Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2007 – (October 1, 2006 to Sept 30, 2007)

Project Title: Temporal and Geographic Distribution of the Aleutian Islands Pacific Common Eider: Near Islands (#79). YEAR 2 of a 3 YEAR STUDY (No SDJV funds provided in FY07, none requested for FY08.)

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Partners:

U.S. Geological Survey, Alaska Science Center, Anchorage; Alaska Maritime National Wildlife Refuge (Refuge), Homer; US Air Force, Elmendorf Air Force Base, Anchorage, AK; Migratory Bird Management, Region 7, US Fish and Wildlife Service, Anchorage, AK.

Project Description:

Information on the temporal and geographic distribution of the Pacific common eider *Somateria mollissima v-nigrum* is required to design monitoring programs and develop management plans. This is a *high* priority need by the SDJV. In our study, we provide distribution information on the movements and non-breeding distribution of eiders nesting in the western Aleutian Islands. The study area is the Near Islands group which includes Attu, Agattu, Shemya, Alaid, and Nizki islands (Fig. 1). Marking activities were spread amongst colonies on each island, with daily support from the Refuge vessel M/V *Tiglax*. We implanted (Korschgen et al. 1996, Mulcahy & Esler 1999) coelomic transmitters with percutaneous antennas. We used PTT-100's (Microwave Telemetry, Columbia, Maryland) that have a maximum expected life span (total hours transmitting) of 1400 hr and were programmed to last 2 years (2 winters, molting periods, and spring and autumn migrations, and 3 breeding seasons). Nesting common eiders were marked from 4 islands; the final number of birds marked per island varied and was dependent on the number and availability of nests, weather, and vessel schedule. Eiders were captured with dip-nets and by hand.

Objectives:

The primary objectives of this study are to locate and describe staging, molting, and wintering areas and describe key habitat features of areas used by the Aleutian Islands population of common eiders. This study is designed to gather data from individuals during a 2-year period. Using satellite telemetry, we will:

! Determine the distribution patterns of breeding eiders during the flightless period and in autumn, winter, and spring. Population definition and delineation is a *high* priority for Pacific common eiders that has been identified by the SDJV (2001).

- Determine the general timing and duration of migration. A *high* priority item listed for the Pacific common eider is to determine population numbers and monitor trends (SDJV 2001). Before effective surveys can be developed, it is necessary to determine when birds arrive to potential survey areas and what fraction of the population will be surveyed.

- Determine migration pathways and corridors. Identification of these important coastal habitats is not prioritized by the SDJV (2001), but is a high priority of the Refuge.

- Describe general habitat characteristics of molting, staging, and wintering areas. Habitat requirements for this sub-species are of *medium* priority (SDJV 2001). However, the increasing development in coastal bays and estuaries and the increasing numbers of cargo vessels in the area (thus potential fuel spills) is an on-going threat to this breeding population. Information on general habitat characteristics (see Petersen & Douglas 2004) from this study combined with information from previous studies of invertebrate communities is needed for developing scientifically sound management actions and mitigation requirements.

Preliminary Results:

We marked 26 nesting adult female eiders in June 2006. Transmitters were designed to provide 1400 hours of transmission time and were programmed to last 2 years (through June 2008). Due to defective batteries, most transmitters failed prematurely. One bird died during December. Of the remaining 25 individuals; 23 provided information in winter, 16 throughout spring, 15 during summer, 7 at the beginning of fall (1 Aug.), and 5 are still providing data as of 24 September 2007.

In winter, 15 (65%) individuals moved < 15 km from their nest sites (8 <5 km, 3 <10 km, and 4 < 15 km). Seven (30%) moved > 35 km and < 130 km to nearby islands or shoals. One moved 210 km out of the Near Islands to Buldir Island. Distinct breeding, staging, and wintering areas were identified for only 1 individual. All other eiders used the same nearshore waters during spring staging, summer, and fall. Eiders either wintered in the same area they nested (found on land and in waters adjacent to the area used in summer) or were found in discrete wintering areas nearby, at adjacent islands, or over off-shore shoals. All waters were very shallow with some portions exposed at low tide. Once birds arrived to wintering areas (Oct-Nov), with a few exceptions, they remained there until early or mid-April

Project Status:

This portion of the project (Near Islands) will be completed in mid-2008 or earlier when the batteries of the last few transmitters will likely fail. We will monitor movements of eiders and report data to the Refuge on a regular basis.

