

Draft Compatibility Determination

Title

Compatibility Determination for Amateur Radio Operation, Jarvis Island National Wildlife Refuge

Refuge Use Category

Outdoor Recreation (General)

Refuge Use Type(s)

Amateur radio expeditions

Refuge

Jarvis Island National Wildlife Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

Refuge Purpose(s):

On June 27, 1974, the Secretary of the Interior designated Jarvis Island and its territorial sea, extending to the 3 nautical mile (nmi) limit, as a unit of the National Wildlife Refuge System to be “administered under the general regulations for the National Wildlife Refuge System published in Title 50, Code of Federal Regulations (39 FR 2790).

“... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” (Fish and Wildlife Act of 1956, as amended [16 U.S.C. 742a-742j, not including 742d-1]).

Additional information regarding the management direction for the Refuge is contained in the USFWS 1973 Biological Ascertainment Report: “... the preservation of the complete ecosystem, terrestrial as well as marine. Special emphasis to be given to the large seabird nesting colonies”.

Presidential Proclamation 8336

On January 6, 2009, President George W. Bush signed Presidential Proclamation 8336 making Jarvis Island National Wildlife Refuge (NWR) part of the much larger Pacific Remote Islands Marine National Monument (Monument) under the authority of the Antiquities Act (34 Stat. 225, 16 U.S.C. 431). This proclamation included the existing

Refuge and further protected Marine National Monument resources out 50 nautical miles from shore. The Proclamation, as well as other proclamations and secretarial orders that followed, did not change Refuge purposes, but provided additional management direction.

Under Presidential Proclamation 8336, Monument resources are administered by the Secretary of the Interior through the U.S. Fish and Wildlife Service (USFWS), in consultation with the Secretary of Commerce through the National Oceanic and Atmospheric Administration (NOAA). The Secretary of Commerce through NOAA in consultation with the Secretary of the Interior through the USFWS, has primary responsibility with respect to fishery related activities seaward of 12 nm. The Proclamation further states “For the purposes of protecting the objects identified above, the Secretaries of the Interior and Commerce, respectively, shall not allow or permit any appropriation, injury, destruction, or removal of any feature of this monument except as provided for by this proclamation or as otherwise provided for by law” (Presidential Proclamation 8336).

Secretarial Order 3284

On January 16, 2009, the Secretary of the Interior delegated the proper care and management of the Monument to the USFWS: “... The Director shall manage the emergent and submerged lands and waters out to 50 nautical miles from the mean low water lines of Howland, Baker, and Jarvis Islands as units of the Pacific Remote Islands Marine National Monument and units of the National Wildlife Refuge System.” The Secretary also extended the Refuge boundary to 12 nautical miles from shore, and provided additional direction for Monument management, specifically that the Service shall:

“... for each of the areas subject to this delegation, the [Fish and Wildlife Service] Director shall provide for the proper care and management of the monument, including all objects of scientific and historic interest therein; the conservation of fish and wildlife; and the development of programs to assess and promote national and international monument-related scientific exploration and research” (Department of the Interior Secretarial Order 3284).

Presidential Proclamation 9173

On September 25, 2014, President Barack Obama signed Presidential Proclamation 9173 expanding the boundaries of the Monument under the authority of the Antiquities Act (34 Stat. 225, 16 U.S.C. 431). This proclamation expanded the boundaries of the waters and submerged lands of Jarvis Island and Wake and Johnston Atoll that lie from the Monument boundary established in Proclamation 8336 to the seaward limit of the U.S. EEZ (as established in Proclamation 5030 of

March 10, 1983). Nothing in the proclamation changed the management of the Monument as specified in Proclamation 8336. The Secretary of the Interior, in consultation with the Secretary of Commerce, shall have primary responsibility for management of the Monument Expansion pursuant to applicable legal authorities. The Secretary of Commerce, through the National Oceanic and Atmospheric Administration, and in consultation with the Secretary of the Interior, shall within the Monument Expansion have primary responsibility with respect to fishery-related activities regulated pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), and any other applicable legal authorities.

