Papahānaumokuākea Marine National Monument

EDUCATION 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: Hal L. Turley, W8HC
Affiliation: Pacific Islands DXpedition Group, Inc. (PIDXG)

Permit Category: Education
Proposed Activity Dates: September/October 2017
Proposed Method of Entry (Vessel/Plane): Vessel
Proposed Locations: Kure Atoll (Green Island)

Estimated number of individuals (including Applicant) to be covered under this permit: 12
Estimated number of days in the Monument: 30

Description of proposed activities: (complete these sentences):

a.) The proposed activity would…

The goals of this project are both scientific and educational, and fall into five primary categories:

• Communicating with other amateur radio operators world-wide, with special emphasis on two-way high frequency (HF) communications with Europe, the most difficult part of the world to reach from the mid-Pacific.
• Analyzing transient ionospheric conditions, especially those enabling radio signals between Europe and Kure Atoll via the “long path” across Antarctica.
• Comparing contact data against our group's January 2016 Palmyra Atoll DXpedition relative to the waning solar activity with the current Cycle 24.
• Field-testing and evaluation of new technologies utilizing amateur radio such as those needed for emergency communications during and after natural disasters.
• Promoting worldwide awareness of the PMNM's Mission and its vital role in preserving and protecting this important ecosystem prior to, during and after the DXpedition.

b.) To accomplish this activity we would ….

We would need to set up and operate amateur (ham) radio stations from Kure Atoll (Green Island) in order to make two-way radio contacts with other amateur radio operators around the world. The radio stations erected at separate beachside campsites would be staffed with a team of 12 FCC licensed amateur radio operators for a 10-day to two-week period at an agreed upon time during September/ October 2017.

We would require access and use of two temporary camp locations. These sites would be used for erecting radio operation stations and adjoining living quarters with sleeping, eating and sanitation facilities, provided that existing PMNM living quarters are unavailable to our team while on the Atoll. A typical radio camp would include tents, radio equipment and temporary antenna structures erected as close to the shoreline as possible. In addition, an electrical power generation infrastructure using portable generators would be included at each campsite location.

Timing is critical to the success of our operation and relative to the current solar cycle (Cycle 24). NASA/NOAA Geomagnetic predictions of sunspots, necessary for radio wave propagation as influenced by their affects on the ionosphere, have passed their apex in this 11-year cycle. Projections indicate that a 2017 operating schedule will still provide propagation opportunities but the waning solar cycle and associated decline of sunspots may limit the ability to achieve optimal results on higher frequencies. A September/October 2017 operating period for this DXpedition will pose less risk to the island's albatross population while also giving our team some favorable opportunity in this current solar cycle. The next solar peak, associated with Cycle 25, will not occur until 2024/2025.

c.) This activity would help the Monument by …

Primary benefit to the Monument from our activity would be through the education and outreach component. Due to the "rarity" of Kure Atoll as an amateur radio operating site, this DXpedition will literally have tens of thousands of "followers" and passive participants with the distinct potential of our operation reaching over 150 countries and every continent.

Immediately after application approval, the Pacific Islands DXpedition Group, Inc. will activate a website announcing all relevant information associated with our 2017 Kure Atoll DXpedition. This website will also include links to, and accompanying information about Papahānaumokuākea Marine National Monument, sharing the Monument's mission and vital role in preserving and protecting the Northwestern Hawaiian Islands (NWHI).

Existing websites from three of our most recent Pacific Islands DXpeditions (2012 NH8S Swains Island www.nh8s.org, 2013 K9W Wake Island www.wake2013.org and 2016 K5P Palmyra Atoll www.palmyra2016.org) currently indicate over 385,000; 312,000 and 205,000 "visitors" respectively.

Pre-operations announcements via social-media and press releases will be routinely distributed to a wide range of media sources worldwide immediately upon approval of this application. This would include an acknowledgement of PMNM and the Kure Atoll Wildlife Sanctuary that includes a pre-authorized thumbnail summaries highlighting their missions, goals and objectives.

