked in PMDP's bleach container with 10% sodium hypochlorite (bleach) solution for 1 hour

    • After bleach treatment, the nets were craned from bleach container into open-top containers (not water-tight) for transport to Honolulu

    • PMDP's bleach container was drained overboard in "bleach removal zone"

    • Upon arrival in Honolulu, the nets were individually bagged on deck and craned from the ship into roll-off dumpster containers to prevent water drip

• Roll-off dumpsters transported the nets to H-Power directly for incineration

<u>2023 (this year's proposed plan):</u>
• Marine debris (nets) from CMZ will be stored in PMDP's new water-tight containers, then bleached inside the container using 10% sodium hypochlorite (bleach) solution for 1 hour

• After bleach treatment, the container is drained overboard in "bleach removal zone", and nets will not need to be moved again.... transport to Honolulu

• Upon arrival in Honolulu, the marine debris containers will be craned wholesale (up to 40,000 pounds total weight) from the ship onto a transport truck

• Marine debris containers transport the nets to H-Power directly for incineration

As you can see, the bleach treatment is the same as last year, but has eliminated the need for nets to be moved and agitated once they are craned and stored in the containers.

We are open to bleaching the nets for longer than 1 hour (2-4 hours), but are hesitant to begin traveling back to Honolulu while the containers are full of water. There are significant concerns from the ship with ship stability and dynamic weight shifting within the containers (water sloshing back and forth within container walls transiting at 10 kts). Without the need to crane nets back out of the containers or from the ship into roll-off containers, we strongly believe this biosecurity plan is more stringent than last year.

17. Follow-up question: DAR is supportive of this protocol outlined above, but requests that the upper limit of the proposed range of hours for bleaching to occur (4 hrs.) and for dry bleach pellets/pucks to be placed between each new layer of nets placed in the container each day, up until the final day when bleach with water will be added (as proposed in an earlier plan) – if this is still possible?

    Yes, we can follow DAR's requests.

18. What are our thoughts on the likelihood that ghost nets containing C. tumulosa could act as a vector to transport it to other reef systems within the Pacific? Does it present more of a risk to leave marine debris in the Monument if it, or the surrounding area, is found to contain C. tumulosa? If this type of debris were to be collected what additional measures could PMDP deploy (such as expandable load bars within the containers to hold the debris down or submersible pump connected to pvc pipes with holes that would spray the beach solution over the debris mass continuously).

Yes, Chondria tumulosa can act as a vector to transport it to other reef systems within the Pacific, including the Main Hawaiian Islands. PMDP believes leaving large marine debris in the Monument will always present more risk to the surrounding area (habitat and wildlife). Large net masses, if left in place, will continue to destroy the local reef it is adhered to, until a large weather event moves it to a new location. During its journey to a new location/reef, the large net mass will continue to roll across expansive shallow coral reef habitats, trampling and destroy living corals, entangling them, and picking them up in the net like a snowball. It may also pick up and carry Chondria tumulosa along the way. The ghost net may continue to drift within the atoll, outside of the atoll, within the CMZs (Kuaihelani and Manawai), but it will likely reach beyond CMZ boundaries. I believe that the procedures PMDP has in place, and with our proven professionalism and scientific background, it would be more beneficial for ghost nets with Chondria tumulosa to be removed from the reefs and shorelines, than to be left there. There will be increased risk of spreading Chondria tumulosa onto our equipment and small boats, but we feel strongly that the bleaching protocols we have in place are sufficient to ease those concerns. An example of how far these nets drift: Last year, a net was found on Kapou (Lisianski Island) with a tag from an adult female northern fur seal on St. George of Pribilof Islands in Alaska. She (the seal) was last sighted in the Aleutian Islands in 2014, and her tag was found at Kapou in 2022.

Environmental Compliance:

NEPA / HEPA: (check-one)

☒ Categorical Exclusion / Exempt Class: 1 & 5
☐ EA
☐ EIS

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

- An informal review of all aforementioned activities following section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1855(b)) was conducted. The outcome of this review may have require the applicant to adhere to other NMFS-prescribed conditions; such conditions would be reflected in the PMNM permit, prior to issuance.

- The proposed activities are covered under PMNM's programmatic ESA Section 7 informal consultation with National Marine Fisheries Service (NMFS). The outcome of this consultation may have required the applicant to adhere to other NMFS-prescribed conditions; such conditions would be reflected in the PMNM permit, prior to issuance.

Has Applicant been granted a permit from the State in the past?		Yes ☒	No ☐
If so, please summarize past permits:			
Have there been any	a) violations:	Yes ☐	No ☒
	b) Late/incomplete post-activity reports:	Yes ☐	No ☒
Are there any other relevant concerns from previous permits?		Yes ☐	No ☒

Consulted Parties: 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 has been posted on the Monument Web site, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

Exemption Determination: After reviewing §11-200.1-15, HAR, including the criteria used to determine significance under §11-200.1-13, HAR, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit have been evaluated as a single action. Since this permit involves an activity that is precedent to a later planned activity, i.e., the same methodology used throughout the permit period, the categorical exemption determination here will treat all planned activities as a single action under §11-200.1-10, HAR.