Secretarial Order 3284, Amendment No. 1

On August 31, 2016, Secretary's Order 3284 was amended to delegate the Secretary of the Interior's management responsibilities for the Monuments established under the four Proclamations cited in Section 2, and to provide new management directions with respect thereto, to the Director of the USFWS. This Order directed the USFWS to manage these Monuments under the Refuge management authorities, consistent with these proclamations: "... The Director shall manage the emergent and submerged lands and waters of the Howland, Baker, and Jarvis Islands units of the Pacific Remote Islands Marine National Monument and the waters and submerged lands of the Jarvis Island unit of the Monument Expansion as units of the National Wildlife Refuge System."

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

The Wilderness Act

The Wilderness Act of 1964 (Pub.L. 88-577) was signed into law by President Lyndon B. Johnson on September 3, 1964. It created the legal definition of wilderness in the United States and created the National Wilderness Preservation System. Within wilderness areas, the Wilderness Act strives to restrain human influences so that ecosystems can change over time in their own way, free, as much as possible, from human manipulation.

During the development of the Comprehensive Conservation Plan (CCP) for Jarvis Island NWR (USFWS 2008), both a Wilderness Inventory and Wilderness Study were completed. After evaluation of the quality of wilderness values, manageability, and minimum management requirements, several alternatives were developed and analyzed for wilderness designation. The Preferred Alternative provided that both

Wilderness Study Area (WSA)-A and WSA-B, which include the emergent lands and the submerged lands and associated water column of Jarvis Island NWR, would be recommended for inclusion in the National Wilderness Preservation System (NWPS). However, neither of the study areas or any other areas within Jarvis Island NWR have been proposed for wilderness designation, but Jarvis Island NWR has been managed since its inception to preserve its wilderness values and characteristics.

Description of Use

Is this an existing use?

Yes, this compatibility determination reviews and replaces the July 28, 2010 compatibility determination for Amateur Radio Operations on Jarvis Island NWR.

Amateur radio operation is an existing use at Jarvis Island NWR; however, it is not a common use. The Pacific Remote Islands Marine National Monument, and its predecessor, the Pacific Reefs National Wildlife Refuge Complex (Complex) receive sporadic requests (every few years) for amateur radio operators to work from the various remote island refuges. Since 1983, the Complex has permitted six amateur radio operator groups to access nearby Howland Island National Wildlife Refuge (NWR) (three permits), Baker Island NWR (one permit), and Jarvis Island NWR (two permits).

What is the use?

Amateur Radio Operations (also called ham radio, DX, or DXpeditions). Camping expeditions are conducted by licensed amateur radio operators to remote locations to use transmitters and antennas to pursue contact with distant amateur radio stations.

Amateur radio operators are those who use radio transmitters and receivers to establish non-commercial communications with other amateur radio operators around the world as a hobby. Amateur radio operators compete to be the first, within a set period of time, to travel to a remote location where amateur radio activity is infrequent or uncommon where they broadcast and make contact with other operators around the world. Generally, a group of amateur radio operators will travel to a remote site and transmit for a period of time during which they will attempt to contact as many other operators as possible. This interchange is documented on a postcard (QSL card) that is then sent to the other operators to document their success at establishing contact with the remote site. The amateur radio operators strive for both the highest number of contacts possible and the most distant contact. The rules of the amateur radio competitions require that any transmissions from

these remote sites be done legally with the proper permits.

Additionally, remotely located islands are often designated as “countries.” Some amateur radio enthusiasts keep track of the number of “countries” with which they have made a radio contact. This interchange is documented on a postcard (QSL card) and is 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 the site are rare. The rules of these radio contests require that any transmissions from a “country” be done legally and with proper permits.

Is the use a priority public use?

No

Where would the use be conducted?