During the operation, the team will acknowledge the work of the Kure Atoll Wildlife Sanctuary on Kure, especially with regards to the coral reef restoration, the plight of indigenous turtle, seal and seabirds, ongoing Monument debris removal efforts and any other relavant projects that Monument staff would allow, or want us to share in a brief on-the-air, PSA-like format.

At the conclusion of the DXpedition, thousands of full-color QSL postcards featuring PMNM-approved team and island photo(s) will be sent around the world to the ham operators who collect these cards. QSL cards are used as "official" verification of the two-way radio contact and are used for award purposes within the amateur radio hobby.

Also, follow-up journal and magazine articles will be written and submitted to various amateur radio publications around the world as narratives of our Kure Atoll DXpedition. Photo images will be included in these articles highlighting not only our radio operations but also with reference to the Monument and Kure Atoll Wildlife Sanctuary's mission, goals and objectives.

Other information or background:
Amateur radio (ham radio) is the use of designated radio frequencies for the purposes of private recreation, non-commercial exchange of messages, wireless experimentation, self-training, and emergency communication. The term "amateur" is used to specify persons interested in radio technique solely with a personal aim and without direct monetary or other similar reward, and to differentiate it from commercial broadcasting, public safety (such as police and fire), or professional two-way radio services (such as maritime, aviation, taxis, etc.).

The amateur radio service is established by the International Telecommunication Union (ITU) through the International Telecommunication Regulations. As a specialized agency of the United Nations, the ITU and member national governments regulate technical and operational characteristics of transmissions and issue individual stations licenses with an identifying call sign. Prospective amateur operators are tested for their understanding of key concepts in electronics and the host government's radio regulations. Radio amateurs use a variety of voice, text, image, and data communications modes and have access to frequency allocations throughout the RF spectrum to enable communication across a city, region, country, continent, the world, or even into space.

Amateur radio operators use their radio transmitters and receivers to communicate with other amateur radio operators as a hobby. The demand for this use of amateur radio within the PMNM and specifically Kure Atoll, is derived from a list of all the geographic locations that are designated as "countries." It becomes an objective for some amateur radio operators to successfully exchange two-way radio contact from each of these various "countries." Currently there are 339 "countries" on the official list compiled by the American Radio Relay League (ARRL), amateur radio's national organization within the United States and U.S. Territories.

The following link will access the online "official" list from 2009:
http://www.arrl.org/files/file/DXCC/dxcclist_mar_2016.txt

Please note that Kure I. is listed as KH7K and is counted as a separate "entity" from nearby Midway KH4 by reason of separate political ownership/administration.

Some amateur radio enthusiasts keep track of the number of "entities" or countries with which they have made radio contact. This exchange is documented on a postcard sent to them by the operator in the other "country." Over time, certain remote, uninhabited, or otherwise difficult-to-reach sites become very desirable transmission locations for amateur radio enthusiasts because transmissions from these locations are extremely rare. Kure Atoll cetainly falls into this category.

Generally, a large group of amateur radio operators will pool their money and sponsor a small group of people (8-20 individuals) to travel to these remote, uninhabited, or difficult-to-reach sites. The small group of ham operators will then set up stations and transmit for an approved period of time. During this operating period they normally operate in teams around-the-clock attempting to make contact as many two-way radio contacts as possible with other amateur (ham) radio operators around the world.

The rules of the American Radio Relay League's (ARRL) prestigious DX award program require that any transmissions from a "country" be done legally with the proper permits, so there has never been a problem with these groups visiting refuges without authorized permission.

The last amateur radio operation authorized from Kure Atoll was in 2005-- this being the K7C Team. Since that highly successful expedition, Kure has made a steady climb up the ranks in the “Most Wanted” category and is currently (May 2016) listed as the #10 “Most Wanted” location (out of 339 global) on one worldwide list but will certainly move further up the "Top 10" list with current and future 2016/2017 DXpeditions scheduled.

