FY16 PROJECT PROPOSAL SUMMARY PAGE
Continuing, Multi-Year Projects

Project Title: Continuing the Legacy: Prince William Sound Marine Bird Population Trends

Project Period: February 1, 2016 – January 31, 2017

Primary Investigator(s): Kathy Kuletz and Robb Kaler, US Fish and Wildlife Service, Migratory Bird Management, Anchorage, Alaska

Study Location: Prince William Sound

Project Website: http://www.gulfwatchalaska.org/monitoring/pelagic-ecosystem/pws-marine-bird-population-trends/

Abstract*: This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et al. and spans 1989-2014, and includes 13 years of boat-based surveys aimed at monitoring population trends of marine birds and mammals in Prince William Sound after the *Exxon Valdez* oil spill. Data collected will be used to examine trends from summer to determine whether populations in the oiled zone are increasing, decreasing, or stable, as well as to examine overall population trends for the Sound. Data collected from 1989 to 2012 indicated that pigeon guillemots (*Cepphus columba*) and marbled murrelets (*Brachyramphus marmoratus*) are declining in the oiled areas of Prince William Sound. We have found high inter-annual variation in numbers of some bird species and therefore recommend continuing to conduct surveys every two years. These surveys are the only ongoing means to evaluate the recovery of most of these injured marine bird species. Surveys would also benefit the benthic monitoring and forage fish monitoring aspects of the Long-term Monitoring Project as well as the Herring Project.

Estimated Budget:

EVOSTC Funding Requested* (*must include 9% GA)*:

FY12	FY13	FY14	FY15	FY16	TOTAL
$206.5	$24.2	$211.1	$24.2	$215.7	$681.6

Non-EVOSTC Funds to be used:

FY12	FY13	FY14	FY15	FY16	TOTAL
$56.0	$22.0	$56.0	$22.0	$56.0	$212.0

** *Funds expressed in $1000 increments*

Date: September 1, 2015

I. EXECUTIVE SUMMARY

In order to assess population trends in the years following the Exxon Valdez Oil Spill (EVOS), the objectives of the proposed project "Continuing the Legacy: Prince William Sound Marine Bird Population Trends are (1) determine population abundance, with 95% confidence limits, of marine bird populations in Prince William Sound during March and July 2012, 2014 and 2016 in both oiled and unoiled regions; and (2) determine population abundance, with 95% confidence limits, of marine bird populations in Prince William Sound during March and July 2012, 2014 and 2016 for Prince William Sound as a whole.

During the past reporting period, Daniel Cushing completed his degree of Master of Science at Oregon State University and his thesis titled "Patterns of Distribution, Abundance, and Change over Time in the Marine Bird Community of Prince William Sound, Alaska, 1989-2012" (Cushing 2014). Using data collected during small boat surveys (1989-2012), Cushing (2014) used taxon- and community-centric approaches to examine patterns of marine bird distribution and abundance in Prince William Sound and found marine bird communities as a whole to be spatially structured along a primary onshore-offshore environmental gradient, and secondarily structured along an estuarine-marine environmental gradient. Cushing (2014) also investigated spatial habitat associations and temporal change of *Brachyramphus* murrelets and found that abundance estimates for both marbled murrelets (*Brachyramphus marmoratus*) and (*B. brevirostris*) decreased by more than two-thirds over the study period. There was no evidence that rates of change differed along environmental or geographic gradients and no evidence that changes in seasonal patterns of abundance occurred. Using marine bird data collected in July 2014, in FY15 we will continue to explore the hypothesis that climate change has differentially affected nearshore and offshore components of PWS food webs, and how this may have contributed to the failure of some taxa to recover from the population injury caused by the EVOS.

II. COORDINATION AND COLLABORATION

A. Within a EVOTC-Funded Program

This component will provide the data on marine bird and mammal populations for the: (1) Nearshore Benthic Project; (2) Herring Research and Monitoring Program, and (3) the Forage Fish Distribution and Abundance Project. Long-term population trend information on seabird species (three which rely on Pacific Herring; Pigeon Guillemots, Kittlitz's Murrelets, and Marbled Murrelets) is a critical tool for determining the efficacy of policy and management actions affecting the Gulf of Alaska marine ecosystem.

Collaborating with the Forage Fish Distribution and Abundance project, we plan to examine the utility of combining aerial survey data, hydroaccoustic survey data, and PWS-wide marine bird survey data to determine spatial overlap and identify "hot spots" to further understand relationships between forage fish distribution and marine habitats.

B. With Other EVOSTC-funded Projects

The proposed project complements the Council-funded effort to restore Pigeon Guillemot to the Naked Islands (Naked, Peak, and Storey islands). Dr. David Irons is a Principle Investigator for both the PWS marine bird survey as well as the Pigeon Guillemot restoration study.