On Jarvis Island NWR and the surrounding Refuge waters, a typical amateur radio operation camp will be set up near or on the beach in front of the day beacon and slightly north (see Attachment 1, Map); however, this location may be altered by the Refuge Manager and/or Resource Monitor depending on conditions on island. The camp will have a footprint of approximately 900 square meters (9,699 square feet) to accommodate camping and working spaces. All equipment will be used and maintained in the area of the camp. Access to Jarvis Island NWR will be gained by a small boat through a channel in the coral reef that already exists. This small beach access point is directly in front of the day beacon and slightly north. Some expeditions may opt to stay on the vessel and will only set up their radio equipment on the island and access the equipment wirelessly, reducing the overall footprint.

When would the use be conducted?

Expeditions could occur year-round, and operations will occur 24 hours per day for a period of up to 12 days of broadcast, with 14 days on island. Amateur radio expeditions will be considered as requested and then only when it is logistically possible and safe for humans to visit Jarvis Island NWR. We would require at least six months between amateur radio expeditions; therefore, a maximum of two visits per year could occur. However, actual visits are expected to be infrequent. Historically, groups have asked to visit Jarvis Island NWR every 7 to 20 years.

How would the use be conducted?

Public access to Jarvis Island NWR, including for amateur radio expeditions, is managed through Special Use Permits (SUP) issued by the Refuge. The SUP authorizing this use will include stipulations, and additional conditions and restrictions to ensure compatibility and mitigate for potential anticipated impacts to refuge resources.

Proposals to visit Jarvis Island NWR will be considered and evaluated based on impacts to wildlife, habitat, facilities, operational capacities, and other authorized uses of the Refuge. A lottery system will be used to select one amateur radio expedition group when multiple groups request the same expedition time-period. Amateur radio expeditions wishing to access Jarvis Island NWR will be notified from the outset that they must be accompanied by a member of the Refuge staff or a designated Refuge representative (Resource Monitor). If Refuge staff are not available, the expedition must hire a Resource Monitor that is approved by the Refuge who has previous experience at Jarvis Island NWR, or a USFWS-approved monitor with suitable proxy habitat experience.

All costs associated with administering and managing the expedition (salary, travel, food, lodging, and quarantine measures associated with the Resource Monitor accompanying the group) will be paid by the group through their SUP fee.

A typical amateur radio expedition will include the following: board a vessel in Honolulu, Hawaii, or Pago Pago, American Samoa; transit to the Refuge; land ashore; and set up radio equipment and a camp, if necessary. Since anchoring is not allowed within the Refuge (Jarvis Island NWR and its territorial sea extending to the 3 nautical mile (nm) limit), the vessel that delivered the group will remain “live boating” offshore for the entire length of time the equipment and camp (if necessary) is ashore. Deployment and breakdown of the camp and radio equipment usually takes up to 2 days (one day on each end of the trip).

A typical camp will consist of four canvas or lightweight plastic wall tents, toilet facilities, an electrical power supply (a combination of small generators, batteries, or solar panels), several radio antennae that can be up to 45 feet (14 meters) tall (with or without guy ropes depending on wind conditions), and ground wires running from each antenna to the ocean. The camp will be set up in a flat location, typically on the beach area to avoid overlap with nesting areas and to improve antenna performance. The number, heights, and configuration of the antennas requested have varied through the years but can be designed and deployed to minimize bird collision hazard while still achieving the group's goals.

A sizeable amount of cargo is required for such an expedition which will typically include: working, sleeping, and cooking supplies for up to 12 personnel; electricity supply (solar systems or generators with up to 200 gallons of fuel); up to 600 gallons of drinking water (2-gallons per person per day); enough food to provide 504 on-island meals and 250 emergency meals in case departure is delayed; camping equipment; radio antennas and equipment; sanitation equipment and supplies; and backups for essential gear.

Once the required equipment is deployed, the amateur radio operators will transmit radio signals around the world for the entire duration of their time on island (or

offshore on the ship), contacting approximately 80,000 other radio stations. Amateur radio operations will occur for up to 14 days on the island allowing up to 12 days of transmissions between set up and break down periods. Radio operators alternate between transmitting and sleeping. Those not actively transmitting are support personnel who are responsible for cooking and transportation support. A designated Refuge staff member or representative (Refuge Resource Monitor) will be present at all times when any expedition members are on the island (to ensure compliance with regulations and prevent damage to the natural and historic resources).