Amateur radio operators around the world are anxiously looking forward to a return of Kure Atoll to the airwaves so they can still make two-way contact with this remote location before the decline of this solar cycle renders such contacts more difficult or even impossible.

If granted approval for this permit request and our DXpedition becomes a reality, special emphasis will be with conducting two-way contacts with European amateur radio operators where the radio waves take a more difficult polar path. Demand for Kure Atoll is more significant from this part of the world with Kure currently listed as the #6 (but will be moving "up") "Most Wanted" entity according to ClubLog, a worldwide on-line radio logging database: http://www.clublog.org/mostwanted.php

Section A - Applicant Information

1. Applicant

Name (last, first, middle initial): Turley, Hal L.

Title: Pacific Islands DXpedition Group- Kure Atoll Project Coordinator

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

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

[redacted]

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

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

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, Teacher; Jane Doe, Videographer):
Louis Dietrich, N2TU: Pacific Islands DXpedition Group, Inc., Kure Atoll Project Operations Team Leader
Craig Thompson, K9CT: Pacific Islands DXpedition Group, Inc., Kure Atoll Project Logistics Leader

Other team members to be announced upon permit issuance.

Section B: Project Information

5a. Project location(s):

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

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

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

Location Description:
Green Island; camps (2) to be located in PMNM approved beach areas- See attached PowerPoint slides

5b. Check all applicable regulated activities proposed to be conducted in the Monument:
☐ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
☐ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
☒ Anchoring a vessel
☐ Deserting a vessel aground, at anchor, or adrift
☐ Discharging or depositing any material or matter into the Monument
☐ Touching coral, living or dead
☐ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
☐ Attracting any living Monument resource
☐ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
☐ Subsistence fishing (State waters only)
☐ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

6. Purpose/Need/Scope ***State purpose of proposed activities:***
The goal of this project is to set up and operate two amateur (ham) radio camps seaside with up to five stations transmitting simultaneously from Kure Atoll (Green Island). From these campsite locations, amateur radio operators participating on the DXpedition and working in shifts around-the-clock, will then make two-way radio contact with other amateur radio operators around the world.

As a secondary proposal, team members from the Pacific Islands DXpedition Group, Inc. will volunteer their professional consulting and labor services to the Monument while on the island and during their off-hour operating schedules. Team members will include a diverse mix of personnel with backgrounds in telecommunications, electrical engineering, information technology (networking and computers), electrical and mechanical maintenance and process and personnel safety. If there are any projects, potential or ongoing, that the team might assist with, or perhaps undertake during our stay, we would be willing to collaborate with the PMNM in advance and include non-radio use of our time assisting island personnel. We would incorporate such project(s) into our planning and operations scheduling activities pending adequate advance notification and coordination and as mutually agreed upon.

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

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

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

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?
This operation would require a minimal footprint with most activity confined to close proximity with shoreline. We are initially requesting that each of the two operationss campsite locations be approximately 200 meters (parallel to beach) by 100 meters.

Basically, this is a field radio operation that will be set up to support and sustain 4-person teams of amateur radio operators making worldwide radio contacts with other radio operators. Our team will follow the guidance and direction of Monument personnel at all times while within the Monument zone to ensure impact is at a minimum.

Since electrical power will be required to maintain our operation and assuming a continuous source is not currently available on Green Island, our group will be required to bring portable generators and sufficient fuel to power the gen-sets for our needs. Fuel transport to and from the island and the storage and use while on the island will comply with the pre-authorized safety plans. Special precautions will be made to mitigate possible release of fuel (gasoline and/or propane) through secondary containment safegards at an approved fuel depot location and an approved fire safety and HAZMAT response plan will be utilized.

