Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2008 – (October 1, 2007 to Sept 30, 2008)

Project Title: Temporal and Geographic Distribution of the Aleutian Islands Pacific Common Eider: Rat and Andreanof Islands and Near Islands (#79). YEAR 3 of a 3 YEAR STUDY ($33,427)

Principal Investigator(s):

Margaret R. Petersen, U.S. Geological Survey, Alaska Science Center, 4210 University Drive, Anchorage, AK 99508, (907) 786-3530, MRPetersen@usgs.gov

G. Vernon Byrd, U.S. Fish and Wildlife Service, Alaska Maritime National Wildlife Refuge, Homer, AK 99603, (907) 235-6546, Vernon_Byrd@fws.gov

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 information on the movements and non-breeding distribution of eiders nesting in the western and central Aleutian Islands.

2006. We marked 26 birds in the Near Islands group (Aleutian Islands) 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.

2007. Data from birds marked in 2006 were compiled and analyzed for the first full year. A summary of the data are in Figure 1 and provided in the September 2007 report. Also, during June 2007, reconnaissance surveys were conducted in the central Aleutian Islands in the Rat and Andreanof islands including Tanaga, Adak and Amchitka islands. Although we searched likely habitats and found nests from previous years, we found no densities of active nests. We concluded that birds had not begun nesting by 6 June, the last day we searched for nests. Broods were found at Tanaga Island (Andreanof Islands) during boat surveys in August 2007.

2008. In June 2008 we captured and marked 30 nesting female common eiders in the central Aleutian Islands: 4 on Adak Island (Andreanof Islands) and 26 on Amchitka Island (Rat Islands). We implanted PTT-100's programmed to last into their second winter, about 20 months (until Feb.

2010). As of 1 Sept. 2008, 1 individual had died leaving 29 birds presently providing location information. All of these birds have remained at the island they were marked.

During winter 2007/2008 five birds marked in the Near Islands in 2006 provided data into their second winter. All used the same areas as in winter 2006/2007. One individual's battery lasted as programmed (June 2008) and provided information on her staging, wintering, and molting areas for 2 years.

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 into winter 2007/2008.

In winter 2006/2007, 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 eider 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. Five individuals' transmitters provided data into their second winter (2007/2008). All returned to the areas they nested, staged, and wintered the previous year. The single individual who wintered at Buldir Island in 2006/2007 and 2007/2008 returned to the same nesting area she was marked in 2006.

Project Status:

The Near Islands portion of the project was completed in June 2008 when the battery discharged from the last transmitter. The central Aleutian portion (Rat and Andreanof Islands) began in June 2008 and location data are expected to be received into 2010.

Results from birds marked in the Near Islands showed that adult female common eiders that nested there remained in this island group 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 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 population is problematic. Because of the very high quality of the location data, we will describe local movements, especially as they relate to the location of shoals and historic invertebrate species and abundance data. Once the final data from transmitters is received, analysis and publication of the results will begin in FY2010.

Literature Cited

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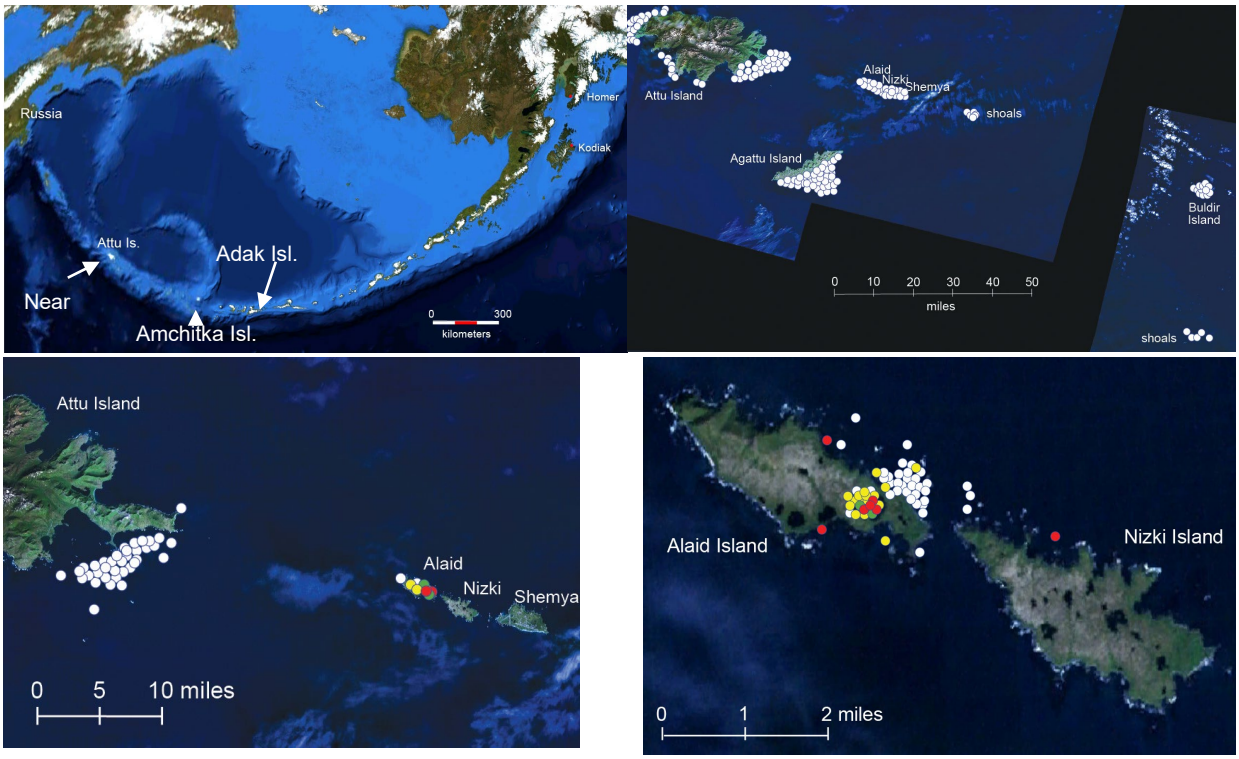

Figure 1. Location of the study area and locations of common eiders within the Near Islands throughout one year. Each location represents the single best location during the transmission period. Transmissions at 3-day intervals. White circles – winter; green circles – spring; red circles – breeding/summer; 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.

Project Funding Sources (US$).

SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (agency or organization)
$34,202					SDJV
	$23,770				USGS, Alaska Science Center, Anchorage, AK
	$36,500				Alaska Maritime NWR, Homer, AK
	$ 73,000				USFWS, MBM, Region 7

Total Expenditures by Category.

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding (include only if this was a major element of study)					
Surveys (include only if this was a major element of study)					
Research	$151,472	$ 2,000	$ 2,000	$ 12,000	$167,472
Communication (ignore incidental communication expenses)					
Coordination (ignore incidental coordination expenses)					