C. With Trustee or Management Agencies

The proposed project supports the US Fish and Wildlife Service's Migratory Bird Management mission to advance the conservation of migratory birds. The project will also inform other land management agencies (US Forest Service, National Park Service, Bureau of Land Management, State of Alaska) with

lands and waters adjacent to our study area. Additionally, Co-PI Dr. Kathy Kuletz (USFWS) is also a PI of the seabird component for two other long-term monitoring projects that complement the PWS marine bird survey and will allow us to examine oceanographic and plankton data in conjunction with seabird distribution and relative abundance, with a seasonal component, across the Gulf Watch study area and will inform the fisheries management process in the Gulf of Alaska.

(1) Seabird surveys are a sub-award of the 'Seward Line' project funded by the North Pacific Research Board (Project 1427, "Measuring the pulse of Gulf of Alaska: Oceanographic observations along the Seward Line"; lead PI, Dr. R. Hopcroft, UAF). Dr. Kuletz coordinates pelagic surveys of marine birds in conjunction with the oceanographic and plankton surveys. The project includes the transit along the outer coast of the Kenai Peninsula between Homer and Seward, the Seward Line (which runs to the shelf break), and transits between stations throughout western PWS. Two sampling cruises (May and September) are conducted each year for the next five years, with plans to continue additional years, pending funding.

(2) Seabird surveys in Lower Cook Inlet funded by the Bureau of Ocean Energy Management (BOEM; Intra-agency Agreement No. M14PG00031, "Seabird Abundance and Distribution with Respect to Ecological Processes in Lower Cook Inlet"). This project collects data for the upper trophic level component of the BOEM environmental studies program, in partnership with an existing multidisciplinary monitoring program (Monitoring temporal and spatial trends in lower Cook Inlet and Kachemak Bay waters, Gulf Watch, PIs A. Doroff (KBNERR) and K. Holderied (NOAA)). The USFWS/BOEM marine bird surveys are conducted in conjunction with oceanographic and plankton sampling across four transect lines in Lower Cook Inlet, four times per year (spring, summer, fall, winter), 2012 - 2016.

III. PROJECT DESIGN – PLAN FOR FY16

A. Objectives for FY16

To determine population abundance, with 95% confidence limits, of marine bird populations in Prince William Sound during July 2012, 2014 and 2016 in both oiled and unoiled regions, as well as in Prince William Sound as a whole, in order to assess population trends in the years following the EVOS.

B. Changes to Project Design

No changes have been made to the project design

IV. SCHEDULE

A. Project Milestones for FY 16

Objective 1. Determine population abundance, with 95% confidence limits, of marine bird populations in Prince William Sound during July 2012, 2014 and 2016 in both oiled and unoiled regions
To be met by September 2016

Objective 2. Determine population abundance, with 95% confidence limits, of marine bird populations in Prince William Sound as a whole during July 2012, 2014 and 2016
To be met by December 2016

B. Measurable Project Tasks for FY 16

FY 16, 1st quarter (February 1, 2016 - April 31, 2016)

February 01: Begin paper work process for hiring project personnel
Begin logistical planning for lodging and fuel caches
Begin paper work process for contractual agreements

March 01 – April 31: Continue follow-up with Human Resource department for hiring of project personnel; interview and hire project personnel
Continue follow-up with Contracting department for status of contractual project support

FY 16, 2nd quarter (May 1, 2016-July 30, 2016)

May 15: Prepare for field season
July 01-31: Conduct field work

FY 16, 3rd quarter (August 1, 2016 – October 31, 2016)

August 01: Clean and store field gear, survey vessels, and equipment
Begin survey data management (QA/QC) and analysis
September 01: Data analysis and summary report preparation

FY 16, 4th quarter (November 1, 2016- January 31, 2017)

November 01-December 31: Report writing
November 18: Attend annual PI meeting

V. PROJECT PERSONNEL – CHANGES AND UPDATES

David Irons has been co-PI this project since it was funded by Gulf Watch Alaska in 2012. David retired from the USFWS in May 2015 and will serve in an advisory capacity on this project. David is an adjunct professor at Oregon State University, Corvallis, Oregon.

VI. BUDGET

A. Budget Forms

Forms provided separatel

B. Changes from Original Proposal

There are no changes to our FY16 funding request.

C. Sources of Additional Funding

Salary contribution, U.S. Fish and Wildlife Service

- Kathy Kuletz salary (GS-12, $11,000 per month) for 2 months/year = $22K

Kathy will provide the project leader guidance and assist with data analysis and reporting. Additionally,

Equipment contribution, U.S. Fish and Wildlife Service

- Survey vessels (three, 25-ft Boston Whalers) at $300/day/boat for 20 days = $18K

Three survey vessels (and one vessel as an alternate) will serve as the survey platform for the marine bird and mammals surveys conducted across PWS.

- Equipment (computers and software, immersion suits, electronics, etc.) = $12K

Each survey vessel has two survey laptop computers (for data collection), one salinity meter (for measuring salinity, sea surface temperature, and ocean pH), emergency equipment (for emergency evacuation from survey vessel; immersion suits, emergency locator beacon, satellite telephone, hand-held VHF radios), and Global Positioning Satellite receivers and associated software and hardware for data collection).

- GSA vehicle lease and fuel (full-size diesel truck for towing survey vessels) = $4K

Total in-kind contribution from U.S. Fish and Wildlife Service for FY 16 = $56K