Per PMNM Permit Coordinator instructions, we have included a PowerPoint presentation offering 4 potential campsite options. We are "flexible" in this regard but feel the options we have included give us the best possibility to achieve our goals while minimizing impact potential to the island's wildlife.

Although antenna structures located at the shoreline could pose as an obstacle or impairment to shore birds in flight, our team will utilize extra precautionary measures that have been successfully used on previous Pacific DXpeditions to reduce bird and animal risk hazards. Our team will utilize only vertical antennas to minimize our aerial footprint. Vinyl streamers will be attached to the antennas and guylines to increase visibility and reduce hazard potential.

Ground radial wires and coaxial feedlines will be covered with sand so there is no exposed wiring above ground to create hazards.

We will work with island officials to ensure safe placement of antennas, tents, generators and other equipment.

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?

Team members will be experienced DXpeditioners who have participated in previous Pacific island activities which also fell under management direction, vis-à-vis, 2009 Midway Atoll - K4M DXpedition; 2012 Swains Island - NH8S DXpedition and 2013 Wake Island Commemorative DXpedition; 2016 Palmyra Atolll - K5P DXpedition.

Field-proven and agency managed operating protocols from these previous operations and referenced in this application, will be followed in strict accordance with PMNM guidance and direction both prior to, and upon arrival in the Monument zone.

The actual operation and conduct of the team members in support of our team goals requires minimal interraction with the cultural, natural and historic resources. Once our camps are set up and the operating teams commence actual on-air transmissions, most personnel activity required is in support of sustaining around-the-clock radio contacts with other amateur radio operators worldwide.

Although no direct or residual effects are known or anticipated from our activities, we will work with PMNM to develop a near-zero impact plan in advance of our operations to ensure the intent and integrity of the Monement is maintained.

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.
Unfortunately there is no alternative to conducting an actual ham radio operation from an "approved" land-based location on the Kure Atoll. This requirement is spelled out in the rules of our hobby developed by the American Radio Relay League (ARRL) for it's DX Century Club (DXCC) awards program. From the DXCC Rules (Rule 8):

"All stations contacted must be "land stations." Contacts with ships and boats, anchored or underway, and airborne aircraft, cannot be counted. For the purposes of this award, remote control operating points must also be land based."

In a nutshell, a scoring system was developed decades ago by the ARRL for ham radio operators to keep track of the number of "Countries" or geographical "entities" they have contacted. Currently, Kure Atoll is one of the 339 specified geographical locations on this DXCC "Countries" List.

http://www.arrl.org/files/file/DXCC/dxcclist_mar_2016.txt

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?
With the possible exception of the additional bio-waste generated by personnel of our team, other "adverse impacts" should be nil.

Unless accompanied and authorized by island personnel, our team will NOT be entering into any coral areas, bird nesting or other fauna habitat areas or, any other "restricted" areas that might pose imminent risk to the Monument, its natural and historic resources, qualities and ecological integrity.

The actual footprint of our activity will be established and maintained at a minimum, both in physical size and as a potential obtrusion to the natural activities occcuring on the atoll. We are requesting each of our two beachside camps cover an area of

approximately 100m by 200m with each camp separated by a distance of not less than 1200 feet. We feel this footprint will ensure minimal impact while allowing our group optimal station and antenna design with our vertical antenna systems. Ultimately, PIDXG will attempt to proportionally optimize based on our allowable footprint and assigned operating locations. (See #8 and #14 below).

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

We are proposing a 14-day access to Green Island to meet the goals of our project (excluding vessel travel into the Monument zone). Typically, we would need 1 to 1.5 days to offload our supplies, set up our radio operating camps, antennas, power generation (if commercial power is not available) and living quarters if there are no available living quarters on the island. We would also require 1 to 1.5 days in order to break down our operations and perform thorough cleanup of all areas utilized. This would leave approximately 11 days of actual on-air operating time sufficient for making approximately 80,000 radio contacts with other stations around the world. This duration is consistent with previous Pacific operations from Swains Island NH8S in 2012, and Wake Island K9W in 2013 for achieving 100K contacts. "Last minute" Nature Conservancy (TNC) air transportation changes with our Palmyra Atoll K5P operation in January 2016 resulted in the "loss" of 3 operators (25% of our team) and as a consequence we achieved slightly over 75,000 world-wide contacts.