Special equipment, facilities, or improvements necessary to support the use:

No improvements to the Refuge are necessary to support this use. All equipment to support the use would be supplied by the permittee and must meet quarantine protocol requirements stipulated in the SUP. Camps will be temporary, and all equipment landed on the island will be removed at the end of the expedition. All non-organic refuse must be removed from the island. A long drop latrine and/or all sanitation equipment must be designed to exclude access by birds and crabs. The location and digging of any long drop latrine must be approved by the Resource Monitor. Latrine construction and dismantling protocols as well as dietary restrictions required for use of a long drop latrine will be included in the SUP. Human waste that is not contained in an approved latrine and all other waste that is produced by the group will be removed from the island and properly disposed of or recycled outside of Jarvis Island NWR.

Why is this use being proposed or reevaluated?

Amateur Radio Operation at Jarvis Island National Wildlife Refuge was previously determined to be compatible (USFWS 2010). Amateur Radio Operation is being re-evaluated due to the 10-year renewal period ending (603 FW 2.11 H.).

This use stems solely from requests by a relatively small, public group to visit remote, little known, difficult-to-reach locations to practice their hobby. Although this is not a wildlife-dependent use, amateur radio expeditions have some educational value as a source of public information about the Refuge's wildlife resources and to increase public awareness of this remote Refuge. In addition, Service resource monitors that accompany these expeditions would have the opportunity to survey and monitor Refuge resources at minimal cost to the Government.

Availability of Resources

The analysis of cost for administering and managing each use will only include the incremental increase above general operational costs that we can show as being directly caused by the proposed use.

Additional resources needed to support this use include:

- A Refuge staff member or representative (Resource Monitor) to monitor, prepare, and join the amateur radio expedition, which could take up to 5 weeks with travel time included.
- Procurement of sufficient quarantine supplies for the Resource Monitor.
- Additional staff resources to review, prepare, and administer the Special Use Permit (SUP).

The permittee will be required to pay a permit fee at a level commensurate to cover all staff or designee costs associated with administering and managing the trip. Costs will include salary, travel expenses, and quarantine equipment required for the Resource Monitor to manage the expedition operations. These costs are calculated as follows:

Itemization of One-time Costs (as estimated for FY 23 \$)

- Amateur radio expedition Resource Monitor salary and benefits for GS-5 to GS-12* (@ \$600/day x 30 days) ≤ \$18,000
- Five (5) days of pre-trip preparation ≤ \$3,000
- Two (2)-days of post-trip clean up and compilation of trip report ≤ \$1,200
- Travel Costs for Resource Monitor (e.g., airfare, hotel, taxi, per diem) to be determined (TBD)
- Quarantine Field Gear/Supplies per trip. ≤ \$2,500
- Permit Administration per trip, GS-12/1 salary and benefits for 40 hours ≤ \$2,400

*GS rate is dependent on grade of qualified staff member available for expedition. An estimated Special Use Permit fee of \$27,100, plus travel costs TBD, will be required to cover these general operational costs in FY 23. New estimates will be made for future fiscal years to account for cost increases.

Anticipated Impacts of the Use

The effects and impacts of amateur radio expeditions to Refuge resources, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use. This Compatibility Determination (CD) includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” Water quality, air quality, floodplains, wilderness,

visitor use and experience, cultural resources, and economics will not be more than negligibly impacted by the action and have been dismissed from further analyses. Fiscal impacts to Refuge management and operations have been identified in the Availability of Resources section. These impacts are offset by the collection of the SUP fee, thus no further impacts to Refuge resources will be considered.

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

Amateur radio expeditions have the potential to negatively impact Refuge purposes or the Refuge System mission at Jarvis Island NWR; however, negative impacts would be minor and mitigatable when managed through SUPs. Hosting amateur radio expeditions has the potential to positively impact Refuge purposes and the Refuge System mission by sharing information about the Refuge and Monument through outreach and education. Additionally, Jarvis Island NWR, like other remote island refuges, is rarely visited by Service staff due to budget constraints. Amateur radio expeditions would provide opportunities for Service staff to visit the Refuge to monitor wildlife populations, habitats, detect invasive species introductions, and perform management actions that would otherwise require the Service to charter a vessel.

