

## Compatibility Determination

7 Apr 2016 DRAFT- for public distribution, review and comment

**Use:** Commercial filming including still photography, video, and audio recording,

**Refuge and Monument Name:** Palmyra Atoll National Wildlife Refuge within the Pacific Remote Islands Marine National Monument.

### **Refuge and Monument Establishing and Acquisition Authorities:**

Palmyra Atoll National Wildlife Refuge (NWR or Refuge) was established in 2001 (Secretarial Order 3224) under the authority 1) Section 48 of the Hawaii Omnibus Act of July 12, 1960, 74 Stat. 411; 2) Executive Order 10967 of October 11, 1961; 3) 43 U.S.C. '1458; 4) Presidential Proclamation No. 5928 of December 27, 1988, 54 Fed. Reg. 777; 5) the National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. " 668dd; 6) Reorganization Plan No. 3 of 1950; 7) the Fish and Wildlife Act of 1956, 16 U.S.C. '742f; and 8) Executive Order 13089 of June 11, 1998.

On January 6, 2009, President Bush signed Presidential Proclamation (PP) 8336 making Palmyra Atoll NWR part of the Pacific Remote Islands Marine National Monument (PRIMNM or Monument), 74 F.R. 1565-1575.

On January 16, 2009, Department of the Interior Secretary Dirk Kempthorne signed Secretarial Order 3284, delegating all his management responsibility for the Pacific Remote Islands Marine National Monument, Rose Atoll Marine National Monument and the Marianas Trench Marine National Monument to the Director of the U.S. Fish and Wildlife Service (66 F.R. 7660-7661).

Palmyra Atoll NWR (Palmyra) is managed for conservation by the U.S. Fish and Wildlife Service (FWS or Service) and The Nature Conservancy (TNC), owners of Cooper-Menge (Cooper), parts of Quail and Barren Islands. Cooper is the largest island in the atoll and the location of Palmyra's living quarters and research station. All on-island residents, including Service staff, reside on Cooper Island at the research station. FWS and TNC coordinate conservation and management of Palmyra through a Memorandum of Agreement. The FWS consults with the National Oceanic and Atmospheric Administration (NOAA) - National Marine Fisheries Service (NMFS) regarding fisheries-related activities. NMFS has primary responsibility regarding fisheries-related activities within the Monument beyond 12 nautical miles of the islands.

### **Refuge Purposes:**

- ... 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 ..." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- "... conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans..." 16 U.S.C. § 668dd(a)(2) (National Wildlife Refuge System Administration Act)
- "... suitable for— (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ..." 16 U.S.C. § 460k-1

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- "... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ..." 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).

Secretarial Order 3224, dated January 18, 2001, provides for the civil administration of Palmyra Atoll NWR in accordance with Executive Order No. 10967 of October 11, 1961, 26 Fed Reg. 9667 and established the Refuge. The Order identifies the Refuge is established "...to protect and preserve the natural character of fish, wildlife, plants, coral reef communities and other resources associated with the tidal lands, submerged lands, and waters of Palmyra."

### **Additional Management Direction:**

#### ***Pacific Remote Islands Marine National Monument***

*Presidential Proclamation 8336*

"... for the purposes of protecting the objects identified in the above preceding paragraphs ..." "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."

*Secretarial Order 3284*

"... 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" (Section 4.a.(2)).

"... The Director shall manage the emergent and submerged lands and waters out to 50 nautical miles from the mean low water line at Palmyra Atoll as a unit of the Pacific Remote Islands Marine National Monument, except that those areas subject to the exclusions defined in Secretary's Order 3224 of January 18, 2001, shall remain in the Office of Insular Affairs, subject to the terms of that Order. The Director shall continue to manage Palmyra Atoll, including the area out to 12 nautical miles from such mean low water line, as a National Wildlife Refuge, subject to Secretary's Order 3224. Those areas beyond 12 nautical miles from such mean low water line for which NOAA has primary management responsibility for fishery-related activities are not included in the National Wildlife Refuge System (Section 4.b. (2)).

#### ***Pacific Remote Islands Marine National Monument Expansion***

*Presidential Proclamation 9137*

"Nothing in this proclamation shall change the management of the Pacific Remote Islands Marine National Monument as specified in the Proclamation 8336..."

### **National Wildlife Refuge System Mission:**

"The mission of the [National Wildlife 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" (National Wildlife Refuge System Administration Act).