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

As project coordinator and team co-leader, I have experience with several amateur radio "field" events, emergency response communication drills, and participated as team member on the 3 Pacific Island DXpeditions referenced in this application: the 2012 NH8S Swains Island; 2013 K9W Wake Atoll DXpedition and the 2016 K5P Palmyra Atoll DXpedition. Additionally, in November 2015, I was a member of the VK9WA Willis Island DXpedition located in the Coral Sea off the northeast coast of Australia (www.vk9wa.com). Each of these DXpeditions successfully fulfilled their goals and objectives and resulted in no adverse impact to islands involved.

I will be happy to provide reference information attesting to the above if requested.

My professional background in chemical manufacturing with over 40 years of experience has provided me with an extensive background in personnel and process safety, emergency response and EH&S (Environmental, Health and Safety) support experience.

My most recent role prior to retirement from the Dow Chemical Company was as Shift Leader at its West Virginia Operations. Here I was the on-shift focal point at a 7-unit production facility with oversight of 16 on-shift operating personnel. This role supported

safe, incident-free and reliable operations to ensure the safe production, handling, storage and transfer of many extremely hazardous and toxic substances.

In this role I also implemented and coached life-critical standards and procedures and also have an extensive background in writing operating procedures and developing actual procedure use policies for application within the chemical manufacturing sector.

With this professional background, my experience on four previous successful Pacific DXpeditions as well as the selection and participation of an experienced team for this DXpedition, I am confident we can work closely with PMNM to develop operating standards and procedures that will mitigate any potential impacts during our visit and operations while within the Monument and specifically as your "guest" at Kure Atoll.

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.
The group's funding is primarily dependent on these sources;
• Participating team members' personal contributions, including travel, lodging, medical and emergency evacuation insurance and incidentals.
• Foundations- Worldwide Amateur Radio Foundations are solicited for contributions.
• Individual contributions by the Amateur Radio communities, clubs and Associations worldwide.

The Pacific Islands DXpedition Group is self-funded and members of the team will be entirely self-sufficient during our time within the Monument and while on the Atoll.

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.
Project execution will comply with all regulations for the PMNM, in coordination the PMNM managers and/or our point of contact during the planning phases of this DXpedition. This will include collaborative development of safety and compliance plans in close consultation with PMNM. Procedural methodology will be finalized and mutually agreed upon in accordance with all relevant rules, regulations and best practices stipulated in advance by the parties (Pacific Islands DXpedition Group, Inc. and the PMNM).

The Kure Atoll DXpedition team will follow an operational model and methodology consistent with what has been successfully utilized on previous Pacific DXpeditions and in consideration with on-island living and infrastructure requirements.

Although no direct or residual effects are known or anticipated from our activities, we will work with PMNM and affiliates to develop a near-zero impact plan in advance of our operations to ensure the intent and integrity of the Monument is maintained both during and after our visit to the Atoll.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?
Vessel has yet to be selected but will be compliant with mobile transeiver requirements and will comply with the requirements of Presidential Proclamation 8031.

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.
Again, protocols and procedures successfully utilized during prior amateur radio DXpeditions operating from previous Pacific managed areas will be adhered to and maintained while under the guidance of our host(s) from PMNM. These include the successful PIDXG DXpeditions falling under the regulatory auspicies of USFWS, TNC, USAF and the Jennings Family (Swains Island).

The amateur operators participating on the Kure Atoll team will follow the terms and conditions of their U.S. Federal Communications Commission (FCC) assigned license(s).

Previous amateur radio DXpeditions have been conducted on Kure Atoll, the most recent of which was the K7C DXpedition (NOT affiliated with the Pacific Islands DXpedition Group) in September/October 2005. This, as well other operations from U.S. "managed" areas, including recent aforementioned operations specifically conducted by members of the Pacific Islands DXpedition Group, Inc., does not participate in or condone "inapropriate," illegal or unauthorized activity.

8. Procedures/Methods:
The DXpedition team will follow PMNM compliance requirements for entry into the Monument territory and offloading supplies and equipment onto the Atoll from an approved vessel. Tentative plans will be for the vessel to remain anchored offshore at an authorized location. These tentative plans also call for the vessel to provide support services including food, water and shower facilities to the operators.

Said vessel will comply with all PMNM vessel discharge regulations and requirements while within the Monument zone.

Once all equipment is onshore, two shoreside operating areas, approximately 100m by 200m will be required for the DXpedition. We are requesting that these operating areas be located no less than 1200 feet apart in order for our stations to operate a frequency band simultaneously from both locations without causing intereference to the other.

Each site will contain new 12 foot by 12 foot (or similar) walled tents for our operating quarters. We tentatively plan to place plywood sheeting in the floors of these tents to provide a more solid surface. Both of the operating sites will also include resting/sleeping quarters. We anticipate the need for up to 6 suitable tents for our operating/living site with possibly 3 tents erected at each of the operating sites.

The camps will require large enough of a footprint to accommodate the operating tent(s), power station/fuel depot and proposed shoreline antenna requirements.

In an effort to safeguard and/or mitigate risk of bird strikes and entanglements associated with our antenna systems, we propose to utilize vertical antenna systems.

Vertical antenna configurations were used with success during the 2005 K7C Kure DXpedition and again at K4M during the 2009 Midway where both DXpeditions reported no incidents of bird strikes or entanglements.

We propose using a combination of adjustable vertical antennas, phased verticals, 4-square verticals and switchable vertical dipole arrays (SVDAs). (See attached PowerPoint file).

Although the vertical antennas are not as effective as their multi-element Yagi counterparts, they will still provide us some gain in the direction of orientation, again with an emphasis on Europe.

We will utilize highly visible vinyl streamers on all of the vertical antenna components as well as all guy ropes stabilizing the antennas. These streamers have proven very effective in mitigating bird strikes and entanglements during other bird sanctuary locations.

Using the vertical antenna configuration, we anticipate the footprint required for each of the two beachside locations to be in the order of approximately 100 meters by 200 meters. This will adequately allow us to utilize the four-square vertical arrays for our low band frequencies and provide some magnitude of gain.

Some of the vertical antennas will require ground radial wires fanning out from their bases. We propose burying the radials in sand to minimize obstruction to any land animals traversing that path.

Again, the PIDXG will work with PMNM officials and will adjust our antenna requirements based on PMNM's requirements and allowable areas of access and operation. We can and will scale back our antenna requirements if we are aware of limitations and restrictions but please know that the footprint of our two sites will be dictated by the antennas that we will be authorized to utilize on this DXpedition.

Once again, assuming no on-island power source is available, portable electrical power generators will be set up at each of the two station operating sites to provide electrical power to radios, power amplifiers, accessories, computers and lighting.

Sufficient fuel for the generators will be part of our cargo with the amount based on accepted type of system (gasoline or L.P.) for providing 24-hour a day operation for the

duration of our operation (11- 14 days proposed) as well as for the requirements of the generator if required for the team's living quarters.

Five (5) to six (6) portable, new and tested gen-sets will be acquired and brought as additional cargo to Kure Atoll for this DXpedition. These generators will be housed in temporary tent or tent-like structures and set on spill-containment devices. Fire extinguishers will be located at each site.