Short-term impacts

Jarvis Island NWR is a low-lying, nearly level island with a slightly depressed central area surrounded by a narrow shallow fringing reef (USFWS 2008). The submarine slopes descend steeply to great depths beyond the fringing reefs. Surface deposits on the island consist of calcareous sands and coral rock. The entire western or leeward beach of the island is sandy and low, while the eastern side, constantly pounded by waves generated by the trade winds, is higher, more abrupt, and covered with coral rubble and sandstone slabs. Soil disturbance will be limited to the immediate area of the amateur radio expedition site resulting from the placement of tents, supplies, and antennas. Impacts are anticipated to be negligible, temporary, and mitigatable. Jarvis Island NWR is vegetated with grasses, herbaceous plants, and shrubs. Only strand species able to survive long periods of drought and the infrequent wet years of the El Niño Southern Oscillation persist here. Eight species of plants were documented on a trip to Jarvis Island NWR in 2015 (USFWS unpublished data). Vegetation disturbance will be limited to the immediate area of the expedition operations resulting from the placement of tents, supplies and antennas, and foot traffic to and from the operation site to the boat-landing site. Impacts are anticipated to be negligible, temporary, and mitigatable.

Jarvis Island NWR is home to a large number of land crabs, *Coeneobita perlatus* (USFWS 2008). Their large biomass plays a dominant role in terrestrial food webs on the island, where they consume a wide variety of organic matter of all types. Other terrestrial arthropods and mollusks are very poorly known. Any novel stimulus will

attract land crabs, and all efforts must be taken to avoid inadvertently feeding or entrapping these animals.

There are no native terrestrial mammals, reptiles, or amphibians on Jarvis Island NWR, however, there is a large population of the nonnative mouse, *Mus musculus* (USFWS 2008). One nonnative terrestrial reptile species (a gecko, most likely the mourning gecko *Lepidodactylus lugubris*) has been reported.

Jarvis Island NWR is a breeding ground for large populations of seabirds, which are the most numerically dominant vertebrates on the island (15 species) along with migratory shorebirds (5 species) (USFWS 2008). Seabird breeding is unpredictable at this equatorial site. Disturbance may be in the form of: bird collisions with the radio antennas or guy lines, seabird burrow cave-ins, disruption of chick feeding, flushing adults from their nests, and exposure of eggs or small chicks to extreme heat and predators. Generally, there are no nesting seabirds in the area of the campsite. The most destructive short-term impacts resulting from a visit will be bird disturbance or mortality due to the direct influence of the camp or radio antennae. Special conditions contained within this CD, such as complete avoidance of seabird colony sites, can minimize disturbance and prevent burrow nest cave-ins. Additional special conditions and the presence of a Resource Monitor will mitigate the potential for bird strike hazards of radio antennas and guy wires.

At least 50 species and 20 genera of corals, several other large anthozoans, and approximately 277 species of reef fish are known from Jarvis Island NWR's reefs. Species listed under the Endangered Species Act documented to use Jarvis Island NWR include the green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), scalloped hammerhead (*Sphyrna lewini*), and a species of blunt coral (*Acropora retusa*) (USFWS 2008, Brainard et al. 2019). The turtle species have been observed and photographed foraging in the shallow water near the island, and the beach habitat provides potential nesting habitat for both turtle species (USFWS 2008). Green sea turtle nesting was recorded in low densities along the west coast of Jarvis Island NWR in the 1930s, so there is a possibility of adults attempting to nest, existing nests, or turtle hatchlings in the beach habitat. The scalloped hammerhead was observed in low abundances around the entire island, with a higher frequency of encounters along the slopes of the West and Southwest georegions, including a single encounter with a large schooling group of over 100 individuals in this region. Blunt coral were sighted during the NOAA post-bleaching surveys in 2016. There is little information regarding marine mammals at Jarvis Island NWR. However, up to 40 bottlenose dolphins (*Tursiops truncatus*) have been noted by visiting vessels (USFWS 2008). The giant clam (*Tridacna maxima*) is abundant at Jarvis Island NWR and is listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The humphead wrasse (*Cheilinus undulatus*) is also listed under CITES and designated as Endangered by the International Union for the

Conservation of Nature (IUCN) (USFWS 2008).