Preliminary results suggest that adult female common eiders that nest in the Near Islands remain there throughout the winter. This has two major management implications. Except when females are on nests, systematic boat surveys which circumvent each island and adjacent shoals or focus on areas birds were located (i.e., exclude the NE side of Attu and the NW side of Agattu) will likely provide a fairly reliable index of resident birds. These types of surveys have been conducted periodically the last few decades and are on-going, and estimates may be reflective of the total population. Once a visibility correction factor is developed, these data can be used to develop trend

estimates of this population. Since we determined that birds breeding in the Near Islands are resident, it is highly likely that additional stress and mortalities associated with human perturbations will directly impact this population.

Determining the characteristics of migration of a non-migratory (< 100 km) population is problematic. We will, however, be able to make some general statements of local movements, especially as they relate to the location of shoals and historic invertebrate species and abundance data. Publication of the results will begin in FY2009.

Literature Cited

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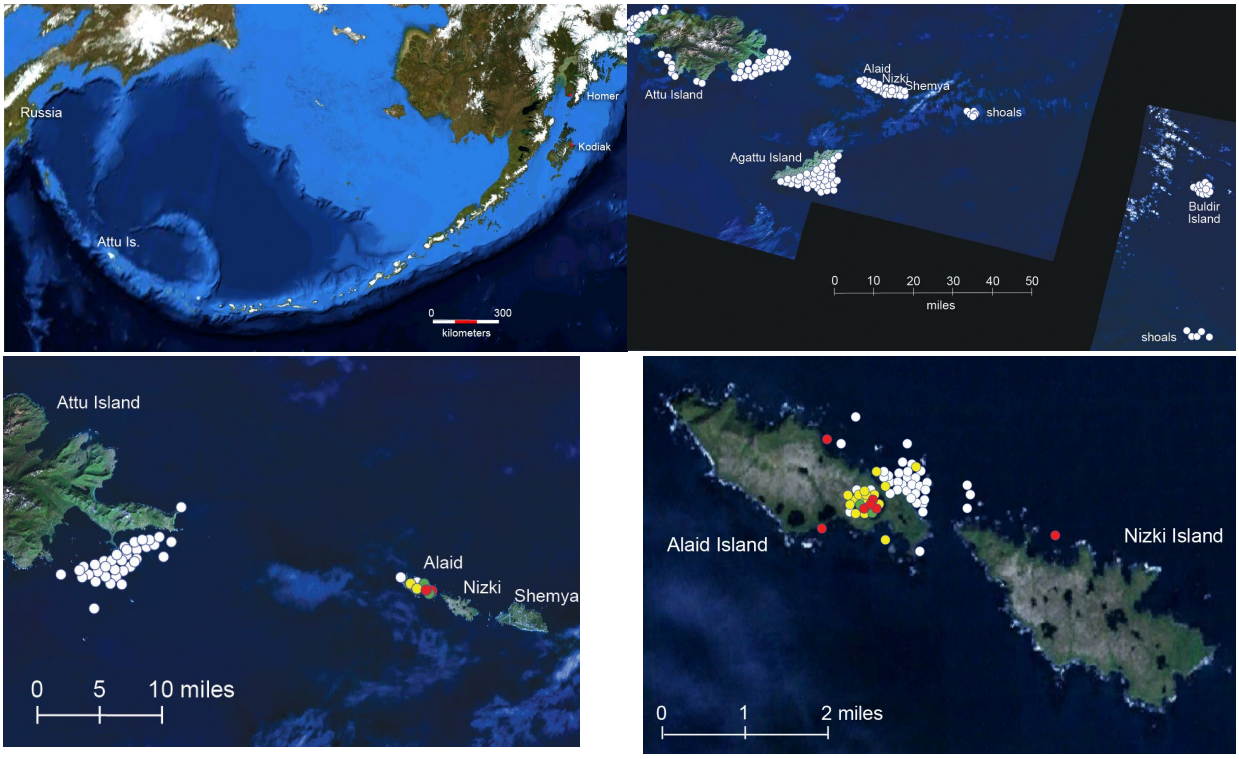

Figure 1. Location of the study area and locations of common eiders within the Near Islands throughout one year. Each location represents the single best location during the transmission period. Transmissions at 3-day intervals. White circles – winter; green circles – spring; red circles – breeding/summer; yellow circles – fall.
Upper left: Location of the Near Islands study area (Attu, Nizki, Alaid, and Agattu Islands)
Upper right: Winter locations of all birds marked in June 2006.
Lower left: Locations of a common eider representing an individual with a discrete wintering area.
Lower right: Locations of an individual whose winter, summer, spring, and fall data overlap.