2. The General Exemption Type #1 for Operations, Repairs or Maintenance of Existing Structures, Facilities, Equipment, or Topographical Features, Involving Minor Expansion or Minor Change of Use Beyond That Previously Existing and The General Exemption Type #5 for Basic Data Collection, Research and Experimental Management with no Serious or Major Environmental Disturbance Appears to Apply. §11-200.1-16 (a) (1) and §11-200.1-16 (a) (2), HAR, exempts the class of actions that involve the "operations, repairs or maintenance of existing structures, facilities, equipment, or topographical features, involving minor expansion or minor change of use beyond that previously existing" and "basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." This 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 and continued with PMDP in 2022. 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 and adherence to biosecurity procedures outlined under PMNM BMP 020 is applied in water or zones where applicable.

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 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 opportunites 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 practicioners 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 (includign 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 prioritze 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.
        -

<u>3.5: Coordinating Conservation and Management Activities.</u>

- 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)

Hoʻokuʻi: 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) Hoʻokuʻi-2: Ensure that policies and programs incorporate relevant cultural knowledge.
- Hoʻokuʻi-3: Use Hawaiian knowledge, language, values, traditions, and concepts throughout all areas of management and activities.
- Hoʻokuʻi-4: Manage data to support Monument and community based management.

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

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

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

- Hōʻike 2-1: Conduct research and monitoring in a manner that incorporates multiple perspectives, knowledge systems, and values.
- Hōʻike 2-2: Support, facilitate, and conduct Hawaiian methods of science and research.
- Hōʻike 2-4: Promote alignment of research initiatives of the co-managing agencies and permittees to advance Hawaiian research agenda items.

Kūkulu 3. Hoʻoulu: Inspire and grow thriving communities.

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

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

- Hoʻolaha 4-1: Develop educational programs and initiatives that are based on Hawaiian cultural values, concepts, and traditional resource management stewardship.

- Hoʻolaha 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.
- Hoʻolaha 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 ʻāina Hawaiʻi (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 aliʻi ka ʻāina, 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 fullfilled to keep the system pono (balanced). In our efforts of cleaning marine debris we maintain our cultural and genalogical connection to not just Papahānaumokuākea but for all Hawaiʻi.

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 than 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)
Address: 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)
Address: SEE ORIGINAL APPLICATION FOR CONTACT INFO
Email: SEE ORIGINAL APPLICATION FOR CONTACT INFO

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

Address: SEE ORIGINAL APPLICATION FOR CONTACT INFO

Phone: SEE ORIGINAL APPLICATION FOR CONTACT INFO
Fax: N/A
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.
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):

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

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

☐ Remaining ashore on any island or atoll (with the exception of Sand Island at Midway Atoll and field camp staff on other islands/atolls) between sunset and sunrise.

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

Location Description:
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/endangered/
For a list of marine species protected under the Endangered Species Act visit:
http://www.nmfs.noaa.gov/pr/species/esa/
For information about species protected under the Marine Mammal Protection Act visit:
http://www.nmfs.noaa.gov/pr/laws/mmpa/

7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:

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 ʻāina momona (fat lands, fertile or rich lands). We can see how our ʻāina 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 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 or through Hawaii's Department of Transporation "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.

_____1/31/2023_____

Signature Date

SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE BELOW:

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

DID YOU INCLUDE THESE?

☒ Applicant CV/Resume/Biography
☒ Intended field Principal Investigator CV/Resume/Biography
☒ Electronic and Hard Copy of Application with Signature
☐ Statement of information you wish to be kept confidential
☐ Material Safety Data Sheets for Hazardous Materials

Papahānaumokuākea Marine Debris Project (PMDP)
Supplemental *Chondria tumulosa* and *Acanthophora spicifera* Biosecurity Plan

Permit: TBD
PI: James Morioka, Kevin O'Brien (Papahānaumokuākea Marine Debris Project, PMDP)
Type: Conservation and Management, Research, Education -- 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

OUTLINE

IMPORTANT NOTES ABOUT PMDP MARINE DEBRIS REMOVAL OPERATIONS:

The Papahānaumokuākea Marine Debris Project (PMDP) is proposing to conduct marine debris removal operations at the following CMZ (*Chondria* Mitigation Zones) and non-CMZ islands and atolls within the Papahānaumokuākea Marine National Monument (PMNM) in 2023:

- **Non-CMZ**
    - Lālo (French Frigate Shoals)
    - Kamokuokamohoali‘i (Maro Reef)
    - Kamole (Laysan)
    - Kapou (Lisianski)
    - Hōlanikū (Kure Atoll)
- **CMZ**
    - Manawai (Pearl and Hermes Atoll) – LAST STOP before direct transit to Honolulu
    - No operations will be conducted at Kuaihelani (Midway Atoll) in 2023

Mission #1 – July 5 – August 2, 2023

- Lālo (opportunistic), Kamokuokamohoali‘i, Kamole, Kapou, Hōlaniku

Mission #2 – August 26 – September 22, 2023

- Kamokuokamohoali‘i (opportunistic), Kamole (opportunistic), Kapou (opportunistic), Hōlaniku (opportunistic), Manawai (LAST STOP)