Potential impacts to marine resources include: damage to corals and other reef life, potential fuel spills, introduction of invasive species, and disturbance of fish and wildlife. Special conditions for issuance of SUPs outlined in this CD, including biosecurity quarantine protocols and the presence of a Resource Monitor (see Stipulations below), would reduce the potential for fuel spills, invasive species introductions, and disturbance of fish and wildlife, and would mitigate adverse impacts to Refuge resources.

Sea turtles are attracted to lights and may become disoriented if they are swimming or crawling near a light. Thus, the on-site Resource Monitor will monitor the beach area for sea turtles (including tracks, nest pits, hatchling emergence) to document nesting and ensure adults, hatchlings, or nests are not disturbed (by compaction, crushing, etc.) by the amateur radio expedition. The on-site Resource monitor will also enforce a buffer distance of 10 feet (3 meters) from basking turtles to avoid animal disturbance. Seabirds are also attracted to lights and may be susceptible to flying into ships, poles, or tents if lighting is not minimized (e.g., shielded and only minimally used when needed, using red or amber lights). Disturbance from anthropogenic light sources from ships or from the camp may cause disturbance to both sea turtles and seabirds. Therefore, the use of lights at night will be strictly regulated by the Resource Monitor, and campfires will be prohibited.

Access to Jarvis Island NWR is by ocean-going vessel and a small boat to transport people and equipment from the ship to shore. The most destructive short-term impacts resulting from a visit will be disturbance or wildlife or plant mortality due to the direct influence of the camp or radio antennas.

Long-term impacts

Due to the intermittent and short duration of the proposed activity, no long-term impacts are anticipated from amateur radio operations. Proper education, compliance with SUP Special Conditions, and the presence of an on-site Resource Monitor will minimize or eliminate detrimental long-term effects to the Refuge's wildlife or habitat. Major adverse impacts, both short-term and long-term, could be caused by the introduction of an invasive species, the release of contaminants to the terrestrial or marine environments, or if a ship grounding took place. However, the risk of such events would be negligible through compliance with SUP Special Conditions and selectively using experienced professional mariners.

Through proper education and management of the use, no cumulative impacts would be associated with infrequent amateur radio operations at Jarvis Island NWR.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 14 days from (insert date) to (insert date). The public will be made aware of this opportunity to comment through news release to newspapers, radio and television, social media, and letters to partners and interested individuals. A hard copy of this document will be posted at 300 Ala Moana Blvd. Room 5-231, Honolulu, HI 96850. It will be made available electronically on the refuge website:

<https://www.fws.gov/refuge/jarvis-island> . Concerns expressed during the public comment period will be addressed in the final CD.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

Specific stipulations are listed as follows:

1. Those wishing to access Jarvis Island NWR must apply to do so through the NWRS SUP process. Proposals will be considered once submitted to the Monument Superintendent and will be evaluated based on impacts to wildlife, habitat, facilities, operational capacities, and other authorized uses of the refuge. The SUP authorizing this use will include stipulations, conditions, and restrictions to ensure compatibility and mitigate for potential anticipated impacts to refuge resources.
2. All General Conditions of the SUP would apply to amateur radio operator expeditions. This includes conditions that stipulate stringent quarantine procedures, vessel inspections and certifications, anchoring and landing requirements, biosecurity requirements, wildlife avoidance measures, zero-impact requirements, reporting requirements, and any other stipulations deemed necessary by Refuge Management to ensure authorized activities remain compatible with the purpose of the Refuge.
3. Those wishing to access Jarvis Island NWR will be notified when they apply for an SUP that they must be accompanied by a Service approved Resource Monitor. All costs associated with travel, food, lodging, and quarantine measures associated with a Service Resource Monitor will be paid by the

permittee either directly to the Service, or to a source that will directly benefit the refuge.

4. If no Service personnel are available, the permit applicant must hire a biologist that is pre-approved by the Service to fulfill the duties of the Resource Monitor. The biologist must have previous experience at the site, or a Service-approved suitable proxy habitat, to perform the resource monitor duties. All expenses of biologists contracted to accompany the group will be paid by the group through their contract with the biologist.
5. The trip itinerary should accommodate the requirement for the Resource Monitor to inspect the vessel and supplies prior to loading to ensure compliance with biosecurity protocols and embark on and disembark from the transport vessel from a U.S. port.
6. The transport vessel must meet all biosecurity protocols and all U.S. Coast Guard requirements that may apply to the transportation of Federal employees and operation in waters of the United States. Since the USFWS cannot guarantee the availability of Resource Monitors authorized to travel to foreign ports, the expedition is strongly encouraged to depart from and return to a U.S. port.
7. The USFWS must approve the vessel and crew that will be used for the expedition to ensure the safety of all personnel, including the USFWS monitor.
8. All small boats and engines, and all anchors and lines will be visually inspected by the Resource Monitor for any algal remnants or other nonnative species, which must be removed prior to departure for Jarvis Island NWR. If necessary, small boats must be washed and fumigated prior to departure. Vessels will be inspected and declared free of rodents before departure.
9. All vessels used to access Jarvis Island NWR must carry Wreck Removal and Pollution insurance, specifically targeted and sufficient to provide for the vessel's full extraction and removal from the Refuge should it run aground or experience difficulties with the vessel, any of its equipment or small boats, or crew and passengers. Any extraction or recovery methods must meet the approval of the USFWS and any other appropriate State or Federal resource trustee, prior to it being carried out.
10. No more than 13 people may access Jarvis Island NWR at any one time, including the required Resource Monitor. No personnel are allowed to go ashore on Jarvis Island NWR without a Resource Monitor accompanying them. The Resource Monitor will have the authority to manage activities and modify procedures at any time, including ceasing activities, which have the potential to cause harm to wildlife or for human health and safety.

11. The group will be permitted to be on the island for up to 14 days, with no more than 12 days of broadcasting allowed, and may stay in the Refuge an additional 5 days to wait for safe landing conditions, if conditions do not allow for a safe departure on the last day. Sufficient emergency food and water for the entire group for an additional 7 days must be maintained onshore in case inclement weather prohibits safe landing during the group's stay.
12. If environmental conditions do not allow for a safe departure from the island at the scheduled time, the USFWS Honolulu Office must be notified in order to discuss authorization for remaining on the island until conditions improve.
13. The Resource Monitor will choose a site on the island that will cause minimal disturbance to wildlife and minimize the footprint of the camp and operating equipment.
14. Any expedition personnel wishing to access areas outside of the immediate expedition operational area must be accompanied by the Resource Monitor (e.g., to observe historic sites or wildlife).
15. The Resource Monitor will enforce a buffer distance of 10 feet (3 meters) from basking turtles to avoid animal disturbance. Additionally, artificial lighting will be reduced during periods of darkness to avoid disorientation of sea turtle hatchlings.
16. The camp may consist of a maximum of four canvas or similar lightweight material tents with a maximum size of 3 meters (10 feet) by 7 meters (23 feet), up to six antennas, and up to six each diesel or gasoline generators that weigh less than 100 pounds (45 kilograms) each. All of this equipment must fit within a 900 square meter (9,688 square feet) footprint.
17. Antennae will be a maximum of 45 feet (14 meter) tall vertically. The antennas may stand on a tripod. Guy lines will only be used if wind conditions require them. Antennas, guy lines, and any other items the Resource Monitor deems a risk to flying seabirds must be flagged every 2 feet (0.6 meter) to provide a strong visual cue to flying birds. Radials should be less than 164 feet (50 meters) in length and may terminate in the ocean.
18. All antennae and radials must be inspected every 4 hours for evidence of bird collisions or entanglement.
19. If any injury or mortality of seabirds or shorebirds occurs, steps must immediately follow to avoid any additional injuries or deaths. This may include taking the antennas down if no other methods of mitigation are considered effective by the Resource Monitor.

