

US Army Spectrum Request Form

Requestor: U.S. Fish and Wildlife Service and Island Conservation

Platform: Raven (A) and T-Hawk

August 15, 2012

1.) Who will be using?

Missions will be conducted by USGS DOI trained Raven (A) and T-Hawk operators. DOI trained Raven A operators are graduates of the DOI training course using DOD course standards. The course included 22 classes and totaled 80 hours. DOI trained T-Hawk operators are graduates of the UAS Raven A training and have an additional 40 hours of T-Hawk training.

Due to current requirements and logistics, possible operators for the Farallon Islands Restoration Project have yet to be determined.

Points of contact for the system /project regarding any possible shut down or cancelation are:

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2.) How many will be used?

One Raven A system. (There are 3 planes per system, only one will be flown at any given time)

One T-Hawk RQ16A system (There are 2 air vehicles per system)

3.) What is it being used for?

Project Name - UAS Raven and T-Hawk flight operations over the South Farallon Islands to monitor gull populations.

Operational Summary –

Half of the world's population of ashly storm-petrels (*Oceanodroma homochroa*) breeds on the Farallon Islands, California, and this IUCN endangered species has experienced a 40% population decline in recent years. This decline is in part attributed to the fact that several hundred petrels are being killed each year as result of the presence of introduced house mice (*Mus musculus*). The U.S. Fish and Wildlife Service (USFWS), PRBO Conservation Science and Island Conservation are developing an draft Environmental Impact Statement (EIS) for house mouse eradication from the Farallones to protect the Ashy storm-petrel and other native species. We are trialing and

implementing techniques to address possible non-target impacts associated with two proposed action alternatives to eradicate house mice, both of which include aerial broadcast of a rodenticide. One concern of these techniques is risk to potential non-target species that may consume the rodenticide bait, especially western gulls (*Larus occidentalis*) and other, non-breeding gull species. Hazing of wildlife is a widely used tool to move animals away from dangerous or undesirable locations. We propose to test different hazing techniques on the South Farallon Islands to determine the most effective and cost efficient methods to move roosting gulls and other marine birds away from the Farallones during the non-breeding season that could be used to reduce non-target risk during such an implementation project. Developing informed mitigation techniques is a critical step toward a project that will achieve long term conservation outcomes that include reduced Ashy storm-petrel mortality and an increased global population size. Immediate outcomes include the technical knowledge to inform land management agencies and the public on mitigation techniques that minimize non-target impacts to the greatest extent possible.

We propose to use Unmanned Aerial Systems (UAS) to help monitor bird hazing at the South Farallon Islands. We hypothesize that UAS will be effective at evaluating the efficacy of hazing techniques by providing real time feedback on locations of gulls and other marine birds in remote portions of the islands, including whether hazed birds move to remote areas. Trialing UAS to monitor hazing effectiveness will also provide valuable information on the ability of UAS to monitor seabirds for other purposes, such as for population sizes, habitat use, or presence in contaminated areas such as oil spills.

This COA allows USGS for USFWS and Island Conservation to operate the Raven and T-Hawk UAS over the South Farallon Islands. Flights will be launched and returned within the COA airspace. Flights will not exceed 500 Feet AGL and have line of sight at all times. Flight patterns will not exceed 60-90 minutes of duration per flight. Flights will be conducted during daylight hours. All flights will be conducted by a pilot with an FAA Pilot Certificate.

4.) Where do they plan to use it?

UAS Raven and T-Hawk flight operations will be used on the South Farallon Islands (Farallon National Wildlife Refuge), San Francisco County, California. Flights are not to exceed 400 Feet AGL.

Area:

User Define Area ID:	Box
MSL Ceiling:	740
MSL Floor:	240
Min Speed:	15
Max Speed:	32
Coordinates:	

Point	Latitude	Longitude
1	37° 42' 33.8754"N	123° 1' 15.4446"W
2	37° 42' 33.8754"N	122° 59' 27.2358"W
3	37° 41' 8.8218"N	122° 59' 27.2358"W
4	37° 41' 8.8.25"N	123° 1' 15.4446"W

5.) When do they plan to use it i.e. daily, weekly, monthly? How long do they anticipate using it?

Numerous missions are planned for the areas defined above. A trial will be conducted between March 1 – April 15, 2013 to determine efficacy. If determined an effective tool, UAS will be used as part of a larger monitoring operation from approximately October 1, 2013 – February 1, 2014.

6.) Why is it important to their mission that they use this particular technology?

Much of the South Farallon Islands are rugged, steep, and treacherous to traverse. While the main island, Southeast Farallon, is permanently manned, several other islands and islets are difficult to access and have substantial portions that cannot be viewed from land-based vantage points on Southeast Farallon. Gaining access to these areas on a regular basis is difficult because of steep topography and because of large numbers of resting marine mammals that must be disturbed. Rough sea conditions prevent adequate boat-based viewing on most days. Thus, the most effective tool to quickly and frequently monitor remote areas on the islands is with aircraft. The use of larger, manned aircraft is cost prohibitive and will likely result in substantial disturbance to marine mammals. UAS will provide a cost effective tool for quickly assessing bird locations in remote areas while minimizing disturbance to marine mammals and other wildlife.

7.) Have they considered any other technology? Why was that technology not sufficient?



Monitoring from a boat(s), on foot, or by manned aircraft were considered. Rough sea conditions prevent access to most areas on most days. Difficult access prohibits regular visits on foot to remote portions of the islands. Manned flights are cost prohibitive and will likely result in too much disturbance to resting marine mammals and other wildlife. UAS technology can be more cost effective than manned aircraft. A cost-benefit analysis will be done to compare the effectiveness of UAS to manned helicopters for both monitoring for the presence of seabirds. Total monitoring costs per unit area will be provided for both unmanned and manned aerial techniques and evaluated to determine the most cost effective technique.

8.) Do they plan to request the vendor produce this technology in a different band?

At this time there are no plans to change the fixed frequencies. For the longer term, that option will be explored.

9.) How do they plan to mitigate interference potential?

Use of the aircraft will be coordinated with the Army who will in turn coordinate frequency use for the area. Our RFA (Radio Frequency Authorization) use request will be submitted to the NTIA and passed to the FAA (The COA process). USGS operational specifics for this project also state, "only one aircraft will be operating at a given time," eliminating potential conflicts within the project.

NOAA-Gulf of the Farallones National Marine Sanctuary (Sanctuary) maintains a 1,000 foot overflight restricted area over waters within one nautical mile of the Farallon Islands. Flights within this area require a permit from the Sanctuary. Permission to disturb wildlife with aircraft at the Farallon National Wildlife Refuge must be obtained from the USFWS. The Farallon Islands are 28 miles off the coast of San Francisco; aircraft are rarely observed flying below 3,000 feet over the islands. Thus, we do not anticipate interference with other air traffic.

10.) Are they willing to accept interference or use it on a Not to Interfere Basis?

The course of action with any potential interference issues will be determined by the operations manager at the time of the flight. The operational manager for the Farallon Islands Restoration Project will be Gerry McChesney, who can be contacted at 510-792-0222 ext. 222 or <gerry_mcchesney@fws.gov>.