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### Description of Use:

#### (a) What is the proposed use?

The National Wildlife Refuge System Improvement Act of 1997 identifies compatible wildlife photography as well as hunting, fishing, wildlife observation, environmental education and interpretation as priority wildlife-dependent public uses of the Refuge System. As one of the six priority public uses of the Refuge System, wildlife photography is to be encouraged when compatible with the purpose(s) of the refuge. However, wildlife photography is distinguished from commercial photography<sup>1 2</sup> in national wildlife refuges.

The proposed use would involve commercial filming, audio recording, and still photography (hereafter called “filming”) at Palmyra Atoll NWR within the Pacific Remote Islands MNM. The intended purpose of the filming would be to use the images and recordings captured at the refuge to create a number of professionally developed educational, documentary, or commercial products. These products may include but are not limited to feature film, television special, internet/mobile content, as well as educational media. The purpose of these products would be to facilitate interpretation and environmental education about Palmyra Atoll, the NWR System, the Service and the MNMs by describing their relatively pristine and interconnected ecosystems, while conveying a strong message of hope and inspiring the public to embrace a conservation ethic. Products may also provide general public entertainment.

The permittee would consult with the Service, and other partners and experts as recommended by the Service, to better understand the Atoll’s natural resources and natural systems in order to determine how, where, and when to film at the Atoll. Current habitats and species of special interest for filming include *Pisonia grandis* forest, intertidal zones, coral reefs, seabirds and shorebirds, coconut (*Birgus latro*) and other land crabs (e.g., *Cardisoma*, *Coenobita*, and *Geograpsus* spp.), insects, sharks, manta rays (*Manta* spp.), reef fish, mollusks, sponges, and plankton.

Personnel, equipment, and supplies would be transported to the atoll either with a private vessel provided by the permittee(s) and approved by the Refuge Manager, or in cooperation with TNC to utilize TNC chartered planes, vessels, and Cooper Island infrastructure. All vessels, equipment and gear including clothing that would be used within the refuge would adhere to quarantine guidelines outlined by the Service specific to Palmyra’s terrestrial and marine environments.

This CD considers productions that involve no more than 20 people total, excluding vessel crews and FWS resource monitors assigned to the project; periods of filming activity not to exceed more than 4 consecutive weeks at a time; and no more than a total of 90 days in any single calendar year that require an FWS resource monitor to accompany commercial filming projects on the refuge. Filming

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<sup>1</sup> The FWS manual defines commercial photography as “a visual recording (motion or still) by firms or individuals (other than news media representatives) who intend to distribute their photographic content for money or other consideration. This includes the creation of educational, entertainment, or commercial enterprises as well as advertising audio-visuals for the purpose of paid product or services, publicity, and commercially oriented photo contests.(FWS policy: 605 FW 5.6).

<sup>2</sup> Commercial recordings are also described in Title 43 of the Code of Federal Regulations, Section 5.1, “no picture may be filmed, and no television production or sound track made on any area administered by the U.S. Fish and Wildlife Service ... of the Department of the Interior, by any person other than amateur or bona fide newsreel and news television photographers and soundmen, unless written permission has been obtained from the Service having jurisdiction over the area.”

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would be considered once requested. Each request is anticipated to be unique and would be evaluated based on protocols and methods for recording and their impacts to wildlife, habitats, operational capacities, and other approved uses in the refuge at the proposed time. Strategies and plans for reaching diverse audiences would also be factors considered.

Proposals for filming would be evaluated by FWS staff, applicable partners at the NOAA, TNC, as well as other subject-matter experts as determined necessary by the Service. Specific details would be documented in the special use permit (SUP) regarding where, when, and how filming would be conducted, as well as quarantine guidelines and other stipulations to be followed to ensure compatibility.

### **(b) Where would the use be conducted?**

The use would be conducted throughout the Palmyra Atoll NWR in the Pacific Remote Islands MNM. Stipulations and accommodations for locations would be described in the SUP as well as by the onsite Service representative depending on the conditions occurring at the time of the activity.

### **(c) When would the use be conducted?**

Filming may occur throughout the year but the specific times would be coordinated with the Service and TNC and would be dependent on current conditions and available operational capacities, and outlined in a SUP. Filming would primarily occur during daylight hours to reduce the impact to wildlife.