Note: If nuisance/pervasive/invasive algae (i.e. *Chondria tumulosa* and/or *Acanthophora spicifera*) are discovered/identified at an island/atoll outside of known CMZs (Manawai and Kuaihelani), then that island/atoll will be considered the “LAST STOP” before direct transit back to Honolulu, and all marine debris (ghost nets) will follow “***CMZ:*** *MARINE DEBRIS (GHOST NET) SURVEY, REMOVAL, TRANSPORT AND DISPOSAL PROTOCOLS” (pg. 7-9).*

Disposal:

- PMDP is currently developing new cutting tools which will allow divers to cut large net masses into sufficiently small enough chunks in the field to eliminate the need for additional post-mission cutting and processing at Schnitzer Steel Co.
- Therefore, PMDP will be able to transport the marine debris in the marine debris storage containers directly from the chartered vessel to H-Power/Covanta Energy for direct incineration.

PMDP divers will be properly trained in algae identification (including *Chondria tumulosa* and *Acanthophora spicifera*) by NOAA ONMS PMNM personnel prior to departure on Mission #1.

- PMDP divers (Kevin O’Brien and James Morioka) have helped properly identify several algal blooms to the MMB, including the discovery of *Chondria tumulosa* at Kuaihelani (Midway Atoll) in 2021.

