

# US Army Spectrum Request Form

Requestor: Island Conservation  
Platform: Raven (A) and T-Hawk  
June 13, 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 Ashy storm-petrels breeds on the Farallon Islands, 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 USFWS, PRBO Conservation Science and Island Conservation are developing an 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 the two proposed action alternatives



to eradicate house mice, aerial broadcast of a rodenticide. 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 western gulls and other marine birds away from the Farallones during the non-breeding season and thereby minimize the probability they would come into contact with any rodenticide that might be used. 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.

In combination with other established hazing techniques we hypothesize that the use Unmanned Aerial Systems (UAS), fitted with lights and/or noise makers, can be effective and more cost efficient than traditional hazing techniques at hazing gulls and other seabirds away from coastal areas. Additionally, we hypothesize that UAS will be effective at evaluating the efficacy of hazing techniques and also providing real time feedback on where birds are present to direct hazing efforts. Trialing UAS to monitor hazing effectiveness will also provide valuable information on the ability of UAS to monitor seabirds for other purposes.

This COA allows USGS for 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 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. Flights are not to exceed 500 Feet AGL.

Area:

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

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. The planned operational use is December 1, 2012-February 1, 2014. A trail will be conducted in December 1 – December 22, 2012 to determine efficacy. If determined an effective tool UAS will be used as part of a larger monitoring operation from approximately November 1 2013 – February 1, 2014. The FAA COA approval is good for two years.

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



We are using UAS as part of a larger operation determine if it is possible to haze a large percentage of gulls off the South Farallon islands entirely, and to determine what hazing techniques are most effective and cost-efficient at dispersing western gulls to maintain an area free of western gulls. We aim to test different hazing techniques, including lasers, spot-lights, bio-sonics, pyrotechnics, effigies and kites and to quantify the effective range of each technique and how quickly gulls become accustomed and unresponsive to the different techniques. As far as we are aware UAS have not been used for hazing birds and we propose to test this as a new technique.

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

Manned flights have been conducted in the past but have become cost prohibitive. 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 and hazing gulls them. Total monitoring and hazing costs per unit area will be provided for both unmanned and manned aerial techniques and evaluated to determine the most cost effective technique.

UAS are one of the many tools we plan to use to conduct hazing during the Farallon Islands Restoration Project. We hope that UAS will provide a better alternative to helicopters as we may be able to specifically haze gulls and avoid hazing marine mammals; helicopters tend to haze both populations.

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.

No flights are allowed over the Farallon National Wildlife Refuge sanctuary and the South Farallon Islands in particular. Additionally no flights are allowed below 1000 ft of the islands, except by special permission from the USFWS. The Farallon Islands are 28 miles off the coast of San Francisco; 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 510-435-9151.