### **(d) How would the use be conducted?**

A diversity of terrestrial and underwater-based filming equipment would be used to record images and sounds which may include equipment such as unmanned aerial systems (UAS), other remotely operated vehicles (ROVs), or manned marine transports such as boats and submersibles. The permittee(s) would access the Atoll's land and water primarily by foot and boat, and would be escorted by the Service representatives at all times. Small vessel usage would adhere to operational policies stipulated in a SUP. Underwater filming could involve the use of snorkeling, SCUBA diving and the use of ROVs and manned submersibles. All SCUBA activities would be led by a Service-approved diver and be accompanied by a Service representative. Overnight lodging of the permittee will be restricted to either the TNC facilities on Cooper Island or a vessel provided by the permittee and approved in an SUP. Use of UAS, ROVs, and manned submersibles would be considered on a case-by-case basis dependent upon the system proposed for use, qualifications of the pilot(s), proposed altitude or depth, wildlife densities during proposed period of use, and other case-specific variables.

### **(e) Why is this use being proposed?**

This use is being proposed to provide filming interests with access to the refuge/monument in order to create unique, high quality products that facilitate interpretation and educational content designed to share the story of Palmyra, the NWRS, the Service, and MNMs. As Palmyra Atoll contains unique terrestrial habitats and high quality marine environments that cannot be found elsewhere in the nation these products can only be created by accessing the refuge/monument.

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This Interim CD is prepared as a bridge to allow photography, filming, video, and audio recording uses until a final CD can be prepared along with the Refuge Comprehensive Conservation Plan or the Monument Management Plan.

### Availability of Resources:

Accessing Palmyra is a complex and expensive endeavor, and requests to film at the refuge are infrequent. Service costs incurred from administering and managing the filming activities would be recovered from the permittee(s). The bulk of Service costs associated with this use would be staff time to review proposals, issue SUPs, coordinate logistics with the applicant and the Service's partner TNC, and ensure that the filming contributes to the achievement of the Refuge System mission and monument/refuge purposes. Additional costs include travel costs, on-site monitoring of the project, and the review of the project's post-recording development and results. Consistent with Service policy (5 RM 17) and the Commercial Filming Act of 2000 (16 U.S.C. 4601-6d), the Service would seek to recover its costs associated with administration of this use. Benefits, if any, provided to the Service by a refuge use are considered in establishing appropriate fees. In addition, the Commercial Filming Act requires that the permittee pay a commercial filming location fee. At Palmyra, it is estimated to be \$300/day (see 43 CFR 5.8 and 78 F.R. 52209-52211). Station fees covering lodging, food and operational costs incurred by TNC are not considered here.

Due to the sensitivity of Palmyra's environment and the complexity of operating there, filming activities authorized by an SUP would require continuous, on-site supervision by Service-approved representatives to minimize impacts to the resources and assure compliance with all conditions of the permit. The permittee would, at no cost to the Service, be responsible for the travel expenses and hourly rates of any Service-approved representatives that would accompany the permittee(s) for the duration of their visit to the refuge. Monitoring will be charged at the rate of \$45 per hour per staff member. Staff hours will be calculated according to federal employee regulations. Hours exceeding eight hours per day, or forty hours per week, will incur overtime fees at \$68 per hour. The scope and complexity of the filming activity at Palmyra will determine the level and type of supervision and number of Service representatives required, and would be evaluated on a case-by-case basis. For larger groups, boating operations will require a minimum of 1 Service-approved representative for every 5 people present under the SUP. The on-site representatives would be responsible for monitoring the filming visit, including effects on the refuge's natural and cultural resources; and for enforcing the stipulations and the general and special conditions of the associated SUP. Permitted filming activities at Palmyra may also require Service coordination with Honolulu-based staff. Honolulu coordination and administration work would be charged at the rate of \$45 per hour per staff member with a minimum of two hours per staff member, per day.

Costs for SUP preparation, compliance requirements, consultations with the permittee, managerial and/or technical SUP consultations, administration, monitoring, and completion will be recovered from the permittee. Required cost recovery payments for staff time would be considered on a case by case basis depending on the complexity of the proposed use and Service capacity to manage the proposed use. Staff time cost recovery and location fees would be paid by the permittee either directly to the Service or to a source that will directly benefit the refuge.

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### Anticipated Impacts of the Use:

Possible impacts from this use include: (1) disturbance to nesting and resting seabirds and other migratory birds; (2) disturbance to foraging seabirds and pelagic fish; (3) disturbance to green (*Chelonia mydas*) and hawksbill turtles (*Eretmochelys imbricata*) swimming and feeding in the nearshore marine environment or resting in shallows; (4) disturbance to marine mammals; (5) disturbance to fish, marine invertebrates, and corals; (6) trampling of native plants and invertebrates; (7) damage to corals; (7) accidental release of pollution and contaminants; and (9) the accidental introduction and establishment of exotic or invasive species to the refuge.