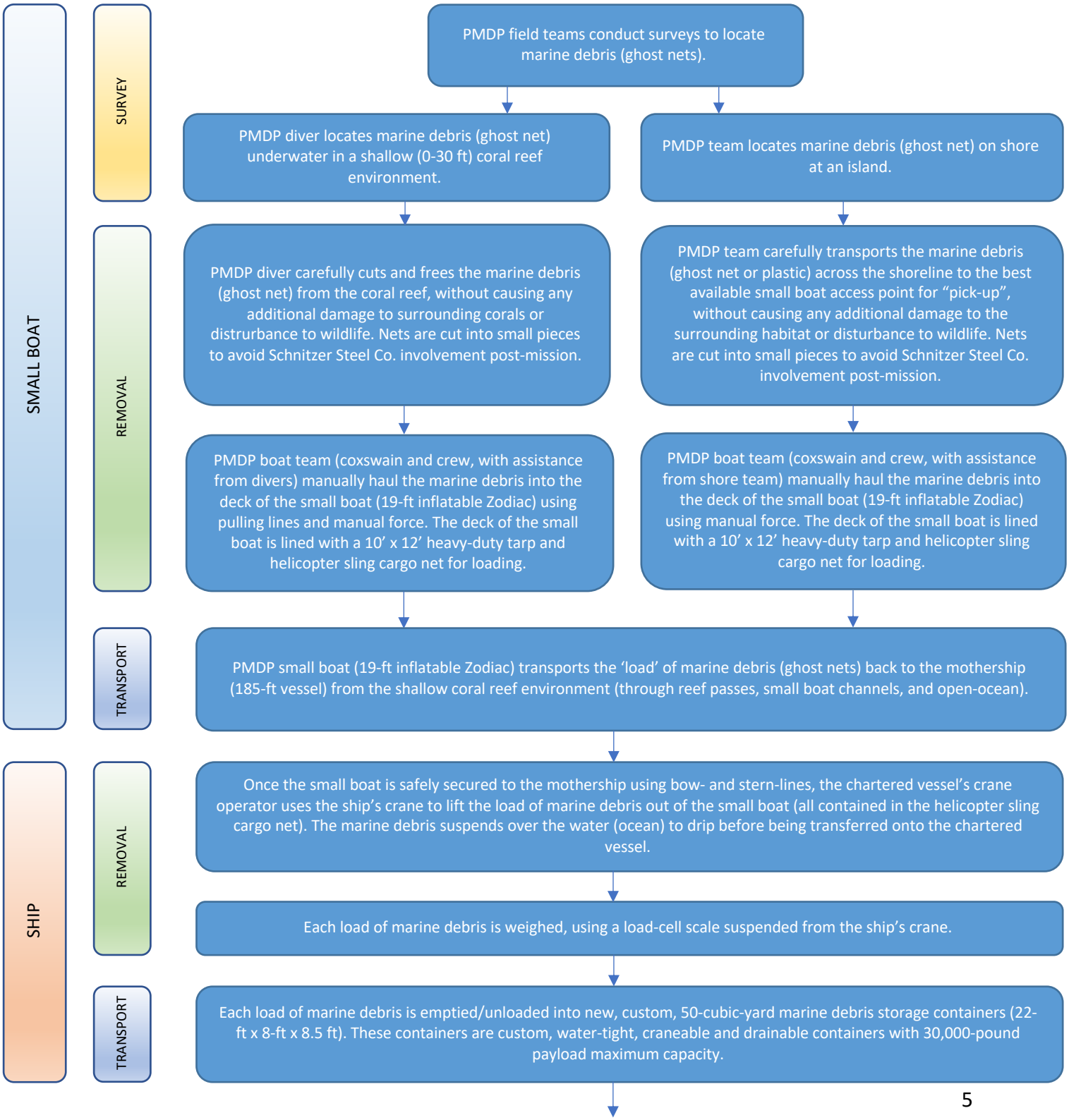
STANDARD UNDERWATER MARINE DEBRIS (GHOST NET) REMOVAL PROTOCOLS

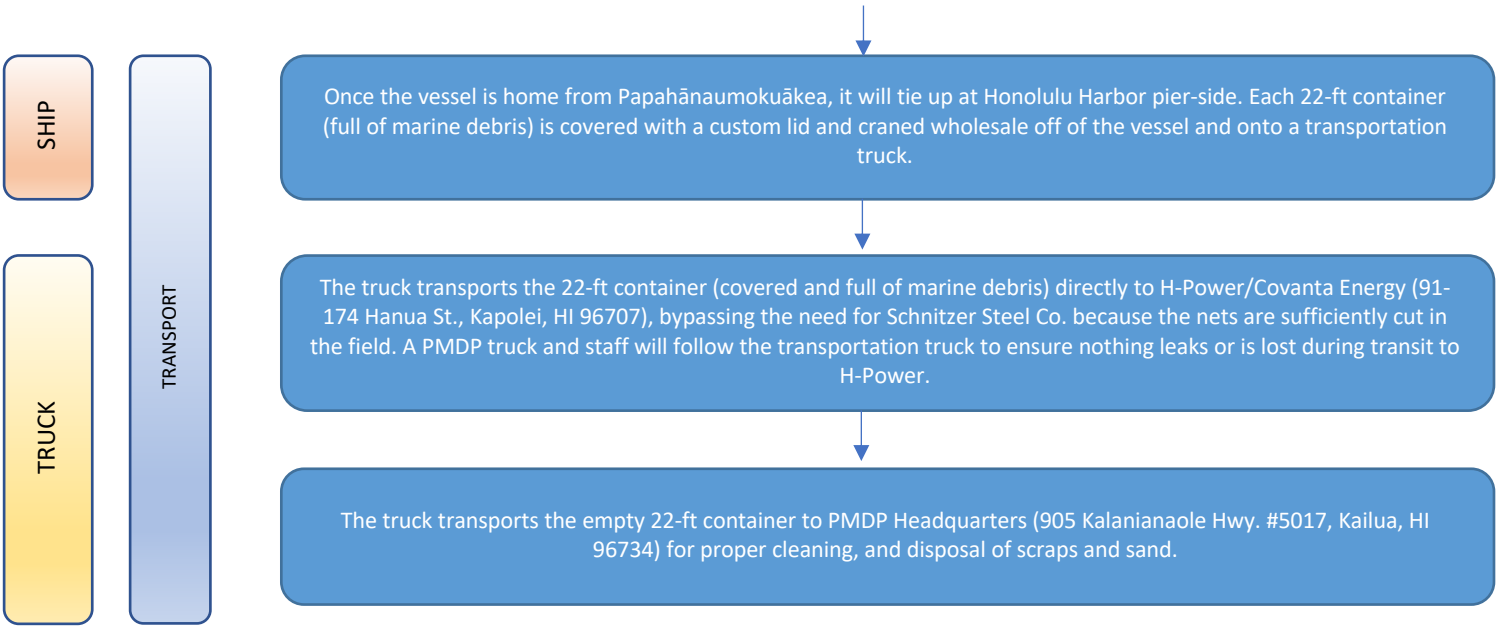
The decision to remove marine debris (ghost nets) from the shallow-water (0-30 ft depth) coral reef environment is based upon its disposition, depth, and potential for additional damage and entanglement.

NON-CMZ (CHONDRIA MITIGATION ZONE)

STANDARD MARINE DEBRIS SURVEY, REMOVAL TRANSPORT AND DISPOSAL PROTOCOLS AT LĀLO (FRENCH FRIGATE SHOALS), KAMOKUOKAMOHOALI'I (MARO REEF), KAMOLE (LAYSAN), KAPOU (LISIANSKI), AND HŌLANIKŪ (KURE ATOLL)

MISSION #1 – JULY 5 – AUGUST 3, 2023




SHIP
TRUCK
TRANSPORT
Once the vessel is home from Papahānaumokuākea, it will tie up at Honolulu Harbor pier-side. Each 22-ft container (full of marine debris) is covered with a custom lid and craned wholesale off of the vessel and onto a transportation truck.
The truck transports the 22-ft container (covered and full of marine debris) directly to H-Power/Covanta Energy (91-174 Hanua St., Kapolei, HI 96707), bypassing the need for Schnitzer Steel Co. because the nets are sufficiently cut in the field. A PMDP truck and staff will follow the transportation truck to ensure nothing leaks or is lost during transit to H-Power.
The truck transports the empty 22-ft container to PMDP Headquarters (905 Kalanianaole Hwy. #5017, Kailua, HI 96734) for proper cleaning, and disposal of scraps and sand.

