Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 02 – (October 1 to Sept 30)

Project Title: No. 23: Characterization of Beaufort Sea Flyway: Long-tailed ducks (*Clangula hyemalis*) and common eider (*Somateria mollissima v-nigrum*)

Principal Investigator(s)*:* Margaret R. Petersen, USGS, Alaska Science Center, 1011 E. Tudor Road, Anchorage, AK 99503. Margaret_Petersen@usgs.gov

Partners: USFWS, SDJV; USGS, Science Support (SS) Funds; USFWS, Arctic National Wildlife Refuge (ANWR); BP Exploration (AK) Inc. on behalf of Prudhoe Bay Unit owners.

Project Description: Long-term declines of common eiders and long-tailed ducks have been reported in Alaska, including populations on the North Slope. The causes of these declines are unknown. We are using satellite telemetry to characterize use of the Beaufort Sea as well as to identify wintering and staging areas of nesting common eiders and wintering, staging, and nesting areas of molting long-tailed ducks. The study is designed to evaluate differences in timing of migration and areas used among years in relation to ice distribution and other factors including weather and variation due to timing of nest initiation and molt.

Objectives: The primary objective of this study is to locate and describe migration corridors, staging habitats, and habitats used by nesting populations of common eiders and molting long-tailed ducks when migrating in fall and spring in the Beaufort Sea. I expect to identify areas used by the Beaufort Sea breeding population of common eiders throughout the year, as well as identify the breeding origins and wintering areas of long-tailed ducks molting in a coastal estuary along the Beaufort Sea. These data will provide information key to effectively managing these populations of sea ducks.

Preliminary Results: Common eiders were marked in July 2001 and provided data through winter, spring staging, and migration to the nesting area in 2002 (Fig. 1). Ledyard Bay was an important staging area for all birds, and some birds staged in the polynya off the Mackenzie River during spring. All birds returned to the area they nested during the previous year (2001) on 6-9 June 2002. These data are consistent with that observed earlier (Petersen and Flint 2002, Condor 104:*in press*) and provide more detailed information on timing and habitat use during spring migration and staging.

Project Status: Thirty satellite transmitters were deployed in molting female long-tailed ducks during 8-12 August 2002 near Point Thomson, North Slope, Alaska. Eighteen were programmed to provide data during molt migration 2003 and will also provide location data on a weekly basis throughout fall migration and winter. Twelve transmitters are programmed to provide daily location data until December when the batteries are expected to fail. In August 2003 an additional 30 molting female long-tailed

ducks will be marked in this area. This will complete the long-tailed duck sample for this study.

No transmitters were deployed in female common eiders nesting along the Beaufort Sea coast in 2002 due to a wide-spread nesting failure resulting from sea ice surrounding most nesting islands late in the season (fewer birds nesting) and fox, polar bear, and gull predation on nests. These 18 transmitters as well as an additional 12 will be deployed in nesting common eiders during July 2003. This will complete the common eider sample.

Location data from long-tailed ducks marked in FY2002 will be collected primarily in FY2003 when birds are expected to begin fall migration and arrive to wintering areas (October through December 2002). Plans are to complete satellite transmitter deployment for both species in July-August 2003 and data collection in August 2004.