Wildlife disturbance can be a special concern with wildlife observation and photography (Cline et al., 2007; DeLong, 2002; Knight and Cole, 1995a). Many seabirds are wary and flush when approached too closely. Human disturbance has differential effects on wildlife and is dependent upon many variables, including the species involved and its age; the time of year; the breeding cycle stage (if applicable); the activity in which the birds are engaged (e.g., foraging versus nesting); prey density and nutritional requirements for feeding birds; flock size (larger flocks may be more easily disturbed); the surrounding environment; whether the activity involves vehicles; the type, size, intensity, speed, noise, nature, and frequency of the disturbing activity; and the directness of approach to an animal (Blanc et al., 2006; Goss-Custard and Verboven, 1993; Hammitt and Cole, 1998; Kirby et al., 1993; Knight and Cole, 1995a; Knight and Cole, 1995b; Lafferty, 2001a; Lafferty, 2001b; Rodgers, 1991; Rodgers and Schwikert, 2002; Rodgers and Smith, 1997; Smit and Visser, 1993).

Disturbance to nesting and resting seabirds and other migratory birds can include flushing of birds or even raising their alert levels, creating stress and requiring animals to expend energy that would otherwise be invested in essential life-history activities such as foraging, mating, nesting, brood-rearing, and predator avoidance. Stress reactions (elevated heart rate, elevated levels of corticosterone, and behavioral responses) have been documented in several species of nesting seabirds at several ecotourism locations as a result of human activities in nesting colonies. Disturbance can cause nest desertion; reduce survival of individual birds, eggs, nestlings, or broods; and alter behavior of non-breeding birds (Trulio 2005). Certain photographic and filming activities would have the potential to greatly elevate stress hormone levels in migratory shore birds (e.g., bristle-thighed curlew, pacific golden plover) and seabirds (e.g., terns, boobies, frigate birds) or other species in the less-visited areas, if the duration of the disturbance was excessive.

Unmanned aerial systems (UAS or drones) are increasingly being tested or used as wildlife management tools across the globe (Goebel et al., 2015; Hodgson et al., 2013; Koh and Wich, 2012; Mulero-Pazmany et al., 2014; Sarda-Palomera et al., 2011). Yet, the science regarding wildlife effects associated with use of UAS remains young. Vas et al. (2015) studied the behavioral effects of a quadricopter drone on mallards (*Anas platyrhynchos*), flamingos (*Phoenicopterus roseus*), and common greenshanks (*Tringa nebularia*). The birds had no significant reactions to different drone speeds or different colored drones, and there appeared to be no cumulative effects of successive flights. Also, the birds had very little reaction to lower approach angles, but consistently reacted when the drones approached from directly overhead. These results are consistent with those of Sarda-Palomera et al. (2011) who monitored the effects among gulls of a UAS used for population monitoring; and with results of Goebel et al. (2015) who found no reaction among penguins or seals of UAS used for population monitoring. More powerful drones of larger size that make more noise may have a greater effect on birds and other wildlife.

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Observers and photographers often want to enhance their view or photograph by encroaching closer and closer to their subject or even pursuing an animal. This can cause wildlife increased stress and potentially other physiological changes or cause animals to flee or otherwise alter their behavior. Activities that occur on or under the water have the potential to damage coral (through direct contact with boat hulls, anchors, chains, lines, filming/photographic equipment, and divers) and disturb marine organisms (through fast and/or noisy boating, diving, use of underwater flashes or lighting, and pursuing animals).

Boating can alter bird distribution, reduce use of particular habitats or entire areas by waterfowl and other waterbirds, alter feeding behavior and nutritional status, and cause premature departure from areas (Knight and Cole, 1995a). Boating activities can also disturb or injure sea turtles, manta rays, and other marine organisms. Improper boat operation could result in localized impacts to the coral reef from anchoring, touching, or other avoidable physical disturbance to the benthos including coral. Any action of pursuit or annoyance from boats potentially disturbs marine wildlife by causing disruption of their behavioral patterns or displacement from essential habitat areas, especially if the wildlife is in a resting phase. Snorkel or dive operations for filming also include the added risk of damaging living coral on the refuge.

