

## **MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES**

**Region:** Alaska

**Planning Area(s):** Beaufort Sea

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

**MMS Information Need(s) 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. The 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. The 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 plus Joint Funding

**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:

- Assess the species composition, distribution, abundance, and habitat use of pre-migratory shorebirds staging along Beaufort Sea coastline.
- 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: A single aerial survey for staging shorebirds along the Beaufort coast from Point Lay to Demarcation Point on the Canadian border will be conducted 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. Littoral transects around Barrow will be located and monitored to determine species-specific habitat preference, turnover times, and movements between local staging sites. Mist-netting and blood-sampling of birds will occur 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:** Awaiting final report

**Final Report Due:** March 2009

**Publications Completed:** None

**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:** January 2009