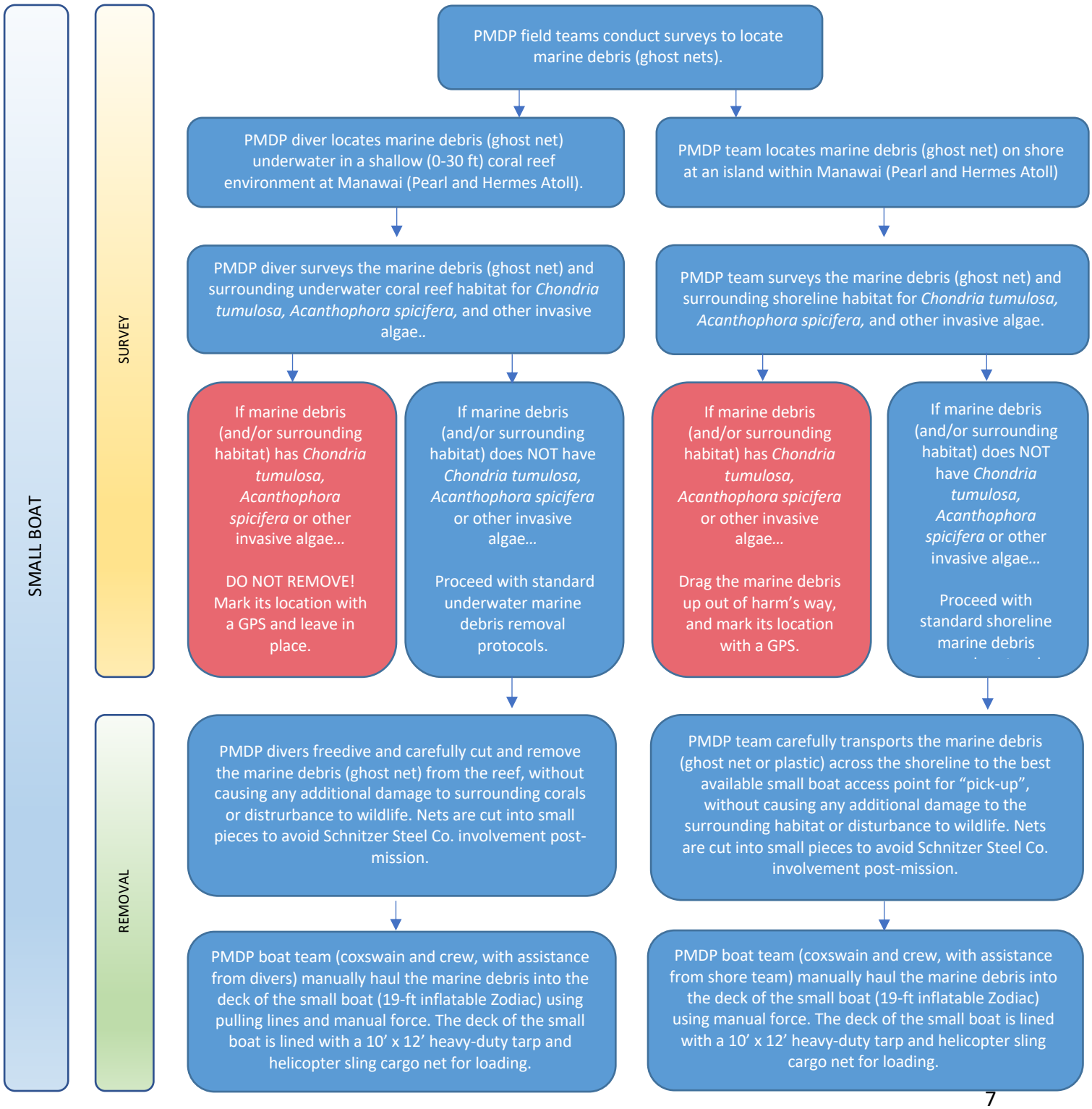
CMZ (CHONDRIA MITIGATION ZONE)

