

BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Alaska

Planning Area(s): All Alaska Planning Areas

Title: Seabird Distribution and Abundance in the Offshore Environment (AK-10-10)

BOEM Information Need(s) to be Addressed: More information on the distribution and timing of use by marine birds, including listed and candidate species under the ESA (Spectacled Eider, Steller's Eider, Short-Tailed Albatross, Kittlitz's Murrelet) is necessary to assess potential impacts of oil and gas exploration and development in the Chukchi Sea Planning Area. Data on the distribution of marine birds may be used for ESA Section 7 consultations and NEPA analyses, DPPs and other documentation. The information obtained from these surveys may assist in development of mitigation measures and strategies to reduce potential impacts.

Total Cost: \$320,000
plus Joint Funding (~\$30,000)

Period of Performance: FY 2010-2017

Conducting Organization: USFWS

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Description:

Background: Basic information on timing and duration of use within designated (Chukchi Sea) and potential Beaufort Planning Areas is necessary to better define the impacts of perturbations and ultimately population effects. Breeding seabirds are generally monitored at colonies, yet they spend most of the year dispersed offshore. Additionally, one half or more of all seabirds do not breed in a given year, thus management of marine birds requires knowledge of spatial and temporal patterns of seabird distribution at sea. The North Pacific Pelagic Seabird Database (NPPSD) is used to consolidate marine bird survey data, but most of these data were collected in the 1970s-80s. Since then, many seabird species have declined and changes have occurred in ocean ecosystems. These changes may have affected the foraging patterns of seabirds. Further changes due to predicted Arctic climate change are anticipated. To address these needs, this project will build off of a recently established at-sea survey program, to collect distribution data on seabirds via partnership and collaboration among the USFWS, NOAA-Fisheries and other vessel-based programs.

Species composition of marine birds varies tremendously by season. For example, in the Bering Sea, shearwaters (*Puffinus* spp.) are the dominant species in summer and fall, accounting for 40-60 % of total marine bird density (birds/km²). When shearwaters return to their southern breeding grounds in winter and spring, seaducks (*Anatidae* spp.) and Murres (*Uria* spp.) dominate. These species groups have very different dispersal patterns and foraging behaviors, thus seasonal changes should be integrated into management schemes. Furthermore, there is little information on seabird

distribution during the migration and winter phases, and filling these information needs will be valuable for mitigating impacts from oil and gas exploration.

The results of this study will complement recent and on-going surveys of marine birds which are partially funded by the North Pacific Research Board (NPRB) and the USFWS. In 2006-2007, NPRB project placed 637 seabird observers on NOAA and NSF-funded vessel-based projects. During those two years, USFWS seabird observers joined 27 cruises and surveyed in excess of 42,000 km. Data on more than 547,000 birds were added to the NPPSD. However, only two of those cruises covered waters in the Chukchi or NAB areas. The at-sea survey program recently received additional funding from NPRB for 2008-2011, as part of the Bering Sea Ecosystem Integrated Research Program. Again, the funded surveys do not adequately provide coverage of the Chukchi or Beaufort areas. With minimal additional funding, the USFWS at-sea survey program could expand to other research cruises that will provide coverage of the lease sale areas. In combination, these surveys will provide a more complete and current data set on marine bird use of the region.

Objectives:

- Estimate the spatial distribution, species composition and seasonal changes in species and abundance for marine birds in designated and potential planning areas.
- Process the data for entry into the North Pacific Pelagic Seabird Database for future accessibility and facilitate management decisions for marine bird use of planning areas.

Methods: Seabird observers will be placed on ships of opportunity, primarily NOAA, BOEM, and NSF-funded research vessels. Based on on-going BOEM, NOAA and NSF programs, we anticipate availability of at least five additional cruises per year in the Chukchi and Beaufort planning areas or within the Bering Sea. Observers use standardized protocols for marine bird surveys and data is entered directly into a laptop computer with a GPS interface. The presence of marine mammals is also recorded, although the seabird protocol differs from those used exclusively for marine mammal surveys. Data will be processed for entry into the NPPSD, providing access to multiple users.

Current Status: Ongoing

Final Report Due: March 2017

Publications Completed: None

Affiliated WWW Sites: <http://www.boem.gov/akstudies/>
http://www.arctic.noaa.gov/soar/SOAR_projects.shtml
<https://web.sfos.uaf.edu/wordpress/arcticeis/>
<http://seabirdyouth.org/our-blog/>
<http://alaska.usgs.gov/science/biology/nppsd/index.php>

Revised Date: August 2016

ESPIS: Environmental Studies Program Information System

All *completed* ESP studies can be found

here: http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp