

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Area: Beaufort Sea

Title: Pre-migratory Movements and Physiology of Shorebirds Staging on Beaufort Sea Littoral Zone (AK-93-48-56)

MMS Information Needs to be Addressed: MMS will use results on shorebird distribution and abundance from this study, and related studies cited within, to estimate the effects of various oil spill scenarios on the Beaufort Sea breeding and staging shorebird population. MMS will also use information on habitat-use, and peaks in staging and turn-over times to improve NEPA assessments of potential impacts of oil development, and potentially to develop mitigation measures for future OCS activity, and supporting onshore development. This work will compliment other ongoing research on tundra breeding shorebirds, and allow a more complete evaluation of the potential effects of oil and gas development. MMS will utilize information obtained from this study for NEPA analysis and documentation for Beaufort Sea Lease Sales, post-sale mitigation, exploration plan reviews, and DPPs.

Total Cost: \$270,208

Period of Performance: FY 2004-2009

Conducting Organization: CMI, UAF

MMS Contact: [Chief, Alaska Environmental Studies Section](#)

Description:

Background Preliminary work conducted during the 1970's near Barrow, Alaska, indicated that shorebirds breeding along Alaska's North Slope use the Beaufort Sea littoral zone extensively for nutrient acquisition prior to migration to wintering areas in Asia and the Americas. However, little information exists on the seasonal distribution and abundance of pre-migratory shorebirds that use littoral zones along the entire Beaufort Sea and what factors may influence the duration and timing of use. This information is important given increased interest in oil and gas exploration and other development across the Arctic coastal plain.

Shorebirds are granted protection under the Migratory Bird Treaty Act, and several species that breed and stage along the Beaufort Sea (Dunlin, American Golden-plover, Bar-tailed Godwit, and Whimbrel) appear on the USFWS list of birds of conservation concern. A better understanding of the ecology of staging shorebirds across the Beaufort Sea littoral zone could be useful for assessment of potential effects from current and future industrial activity, including possible contamination of brooding and staging habitats from oil or gas spills, human disturbance, or increased rates of predation by species (e.g., gulls and ravens) whose populations have increased through anthropogenic changes in the area.

Objectives

1. Assess the species composition, distribution, abundance, and habitat use of pre-migratory shorebirds staging along Beaufort Sea coastline.
2. Examine factors affecting shorebird use of littoral zones near Barrow, Alaska, as a reference site for the remaining portions of the Beaufort Sea coastline.

Methods

1. Conduct a single aerial survey for staging shorebirds along the Beaufort coast from Point Lay to Demarcation Point on the Canadian border during August and September 2005 and 2006. Four teams of biologists will be stationed on the ground along the aerial flight line to identify species using the area and correct aerial survey data.
2. Locate and monitor littoral transects around Barrow to determine species-specific habitat preference, turnover times, and movements between local staging sites.
3. Mist-net and blood-sample birds at littoral staging sites in the Barrow vicinity to examine differences in fattening rates (measured by plasma fat metabolite levels) and physiological stress levels (measured by blood corticosterone concentrations). This information will provide information about the physiological mechanism behind the timing and duration of pre-migratory shorebird use of Beaufort Sea littoral zones.

Current Status:

Research is continuing along the Beaufort Sea coastline and in Peard Bay and Kasegaluk Lagoon in the Chukchi Sea.

Final Report Due: December 31, 2008.

Publications Completed:

No peer-reviewed publications from this contract to date. Several annual CMI Reports have been generated and several presentations at professional meetings have been given.

Presentations:

Taylor, A., R. Lanctot, A. Powell, and T. Williams. 2006. Should I stay or should I go now: the importance of staging sites to shorebirds on Alaska's North Slope. 28 February, Shorebird Science in the Western Hemisphere, Boulder, CO.

Taylor, A. R., A. N. Powell, R. B. Lanctot, T. D. Williams, and A. S. Kitaysky. 2005. Using physiology to predict staging behavior of post-breeding shorebirds on Alaska's North Slope. Poster, Annual Meeting, Pacific Seabird Group/Waterbird Society Meeting, 19-23 January, Portland, OR

Affiliated WWW Sites: <http://www.sfos.uaf.edu/cmi/>
<http://www.mms.gov/alaska/>

Revised Date: March 2008