Lighting for night time filming could potentially impact wildlife. Artificial lighting can disorient seabirds and anthropomorphic effects upon seabirds from urban development are well documented. At Palmyra, red-footed boobies, masked boobies and brown boobies have collided with lighted research station buildings when returning to or flushed from their roosts during evening rain storms. There is also anecdotal disorientation evidence of both migrating shearwaters and petrels, and fledgling sooty terns from building lights as well as deck and mast lights of moored vessels in the lagoon at the refuge.

Filming could also cause trampling of native plants and benthic marine organisms ; erosion; and introduction or spread of exotic species, including microbes, invertebrates, terrestrial plants, algae, and other pest species. All of these impacts could adversely affect native fish, wildlife, plants, and their habitats.

Island ecosystems are often more vulnerable to the effects of introduced species than continental areas. Increased use of refuge lands and waters by people also increases the potential risks of introductions of non-native species by boats or aircraft accessing the refuge. A single accidental introduction of an alien species such as an invasive plant, insect, or mammal could devastate the refuge species and their habitats. Groundings by inappropriate boat operation could cause physical damage and introduce elements to enhance the spread of invasive species.

The Service's on-site representatives would personally observe all activities conducted on the refuge throughout the permittee's time at Palmyra, and determine if the stipulations and conditions of their SUP were adhered to, resulting in expected and desirable outcomes. The occurrence of unacceptable impacts to natural resources, historic resources, facilities, equipment, other refuge visitors or violations of the SUP could result in the on-site Service representatives modifying temporarily or permanently withdrawing official permission to continue this use on the refuge. These on-site Service representatives would also apply adaptive management principles to modify stipulations or conditions, or adjust objectives, as necessary, to achieve desired conservation results.

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### Public Review and Comment:

This CD is being made available for public review and comment for two weeks. Notice of this review opportunity was made through the refuge's website and shared directly with known interested individuals. Copies of the CD are also available for review in the Service's office in Honolulu, Hawaii.

### Determination:

Use is not compatible

Use is compatible with following stipulations

### Stipulations Necessary to Ensure Compatibility:

Commercial filming proposals will be considered once submitted and the Refuge Manager will take into account the described protocols, methods for recording, final product messaging and different strategies for reaching diverse audiences. Each request is anticipated to be unique and will be evaluated based on impacts to wildlife, habitat, facilities, operational capacities and other authorized uses of the refuge. Proposals will be evaluated by FWS staff, applicable partners such as NOAA and TNC, as well as other subject-matter experts as determined necessary by the Service.

The SUP authorizing this use will include stipulations, conditions and restrictions to ensure compatibility and mitigate for potential anticipated impacts to refuge resources. Stipulations may be associated with boat operators, boat speed, transit across the reef, anchoring, lighting; touching or placement of equipment; timing of activities; types of equipment used (eg. UAS); and use of appropriate filming and photography distances and techniques that would minimize the potential for adverse effects on wildlife including seabirds, marine life, and other species and their habitats. On-site refuge representatives will ensure any remnant effects would be short-term and temporary, and would be expected to be non-significant. Some of the specific conditions will include:

### Stipulations:

1. The permittee(s) shall obtain and carry a SUP with them at all times while on the refuge. The permittee(s) shall also obtain all other permits or authorizations from other agencies as necessary, prior to arriving on the refuge.
2. No more than 20 people may be present on the refuge as part of filming activities at one time. This number excludes FWS representatives assigned to the project and any crew dedicated to the operation of any vessels used to travel to the refuge.
3. The duration of any single filming visit may not exceed four consecutive weeks.
4. The total number of days in a calendar year in which filming activities may occur on the refuge is not to exceed 90 days.
5. In order to protect Palmyra's infrastructure and its biological, cultural, and physical resources, the SUP will include restrictive conditions associated with land and water travel, operation of UAS or other remotely operated vehicles, submersibles, and use of temporary portable shelters.

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6. All uses of TNC facilities, property or personnel will need to be coordinated with and approved by TNC.
7. Prior to accessing the refuge/monument all permittees will attend an in-person orientation provided by the Service and TNC to receive information about the valuable biological and cultural resources on Palmyra and how to engage in responsible behavior when filming these resources. The orientation will include potential safety hazards on the refuge including but not limited to boat travel, anchoring, onshore landing, unexploded ordnance, and onshore travel opportunities and restrictions. The permittee shall be responsible for the health and safety of all permittee personnel.
8. The permittee shall make every effort to avoid disturbing or otherwise impacting the refuge's native flora and fauna, especially seabirds, sea turtles, marine mammals, large fish, and coral. Active seabird colonies shall be avoided to the extent practicable, consistent with filming requirements.
9. The Service-approved on-site representatives will assist in identifying acceptable photography locations, distances from photographic subjects, travel corridors near or within seabird colonies on the Atoll, and safe travel routes and filming areas in regards to corals and marine life.
10. Anchoring is not permitted on Palmyra's reefs. To eliminate anchoring impacts on coral, boat operators are required to either live boat or tie up to mooring buoys only. When mooring in the lagoons boats must anchor in known sand areas as directed by the Service-approved representative(s).
11. Vessels involved in filming activities generally are restricted to the hours between 30 minutes after sunrise and must return to dock at least 1 hour before sunset.
12. Within the lagoons, boats must remain within speed limits of 12 knots, and 8 knots within the channel, to ensure maneuverability and to avoid striking wildlife. Boats must avoid creating a large wake near shore lines during high tide, to ensure that seabirds nesting at the water's edge are not disturbed and the nests are not impacted by boat wake.
13. All boats and kayaks must stay 100 feet from shorelines and keep out of sensitive wildlife areas unless otherwise permitted. If seabirds are seen to flush from the nest, people must keep moving through the area to enable the birds to return to their nests. People shall not remain in the area where a nesting bird has flushed.
14. The permittee shall not a.) Use feed or call playback recordings to attract wildlife, b.) Handle, capture, attempt to capture, or confine wildlife for photographic, viewing, audio recording, or other purposes, c.) Take photographs while standing, touching, or otherwise being supported upon live coral, and d.) Build permanent or temporary structures on or secured to live coral.
15. The permittee shall comply with Refuge System related and other applicable laws, regulations, and policies, including "Prohibited Acts" (50 C.F.R. 27).
16. The permittee shall obtain liability insurance and provide a bond or other security sufficient to protect the interests of the United States (43 C.F.R. 5.7).

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17. The permittee shall settle their Cooper Island based operational needs with TNC station managers and obtain any additional permits needed for their actions. Any accidents or responses involving the permittee(s) will be their sole financial responsibility.
18. At the discretion of the Service, costs to the Service or other Service-authorized representatives for administration of filming SUP, or as a result of an accident or response, will be reimbursed by the permittee at the rate of \$45 per hour per staff member, with a minimum of two hours per day per staff. Staff hours will be calculated according to federal employee regulations. Hours exceeding eight hours per day, or forty hours per week, will incur overtime fees at \$68 per hour. The permittee will also pay a location fee of \$300 per day for each day at Palmyra.
19. The permittee shall provide the Service, at no cost, with access to any internet/mobile content and at least two copies of any feature film, television special, , educational media, or other product resulting from the visit to the refuge. Additionally, the permittee shall provide the Service with a set of high-quality, high-resolution digital film clips, photographs, and audio recordings of the refuge that are representative of those captured. The Service will be allowed to use the images and sounds provided by the permittee, with attribution, for refuge/monument- and Refuge System-related natural and cultural resources management, conservation education and interpretation, public outreach, and other similar, non-commercial, public purposes. These images and sounds can also be used by refuge friends groups (with attribution) for educational, interpretive, fund-raising, and other purposes, but cannot be sold or otherwise used for commercial purposes.
20. All permittees entering the refuge will follow established quarantine protocols. All gear, equipment and personal supplies taken to the atoll (including Cooper Island) would adhere to established biosecurity protocols described in the SUP. All luggage, and all gear is subject to an inspection for insects and plants prior to departing Honolulu, to reduce the possibility of alien species introductions. Permittees will adhere to established quarantine protocols which include but are not limited to a.) Providing for themselves all new and never before used shoes, clothing and soft gear, b.) Freezing all clothing and soft gear for 48-hours prior to arrival, c.) Keeping all quarantine gear in sealed containers at all times when not physically in use on the refuge, and d.) Rinsing snorkel and dive gear in a mild bleach solution prior to use in the refuge.
21. Any vessels entering the refuge/monument waters will abide by all established bio-security procedures and quarantine protocols as described in the SUP. These requirements include but are not limited to a.) The vessel must contain U.S. Coast Guard Approved (or similar national standard) holding tank(s) for sewage and gray water, b.) Providing documentation that a professional has surveyed the vessel within 48 hours prior to departure for Palmyra and found it free of signs of rodents, c.) Providing documentation that a professional has inspected and cleaned the vessels hull within 14 days prior of departure for Palmyra and that it is free of any marine organisms.
22. Any special instructions received from the Service official in charge of the area will be complied with.
23. Upon completion of the project, the permittee is required to remove all trash, equipment and physical markers, and restore sites to the Service representative's satisfaction.

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24. The permittee shall submit a brief report to the Marine National Monuments of the Pacific office that summarizes their activities when the project is completed. The report will include at a minimum the following: project title, SUP number, date of visit highlights of the visit, and a description of any problems encountered. All film, books, and other recorded images and sounds, publications and products derived from the SUP and those activities that are conducted under the National Wildlife Refuge System Special Use Permit will appropriately acknowledge the Service and the SUP number. All productions, publications or products will appropriately acknowledge the U.S. Fish and Wildlife Service, Palmyra Atoll National Wildlife Refuge in the Pacific Remote Islands Marine National Monument.

### **Justification:**

The mission of any proposed filming at Palmyra is to provide appreciation of our natural world and the importance of conservation by facilitating interpretation and education. Filming products have the potential to share the refuge/monuments landscape, wildlife, natural and cultural resources, history, conservation story, and management programs with a large audience over broad geographic areas. Resulting filming products would enhance public knowledge, understanding and appreciation for the natural world, the refuge and the Refuge System, and conservation management in general. With understanding comes caring and could result in increased personal stewardship of the natural world, support for conservation of the refuge's and Refuge System's native fish, wildlife, plants, and their habitats. This is especially valuable for refuges like Palmyra Atoll that are relatively unknown, extremely remote, and rarely visited by members of the general public. Filming products such as feature films, television specials, internet/mobile content, or educational media have the potential to reach a large and diverse audience, including many who may not be aware of or regularly visit national wildlife refuges.

Another benefit of this use would be the photographic documentation of the refuge by a professional filmmaker. The resulting film and other products would add to the historic record and could be of increasing value in the future. Footage created during this production would be made available to the FWS at no cost for promotional, educational, and management uses.

An ancillary, but important benefit of this use would be the concurrent visit to this remote refuge by Service representatives, at no cost to the Service. This is especially valuable because this refuge is so remote.

Although this use has the potential to generate disturbance effects on fish, wildlife, plants, and their habitats, the stipulations enumerated above, including refuge information, behavioral guidance, specific prohibitions, direction from the on-site Service representatives, and monitoring would greatly reduce or eliminate adverse effects and help enhance potential beneficial effects.

By allowing this use to occur under the stipulations described above, it is anticipated that wildlife which could be disturbed would find sufficient food resources and resting places so their abundance and use would not be measurably lessened on the refuge. Additionally, it is anticipated that the presence of the on-site Service representatives and associated monitoring, would prevent unacceptable or irreversible impacts to native fish, wildlife, plants, and their habitats. For the several reasons stated above and consistent with the stipulations described herein, this use would not materially interfere with or detract from maintenance of the refuge's biological integrity, diversity, and environmental health; fulfillment of Palmyra Atoll NWR's of the Monument's purposes; or the Refuge System's mission.

## Compatibility Determination

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**Mandatory 10- or 15-Year Re-evaluation Date:** (provide month and year for “allowed” uses only)

\_\_\_\_\_ Mandatory 15-year reevaluation date (for wildlife-dependent public uses)

Apr 2026 Mandatory 10-year reevaluation date (for all uses other than wildlife-dependent public uses)

**NEPA Compliance for Refuge Use Decision:** (check one below)

Categorical Exclusion without Environmental Action Statement

Categorical Exclusion and Environmental Action Statement

Environmental Assessment and Finding of No Significant Impact

Environmental Impact Statement and Record of Decision

**Refuge Determination:**

Prepared by:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Approved by  
Superintendent of  
Operations,  
Marine National  
Monuments of the Pacific,  
Pacific Islands  
Refuges and  
Monuments Office:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**Concurrence:**

Refuge and  
Monument Supervisor,  
Pacific Islands  
Refuges and  
Monuments Office:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Regional Chief,  
National Wildlife  
Refuge System  
Pacific Region:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

## Compatibility Determination

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### References Cited:

- Blanc, R., M. Guillemain, J-B. Mouronval, D. Desmonts, and H. Fritz. 2006. Effects of Non-Consumptive Leisure Disturbance to Wildlife. *Rev. Ecol. (Tierre Vie)* Vol. 61, 117-133.
- Cline, R., N. Sexton, and S.C. Stewart. 2007. A Human-Dimensions Review of Human-Wildlife Disturbance: A Literature Review of Impacts, Frameworks, and Management Solutions. U.S. Geological Survey Open-File Report 2007-1111. Reston, VA.
- DeLong, A.K. Apr 2002. Managing Visitor Use & Disturbance of Waterbirds – A Literature Review of Impacts and Mitigation Measures – Prepared for Stillwater National Wildlife Refuge. U.S. Fish and Wildlife Service, Portland, OR.
- Goebel, M.E., W.L. Perryman, J.T. Hinke, D.J. Krause, N.A. Hann, S. Gardner, and D.J. LeRoi. Feb 2015. A Small Unmanned Aerial System for Estimating Abundance and Size of Antarctic Predators. *Polar Biology*, 10.1007.
- Goss-Custard, J.D. and N. Verboven. 1993. Disturbance and feeding shorebirds on the Exe estuary. *Wader Study Group Bull.* 68:59-66.
- Hammit, W.E. and D.N. Cole. 1998. *Wildland Recreation: Ecology and Management*. Second Edition. John Wiley & Sons, Inc., New York, NY.
- Hodgson, A., N. Kelly, and D. Peel. Nov 2013. Unmanned Aerial Vehicles (UAVs) for Surveying Marine Fauna: A Dugong Case Study. *PLoS ONE* 8(11): e79556.
- Kirby, J.S., C. Clee, and V. Seager. 1993. Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. *Wader Study Group Bull.* 68:53-58.
- Knight, R.L. and D. N. Cole. 1995a. Wildlife Responses to Recreationists. In *Wildlife and Recreationists: Coexistence through Management and Research*. Ed by R.L. Knight and K.J. Guzwiller. Island Press, Washington, DC. 51-69.
- Knight, R.L. and D. N. Cole. 1995b. Factors that Influence Wildlife Responses to Recreationists. In *Wildlife and Recreationists: Coexistence through Management and Research*. Ed by R.L. Knight and K.J. Guzwiller. Island Press, Washington, DC. 71-79.
- Koh, L.P., and S.A. Wich. 2012. Dawn of Drone Ecology: Low-Cost Autonomous Aerial Vehicles for Conservation. *Tropical Conservation Science* Vol. 5(2):121-132.
- Lafferty, K.D. 2001a. Birds at a Southern California beach: seasonality, habitat use and disturbance by human activity. *Biodiversity and Conservation* 10:1949-1962.
- Lafferty, K.D. 2001b. Disturbance to wintering western snowy plovers. *Biological Conservation* 101:315-325.
- Mulero-Pazmany, M., R. Stolper, L.S. van Essen, J.J. Negro, and T. Sassen. Jan 2014. Remotely Piloted Aircraft Systems as a Rhinoceros Anti-Poaching Tool in Africa. *PLoS ONE* 9(1): e83873.

## Compatibility Determination

7 Apr 2016 DRAFT- for public distribution, review and comment

Rodgers, J.A. 1991. Minimum Buffer Zone Requirements to Protect Nesting Bird Colonies from Human Disturbance. Final Report. Bureau of Wildlife Research, Florida Game and Fresh Water Fish Commission, Tallahassee, FL. 7511 8pp.

Rodgers, J.A. and S.T. Schwikert. 2002. Buffer-Zone Distances to Protect Foraging and Loafing Waterbirds from Disturbance by Personal Watercraft and Outboard-Powered Boats. *Conservation Biology*, Vol. 16, No. 1.

Rodgers, J. A. and H.T. Smith. 1997. Buffer zone distances to protect foraging and loafing waterbirds from human disturbance in Florida. *Wildlife Society Bulletin* 25(1):139-145.

Sarda-Palomera, F., G. Bota, C. Vinolo, O. Pallares, V. Sazatornil, L. Brotons, S. Gomariz, and F. Sarda. 2011. Fine-Scale Bird Monitoring from Light Unmanned Aircraft Systems. *IBIS* 10:1111.

Smit, C.J. and G.J.M Visser. 1993. Effects of disturbance on shorebirds: a summary of existing knowledge from the Dutch Wadden Sea and Delta area. *Wader Study Group Bull.* 68:6-19.

Vas, E., A. Lescroel, O. Duriez, G. Boguszewski, and D. Gremillet. 2015. Approaching Birds with Drones: First Experiments and Ethical Guidelines. *Biology Letters* 11:20140754.