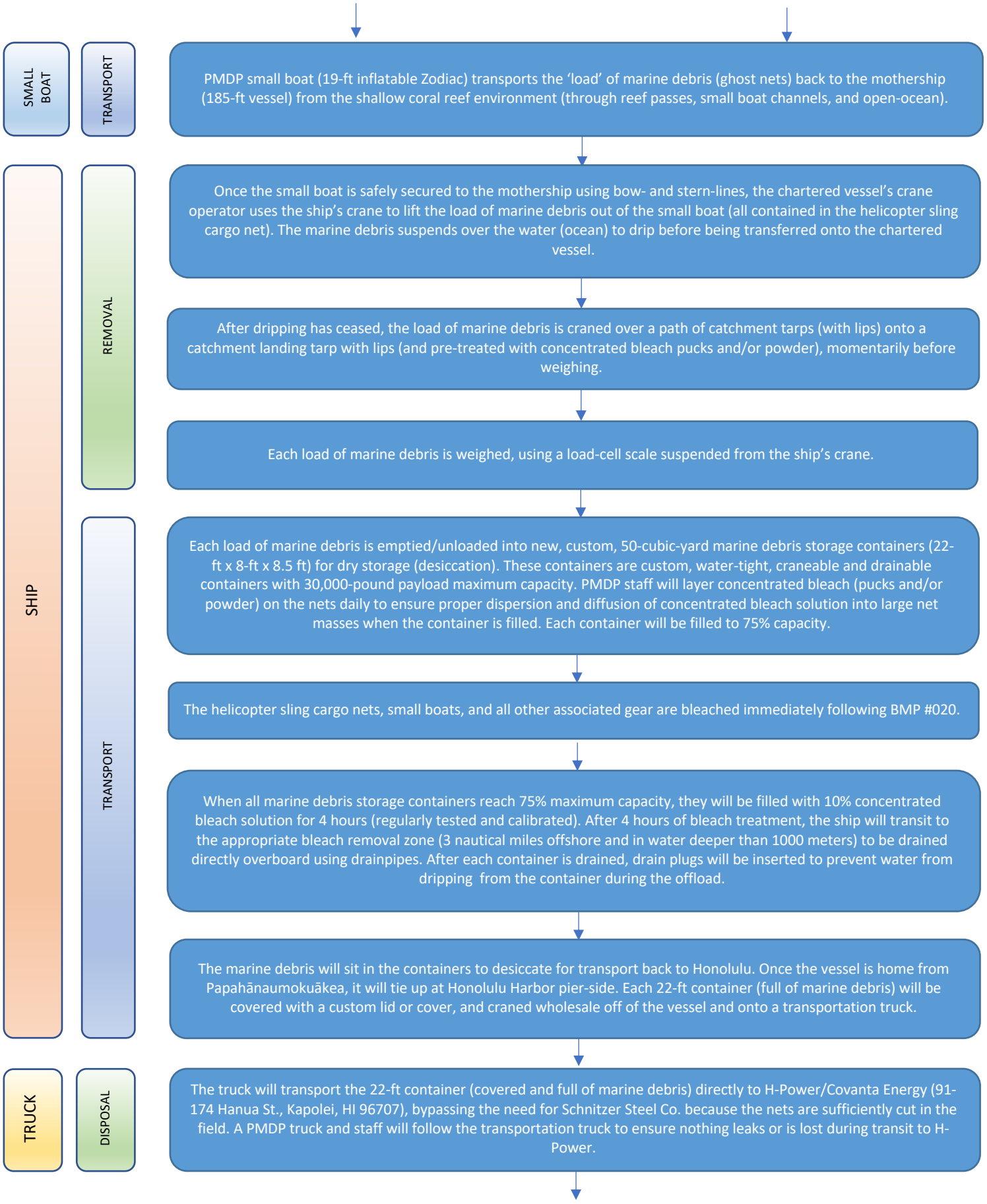
MARINE DEBRIS SURVEY, REMOVAL, TRANSPORT AND DISPOSAL PROTOCOLS

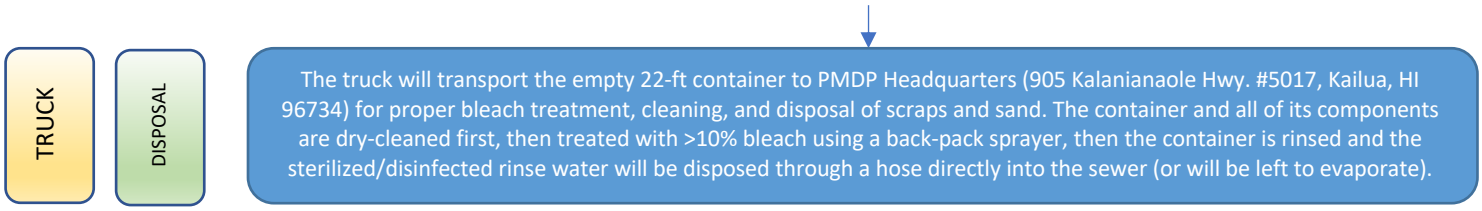
AT CMZs (CHONDRIA TUMULOSA AND ACANTHOPHORA SPICIFERA MITIGATION ZONES)

MANAWAI (PEARL AND HERMES ATOLL)