The living and operating camps will consist of canvas or lightweight plastic wall tents to adequately accommodate members of the team. Plywood sheeting or other approved material will be used as flooring material to ensure secure footing of sleeping cots, tables and chairs utilized during the operation. Sleeping quarters will include new cots and electrical power drops for lighting and personal use.

Sanitation facilities will be based on possible on-island availability or if unavailable, will follow PMNP compliance plan requirements.

Most of the time the radio operators will remain at the operating areas manning the radios in the tents and working in shifts to make the two-way contacts 24-hours a day worldwide. When not operating during their assigned shifts, the operators will be resting or performing support work for the DXpedition, or for the PMNM if requested.

When the DXpedition's allotted operating time ashore has lapsed to within 1 to 1.5 days of scheduled departure, the camps will be broken down, and all personnel will prepare to depart the island in accordance with PMNM compliance requirements.

Further, at the conclusion of this DXpedition, the Pacific Islands DXpedition Group, Inc. proposes to gift all non-radio related supplies, excluding personal belongings of individual team members, to the PMNM and leave these supplies on Kure for possible future use. This includes all remaining fuel, tents, cots, tables, lighting, portable fans, electric cables and tools.

Daily, thorough environmental, health and safety inspections (including housekeeping) will be conducted of our all of our occupied sites to ensure these areas are not compromised. All areas will be maintained in accordance with PMNM requirements and to their satisfaction. At the conclusion of the operation, a joint walkthrough will be scheduled to ascertain the condition of all of our team's operational and living areas to ensure these areas are returned to acceptable pristine conditions.

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:
N/A

Scientific name:
N/A

& size of specimens:
N/A

Collection location: N/A

☐ Whole Organism ☐ Partial Organism

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

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

• Specific site/location:
N/A

• Is it an open or closed system? ☐ Open ☐ Closed
N/A

• Is there an outfall? ☐ Yes ☐ No
N/A

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

• Will organisms be released?
N/A

10. If applicable, how will the collected samples be transported out of the Monument?
N/A

11. Is your proposed activity based on a State Department of Education Standards Based Curriculum? If so, describe:
N/A

12. If applicable, describe how you are collaborating with others in any way to reduce duplicative activities in the Monument or elsewhere?
Typical cycle time on activating "rare" entities such as Kure Atoll is about every 10-12 years (the last amateur radio operation from Kure was in Oct 2005). In other words, PMNM will continue to receive additional application requests for amateur radio operations for Kure if the Pacific Islands DXpedition Group, which has a successful track record with several previous Pacific DXpeditions is not granted this application request.

Once approval is granted for our project, press releases will immediately be generated to the global amateur radio community indicating our DXpedition as "on record." As in our previous Pacific Islands DXpeditions, if we are successful in our efforts for satisfying the "need" for two-way radio contact with Kure by amateur radio operators from all corners of the world, there should not be additional applications or the need for duplicative ativities from Kure for several years.

13. What materials, products or deliverables will be developed as a result of your proposed activity? Provide a time line for write-up and publication of information or production of educational materials:
-- Immediately following application approval, the Pacific Islands DXpedition Group will activate a website announcing all relevant information associated with our 2017 Kure Atoll DXpedition. This website will be updated routinely providing our audience with news relavant to the DXpedition. This website will also include links to, and accompanying information about Papahānaumokuākea Marine National Monument, sharing the Monument's mission and vital role in preserving and protecting the Northwestern Hawaiian Islands (NWHI). This website will continue to remain active after the conclusion of our project and, based on website data from our previous DXpeditions, generate hundreds of thousands of "impressions" or "hits."
-- A Kure Atoll 2017 DXpedition Facebook page will be activated upon approval and will include approved links to PMNM and/or Kure Atoll web-related information.
-- Press releases will be routinely delivered to scores of amateur radio publications and on-line news and information sources announcing our activity and will include a PMNM approved boiler plate mission summary if desired by the PMNM.
-- At the conclusion of the DXpedition, thousands of full-color QSL postcards featuring PMNM-approved team and island photo(s) will be sent around the world to the ham operators who collect these cards. QSL cards are used as "official" verification of the two-way radio contact and are used for award purposes within the amateur radio hobby.
-- A PowerPoint presentation covering our DXpedition will be developed by the team following the DXpedition and will be shown at various amateur radio conventions and radio club venues.
-- We will make an effort to provide real time Internet updates of our operation during our DXpedition via satellite uplink or, utilizing existing Wi-Fi internet access if it is available to us at Kure.

