

## **Papahānaumokuākea Marine National Monument Permit Application Cover Sheet**

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

### **Summary Information**

**Applicant Name:** Stephen E. Miller

**Affiliation:** U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office

**Permit Category:** Research

**Proposed Activity Dates:** November 21, 2012 and July 28, 2014: eight visits (34 days)

**Proposed Method of Entry (Vessel/Plane):** plane

**Proposed Locations:** Midway Atoll National Wildlife Refuge, Sand and/or Eastern Islands

**Estimated number of individuals (including Applicant) to be covered under this permit:**

3

**Estimated number of days in the Monument:** 34

**Description of proposed activities:** (complete these sentences):

a.) The proposed activity would...  
collect micro-climate weather data and data on breeding success and thermoregulatory behavior of Laysan albatrosses. These data will be used to support climate modeling and evaluate potential impacts of climate change on albatross breeding success.

b.) To accomplish this activity we would ....  
1) establish two or three small (foot print = 2 feet by 2 feet by 12-16 inches high) ground level micro-climate data with continuously recording weather stations in albatross breeding areas that have varying degrees of protection from wind (unobstructed wind; obstructed by natural barriers); 2) record egg hatching success and chick mortality through visual nest counts within each area; and 3) video tape thermoregulatory behavior and remotely measure temperatures of eggs, chicks and adults on the nests.

No birds will be handled or manipulated in any way. All data will be collected remotely.

c.) This activity would help the Monument by ...

The micro-climate data will be combined with regional climate model projections to estimate future micro-climate breeding conditions. When combined with temperature dependent egg and chick survival data, the climate projections will providing insight into the impacts of climate change on seabird reproductive success in the monument. It will also help in developing adaptation and mitigation strategies that may assist seabirds in coping with climate change.

**Other information or background:**

Laysan Albatross are highly tolerant to small numbers of people walking among the birds. Annual bird counts with counters walking among the birds on Sand and Eastern Islands at Midway Atoll have shown that this type of activity does not affect the birds or chicks.

The research consists entirely of non-invasive data collection on microclimate, habitat condition, and bird thermoregulatory behavior. No birds will be handled or disturbed and no biological specimens will be collected.

The U.S. Fish and Wildlife Service Refuge program has written a letter of support for this work and it is attached to the research proposal that accompanies this permit application.