MISSION #2 – AUGUST 26 – SEPTEMBER 22, 2023




SMALL BOAT
TRANSPORT
PMDP small boat (19-ft inflatable Zodiac) transports the 'load' of marine debris (ghost nets) back to the mothership (185-ft vessel) from the shallow coral reef environment (through reef passes, small boat channels, and open-ocean).
SHIP
REMOVAL
Once the small boat is safely secured to the mothership using bow- and stern-lines, the chartered vessel's crane operator uses the ship's crane to lift the load of marine debris out of the small boat (all contained in the helicopter sling cargo net). The marine debris suspends over the water (ocean) to drip before being transferred onto the chartered vessel.
After dripping has ceased, the load of marine debris is craned over a path of catchment tarps (with lips) onto a catchment landing tarp with lips (and pre-treated with concentrated bleach pucks and/or powder), momentarily before weighing.
Each load of marine debris is weighed, using a load-cell scale suspended from the ship's crane.
TRANSPORT
Each load of marine debris is emptied/unloaded into new, custom, 50-cubic-yard marine debris storage containers (22-ft x 8-ft x 8.5 ft) for dry storage (desiccation). These containers are custom, water-tight, craneable and drainable containers with 30,000-pound payload maximum capacity. PMDP staff will layer concentrated bleach (pucks and/or powder) on the nets daily to ensure proper dispersion and diffusion of concentrated bleach solution into large net masses when the container is filled. Each container will be filled to 75% capacity.
The helicopter sling cargo nets, small boats, and all other associated gear are bleached immediately following BMP #020.
When all marine debris storage containers reach 75% maximum capacity, they will be filled with 10% concentrated bleach solution for 4 hours (regularly tested and calibrated). After 4 hours of bleach treatment, the ship will transit to the appropriate bleach removal zone (3 nautical miles offshore and in water deeper than 1000 meters) to be drained directly overboard using drainpipes. After each container is drained, drain plugs will be inserted to prevent water from dripping from the container during the offload.
The marine debris will sit in the containers to desiccate for transport back to Honolulu. Once the vessel is home from Papahānaumokuākea, it will tie up at Honolulu Harbor pier-side. Each 22-ft container (full of marine debris) will be covered with a custom lid or cover, and craned wholesale off of the vessel and onto a transportation truck.
TRUCK
DISPOSAL
The truck will transport the 22-ft container (covered and full of marine debris) directly to H-Power/Covanta Energy (91-174 Hanua St., Kapolei, HI 96707), bypassing the need for Schnitzer Steel Co. because the nets are sufficiently cut in the field. A PMDP truck and staff will follow the transportation truck to ensure nothing leaks or is lost during transit to H-Power.


TRUCK
DISPOSAL
The truck will transport the empty 22-ft container to PMDP Headquarters (905 Kalanianaole Hwy. #5017, Kailua, HI 96734) for proper bleach treatment, cleaning, and disposal of scraps and sand. The container and all of its components are dry-cleaned first, then treated with >10% bleach using a back-pack sprayer, then the container is rinsed and the sterilized/disinfected rinse water will be disposed through a hose directly into the sewer (or will be left to evaporate).

PROPOSED ACTIVITIES THAT ARE WITHIN THE BOUNDS OF PMNM BMP #020

- 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.
    - 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* or *Acanthophora spicifera* outside a CMZ, the permittee (James Morioka) will notify their respective PMNM permit POC (Phillip Howard).

- Vessels (small boats) will not conduct activities with the Main Hawaiian Islands within 30 days after departing a CMZ.

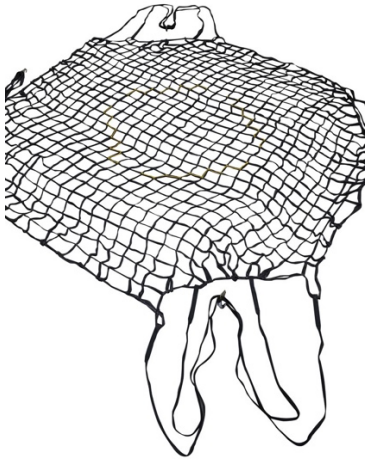
- Measures for collection of biological samples within a *Chondria tumulosa* and *Acanthophora spicifera* CMZ:
    - There will be no intentional collections of *Chondria tumulosa, Acanthophora spicifera,* or other benthic samples, unless directed to do so by the MMB (if *Chondria tumulosa* or *Acanthophora spicifera* are discovered at another location).
    - No live specimens of *Chondria tumulosa* or *Acanthophora spicifera* 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* or *Acanthophora spicifera.*

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):
    - Manawai – Pearl and Hermes Atoll – Mission #2 – August 26 – September 22, 2023

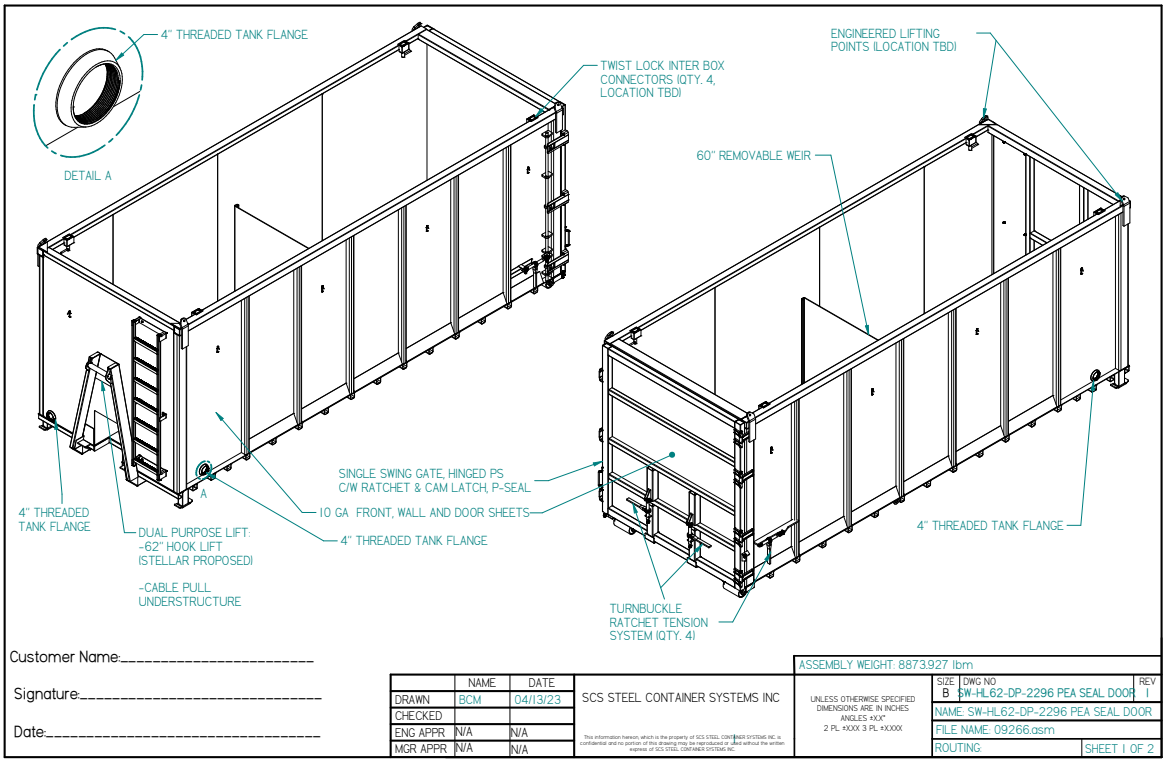
APPENDIX – PHOTOS OF MARINE DEBRIS REMOVAL AND STORAGE GEAR

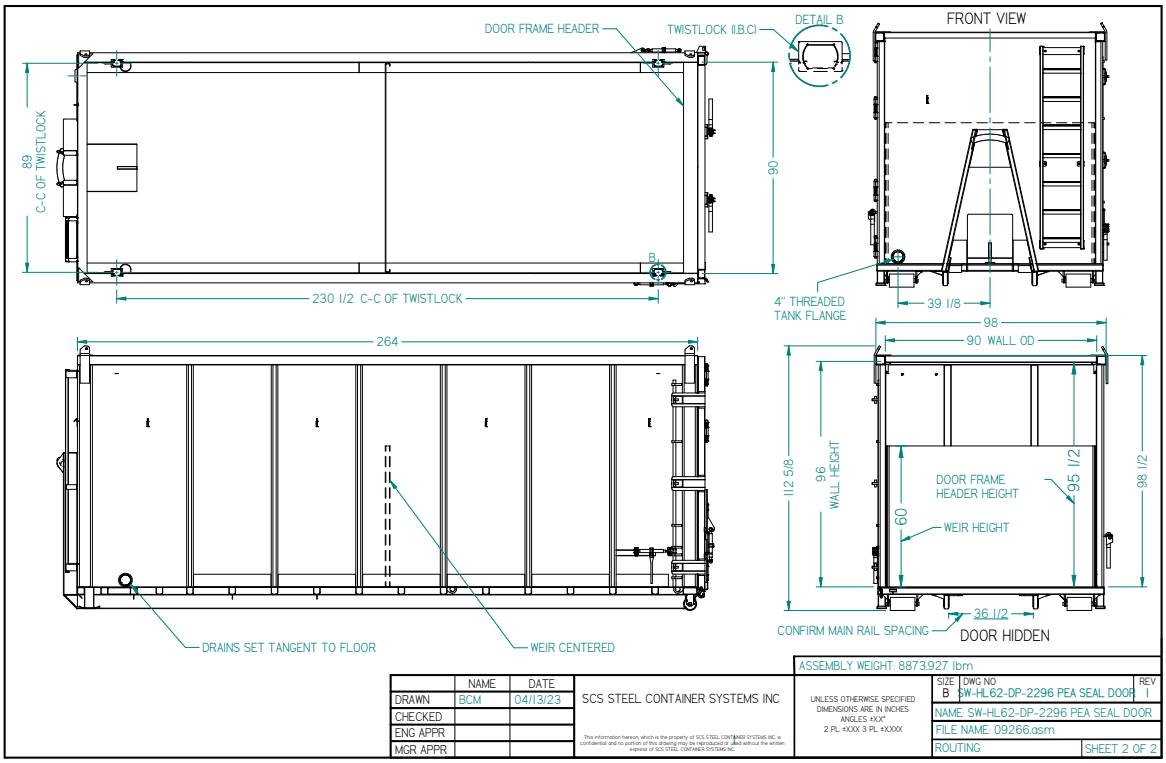
PHOTO 1 -- Helicopter Sling Cargo Net



PHOTOS 2 & 3 – Blueprints -- New, custom, 50-cubic-yard marine debris storage containers (QTY: 3) (22-ft x 8-ft x 8.5-ft)

Expected delivery date: June 9, 2023.





<u>PHOTOS 4 & 5</u> – Photos – New, custom, 50-cubic-yard marine debris storage containers (QTY: 3) (22-ft x 8-ft x 8.5-ft)


30,000 LBS
Max Capacity