-- Follow-up journal and magazine articles will be written and submitted to various amateur radio publications around the world as narrative summaries of our Kure Atoll DXpedition and the findings associated with our propagation research results.

As an example, from our most recent (January 2016) K5P Palmyra Atoll DXpedition articles have been submitted and/or published in the following:
-- Northern California DX Foundation Newsletter (USA)
-- International DX Foundation Newsletter (USA)
-- German DX Foundation Newsletter (Germany)
-- Carolina DX Association (USA)
-- QST Magazine (USA)
-- Twin Cities DX Association (USA)
-- Radio Society of Great Britain (United Kingdom)
-- Clipperton DX Foundation (France)
-- Mediterraneo DX Club (Italy)
-- EU DX Foundation (Europe)
-- CQ Ham Radio (Japan)
-- GMDX (Scotland)
-- Eastern Iowa DX Association (USA)
-- Passau DX Club (Germany)
-- Funkamateur (Germany)

Manuscripts will be submitted within 3-6 months following the successful conclusion of the Kure Atoll DXpedition project.

14. List all specialized gear and materials to be used in this activity:
- Five solid-state amateur radio transcievers (transmit/receive)
- Five solid-state power amplifiers
- Five DC power supplies
- Five Laptop computers each wireless keyboards and mouse
- 2 sets of bandpass filters
- Headsets with mic, footswitches
- 5 Vibroplex Morse code keys
- 2 Antenna analyzers
- 2 Digital Volt Ohm Meters
- Five portable (gasoline fueled) electric generators
- Electrical cabling, lighting systems and miscellaneous

Antenna Systems (refer to attached PowerPoint presentation)

Two (2) SteppIR (BigIR) vertical antennas- 33 feet tall
Eight (8) Switchable Vertical Dipole Arrays (SVDAs) - Height is determined by frequency but tallest is approximately 33 feet

One 4-Square vertical phased array for the 40m band. Each of the 4 vertical elements is approximately 33 feet tall and the square with separation of each element at approximately 105 feet
One 4-Square vertical phased array for the 30m band. Each of the 4 vertical elements is approximately 23 feet tall and the square with separation of each element approximately 66 feet
One 4-Square vertical phased array for the 80m band. Each of the 4 vertical elements is approximately 66 feet tall and the square with separation of each element approximately 200 feet
One phased vertical antenna system for 160m amateur band utilizing two 66 foot vertical elements with separation of each element approximately 134 feet
One Shared Apex Loop Array receive antenna utilizing a single 33 foot vertical element with four down-wires spanning approximately 40 feet from the base.

15. List all Hazardous Materials you propose to take to and use within the Monument:
Assuming a "commercial" source of electrical power cannot be acquired / purchased for our needs, we will need to bring adequate fuel supplies to power electrical generators which the group will include as part of its cargo. Fuel would include gasoline and/or propane (refer to attached MSDS for each).

16. Describe any fixed installations and instrumentation proposed to be set in the Monument:
No "permanent" fixed installations and/or instrumentation will be necessary for successful implementation of this project. However, temporary antenna installations (see item #14 above) will be required. These will be removed at the conclusion of our operation.

17. List all Applicants' publications/references directly related to the proposed project:

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.

_____ _____

Signature Date

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

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

DID YOU INCLUDE THESE?

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