20. Fuel brought to the island to support the generation of electrical power will be transported in U.S. Department of Transportation approved containers that have been tested for leaks and weigh less than 50 pounds (23 kilograms) each.
21. No more than 200 gallons (757 liters) of fuel will be stored on Jarvis Island NWR at any one time.
22. All fuel storage must have secondary containment.
23. Sufficient spill prevention and clean up kits must be maintained on island during the expedition.
24. Any fuel that is not used during the expedition must be removed from the island.
25. Generators and any other equipment requiring fueling must be placed upon a suitable containment area that will capture any and all potential spillage during the fueling process.
26. All waste that is produced by the group will be removed from the island and disposed of properly or recycled outside of the Refuge, including all waste generated by the individuals unless an approved long-drop latrine is used in combination with dietary restrictions.
27. Camp stoves with appropriate fuel may be used for cooking.
28. Campfires are not permitted.
29. All artificial light emissions must be kept to a minimum and shielded from pointing skyward to minimize bird collisions with camp structures and antennas.
30. Bathing may occur within the camp footprint or in the ocean adjacent to camp.
31. Only biodegradable soap and reef safe sunscreen will be permitted for use on the Refuge.
32. The transport vessel may not expel or discharge any treated or untreated sewage, debris, and gray water within 12 nm of Jarvis Island NWR and once beyond 12 nm may only do so if the currents will carry the waste away from Refuge waters.
33. Biosecurity requirements will be part of the SUP and will reflect current threats and best management practices known to Refuge Management at the time of the expedition. These include but are not limited to: Clothing and personal effects must be new and unused, laundered and frozen for 48 hours, and carefully sealed and stored prior to access to the island. Other gear should

be frozen for 48 hours or fumigated. Because of the possibility of importing nonnative insects and fungi, all foods used in camp should be frozen, canned, or dried. No fresh vegetables, fruit, or cardboard are allowed. Supplies should be packed in plastic buckets with tight fitting lids.

34. All permittees are responsible to ensure there is no fishing or collecting within the Refuge by any member of the expedition or crew of the transport vessel.

35. There must be at least a 6-month period between amateur radio operator groups on Jarvis Island NWR.

36. Each authorized expedition must carry out an outreach and education effort that includes information about Jarvis Island NWR. For example, QSL postcards or a website could be created that contains Refuge content. The content of any outreach materials pertaining to the Refuge must be reviewed and approved by the USFWS before publication/dispersal.

Justification

While this is not a wildlife dependent public use according to National Wildlife Refuge Administration Act of 1966, as amended, amateur radio operation is a use that assists in the management of the resources indirectly. By allowing amateur radio operators to visit the Monument refuges, the refuges benefit through the ability of staff to visit remote island sites to monitor wildlife populations, habitats, detect invasive species introductions, and perform management actions that will otherwise require the Service to charter a vessel. A vessel charter to any of these sites with a 14-day layover typically costs at least \$300,000, so most of the remote island refuges within the Monument are rarely visited due to budget constraints.

Additionally, the stipulations outlined above will help ensure that amateur radio operations are compatible on Jarvis Island NWR. Amateur radio expeditions, as outlined in this compatibility determination, will not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgment, the USFWS has determined that amateur radio expeditions at Jarvis Island NWR, in accordance with the stipulations provided here, will not materially interfere with, or detract from the fulfillment of the Refuge System mission or the purpose of the Jarvis Island NWR. Rather, appropriate and compatible amateur radio expeditions can be conducted on Jarvis Island NWR, through which a wide audience of the public can develop an appreciation for wildlife and wild lands via educational outreach efforts that include information on the Refuge.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2033

Literature Cited/References

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Attachment 1

Attachment 1. Map of Jarvis Island NWR with location of the “Day Beacon.”

