BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Alaska

Planning Area(s): Chukchi Sea

Title: Pinniped Movements and Foraging: Bearded Seals (AK-07-08)

BOEM Information Need(s) to be Addressed: Large numbers of pinnipeds migrate through and potentially occupy areas of high oil and gas potential in the Chukchi Sea, including habitat near the Burger Prospect. Pinnipeds may be affected in a variety of ways during all stages of oil and gas exploration, development, and production. Study findings will be used in post-sale NEPA analysis, review of EPs, DPPs and other reviews for post-sale and post-exploration BOEM decision making and mitigation. Also, study results will be used in pre-lease analyses and documentation for potential future Chukchi Sea lease sales. This study addresses aspects of USGS Recommendations 3.05, 3.06 and 6.15.

Total Cost: $1,163,000 plus Joint Funding **Period of Performance:** FY 2007-2012

Conducting Organization: NMFS-NMML

BOEM Contact: Dr. Dan Holiday

Description:
Background: Bearded seals are one of the most important resources for Alaska Native subsistence hunters of coastal northern and western Alaska. Early estimates of the Bering-Chukchi Sea population range from 250,000 to 300,000, and surveys flown from Shishmaref to Barrow during May-June 1999 and 2000 provided preliminary results indicating densities up to 0.652 seals km-2. However, densities could not be converted into abundance estimates without information on the proportion of animals hauled out. As adult bearded seals in these areas have never been live captured and instrumented with devices for estimating the haul-out proportion, a reliable estimate for the abundance of the Alaska stock of bearded seals is considered unavailable. Therefore, understanding the timing of haul-out behavior is important because abundance estimates are needed for developing sound plans for conservation, management, and response to potential environmental impacts of planned oil and gas activities.

Little is known of bearded seals' distribution throughout much of the year; however they are known to concentrate in specific areas for breeding and molting. Identification of these areas is important to assessment of potential impacts from industrial activities. Any potential industrial impacts on bearded seals could potentially be mitigated or magnified by climatic-induced change in the physical and biological habitat. Magnification of impacts seems the most likely, especially because reductions in sea ice may de-couple the co-occurrence of suitable ice and suitable benthic prey communities in those areas that have become traditional breeding and molting grounds for bearded seals.

The Burger Prospect has potentially strong renewed interest for oil and gas exploration and development and is located just south of Hanna Shoal. It is thus situated between winter habitat and potentially important summer feeding habitat on, and around, Hanna Shoal. Plans for geophysical exploration, field delineation, and development of production facilities and pipelines in that region are being developed and such activities may have consequences for pinniped movements and habitat utilization, which in turn could alter the availability of walrus and ice seals for subsistence by Natives in villages along the northwestern Alaskan coastline. Identification of migration routes and high-use habitat areas is critical to assessment of potential impacts from oil- and gas-related industrial activities on pinniped populations and subsistence use by Alaskan Natives.

Objectives:

- Estimate the seasonal movements and patterns of distribution and behavior of bearded seals in the Chukchi Sea Planning Area.
- Identify and evaluate the priority of importance of specific marine habitats used by bearded seals in the Chukchi Sea Planning Area associated with key life history events such as breeding, pup rearing, foraging, and molting. Emphasis will be placed on movements of seals between nearshore areas where they are hunted for subsistence and offshore areas where industrial development is anticipated, such as potential high biomass areas in the vicinity of the Burger Prospect and Hanna Shoal.
- Improve the accuracy and precision of estimates of bearded seal abundance in the Chukchi Sea Planning Area by developing a haul-out correction factor that can be used to adjust existing survey counts for the proportion of seals that are at sea and not observed during aerial surveys.

Methods: Phases I & II will involve cooperation with Alaska Natives in northwestern Alaska.

Phase I will include: 1) communicating with hunters in villages along the coastline of northwest Alaska and St. Lawrence Island and other interested parties, to evaluate levels of interest in the proposed study and holding a workshop if useful; 2) evaluating satellite tagging technology, including equipment, deployment and attachment methods and making recommendations for proposed study(s); 3) considering the above, preparing an implementation plan for satellite tagging and data collection and exploring joint funding opportunities.

Phase II will include: 1) review of literature and data to develop hypotheses about habitat use and seasonal movements between winter and summer habitat; 2) training Native hunters or other coastal village residents to deploy satellite transmitters on selected pinnipeds in the vicinity of respective villages; 3) deployment of transmitters to test hypotheses developed—since tags will have a relatively short lifespan, sampling is to be spread among villages and, to the extent possible, divided among northward and southward migrating pinnipeds; 4) analyzing data to test hypotheses and developing recommendations for mitigations of any likely effects of development on habitat use and migration; 5) maintaining data in a GIS and providing summaries of individual movements regularly on a public website. Results will be shared with residents of communities near the study area and participation of local Natives, especially young people, in analysis and interpretation of findings and conclusions will be encouraged.

Current Status: Ongoing

Final Report Due: September 2012

Publications Completed: None

Affiliated WWW Sites:

http://www.boem.gov/akstudies/
ftp://ftp.afsc.noaa.gov/posters/pCameron05_adult-bearded-seal-pups.pdf
ftp://ftp.afsc.noaa.gov/posters/pCameron04_adult-bearded-seal-pups.pdf
ftp://ftp.afsc.noaa.gov/posters/pZiel02_hemoglobin-seals.pdf
ftp://ftp.afsc.noaa.gov/posters/pBoveng06_migration-bearded-seal.pdf

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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