

Sea Duck Joint Venture

Annual Project Summary for Endorsed Projects

FY 2008 – (October 1, 2007 to Sept 30, 2008)

Project Title: No. 2 Identification of Chukchi and Beaufort Sea Migration Corridor for Sea Ducks. Year 1 of a 3-year funding period.

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Partners: ConocoPhillips, Polar Continental Shelf Project.

Project Description: The development of offshore oil production facilities is currently underway off the Alaskan Beaufort Sea coast, and is expected to expand to the Canadian Beaufort Sea and eastern Chukchi Sea in the near future. Hundreds of thousands of sea ducks, primarily Long-tailed Ducks, King Eiders and Pacific Common Eiders, migrate across the Beaufort and Chukchi seas on route between wintering areas west of the continent and breeding areas in northern Alaska and Canada. Although there is some information on migration, little is known about the specific migration pathways and habitats used by the sea ducks. Hence, it is difficult to predict the degree of potential threat of expanded oil and gas development to these three sea duck species, all of which have experienced a population decline in recent years. Using satellite telemetry, this study is providing information about the location and timing of use of migration corridors, so that analysts can better predict and mitigate any adverse effects of offshore petroleum development on subject populations. The study is also providing information on affiliations between wintering, breeding and moulting grounds, thereby helping to define populations units. Such information is essential to effectively manage a harvested species.

Prior to 2008, satellite transmitters had been successfully deployed on 67 Common Eiders, 46 King Eiders and 3 Long-tailed Ducks on breeding grounds east of the Beaufort Sea. During this 3-year funding period, we proposed to deploy 30 satellite transmitters on King Eiders in 2008, then up to 30 transmitters per year on Long-tailed Ducks in 2009 and 2010.

In mid-June 2008, King Eiders were captured using mist nets on ponds at a breeding area on Banks Island, Northwest Territories, Canada. Eiders were surgically implanted with satellite transmitters, then released on their capture pond. We programmed the transmitters to transmit a location once every three days during westward (moult/fall) migration, once every eight days during winter (thus conserving battery life), and once every day during eastward (spring) migration. Emphasis was placed on spring migration since the results from previous years of tracking suggested that King Eiders would be most vulnerable to offshore oil and gas development at that time of year.

Objectives: The primary objectives of the study are: 1) to determine specific migration routes for western Canadian breeding populations of King Eiders, Common Eiders and Long-tailed Ducks, 2) to document temporal and spatial relationships of migrating eiders and Long-tailed Ducks to pack ice, islands and other physical features in the Beaufort Sea, and 3) to identify wintering, staging and moulting areas, and their affiliation with specific breeding areas.

Other incidental benefits include: 1) identification of important marine habitats for sea ducks, 2) collection of tissues for genetics, stable isotope and contaminant analyses, and 3) provision of information to develop more effective survey techniques to monitor the status of populations.

This study is providing information on population definition/delineation (high priority in Sea Duck Joint Venture Strategic Plan) and habitat requirements for three sea duck populations that have experienced substantial declines in recent decades.

Preliminary Results: From 11-18 June, 2008, satellite transmitters were implanted in 30 King Eiders (17 males, 13 females) on their breeding grounds near Siksik Lake, Banks Island, Northwest Territories. One male died within 6 days of surgery and another was shot near Barrow, Alaska in late July. By early September, the 28 remaining eiders had all completed migration westward across the Beaufort and Chukchi seas (Fig. 1).

Similar to other King Eiders tagged in western arctic Canada in previous years, the King Eiders tagged on Banks Island in 2008 all migrated to the Bering Sea to moult (Fig. 2). As in other years, moult migration across the Beaufort and Chukchi seas occurred earlier for males than females. Mean date of arrival on moulting sites for males was 9 August (n=15) compared to 24 August for females (n=10). Five males staged for 1-4 weeks off Cape Bathurst in the southeastern Beaufort Sea during their moult migration. Males took an average of 2 weeks to cross the Beaufort and Chukchi seas and all staged for at least 3 days during migration. Most females took less than a week to travel from breeding areas on Banks Island to moulting areas in the Bering Sea and typically stopped only briefly (<3 days) during migration. The exception was a female that stopped for over a week at Smith Bay along the northern coast of Alaska.

Project Status:

Reasonable progress has been made towards meeting our objectives for 2008. All 30 transmitters were deployed on the intended species with only one surgery-related death (3% mortality). We had originally proposed to tag equal numbers of males and females, but opted to tag two additional males when it became apparent females were starting to nest. We did not want to risk holding in captivity for several hours a female that would otherwise be incubating eggs. With 28 transmitters still providing locations by mid-September, we feel that we are on target for a sample size of 18 eiders during spring migration. We do not anticipate any change in schedule for data analysis and publication of results.

In early August, 2009 and 2010, we intend to deploy a minimum of 20 satellite transmitters each year on Long-tailed Ducks at McKinley Bay in the southeast Beaufort Sea. We are proposing to use the smaller 26 gram PTT programmed to provide a location every 3 days during fall migration, and every 2 days during the spring migration period.

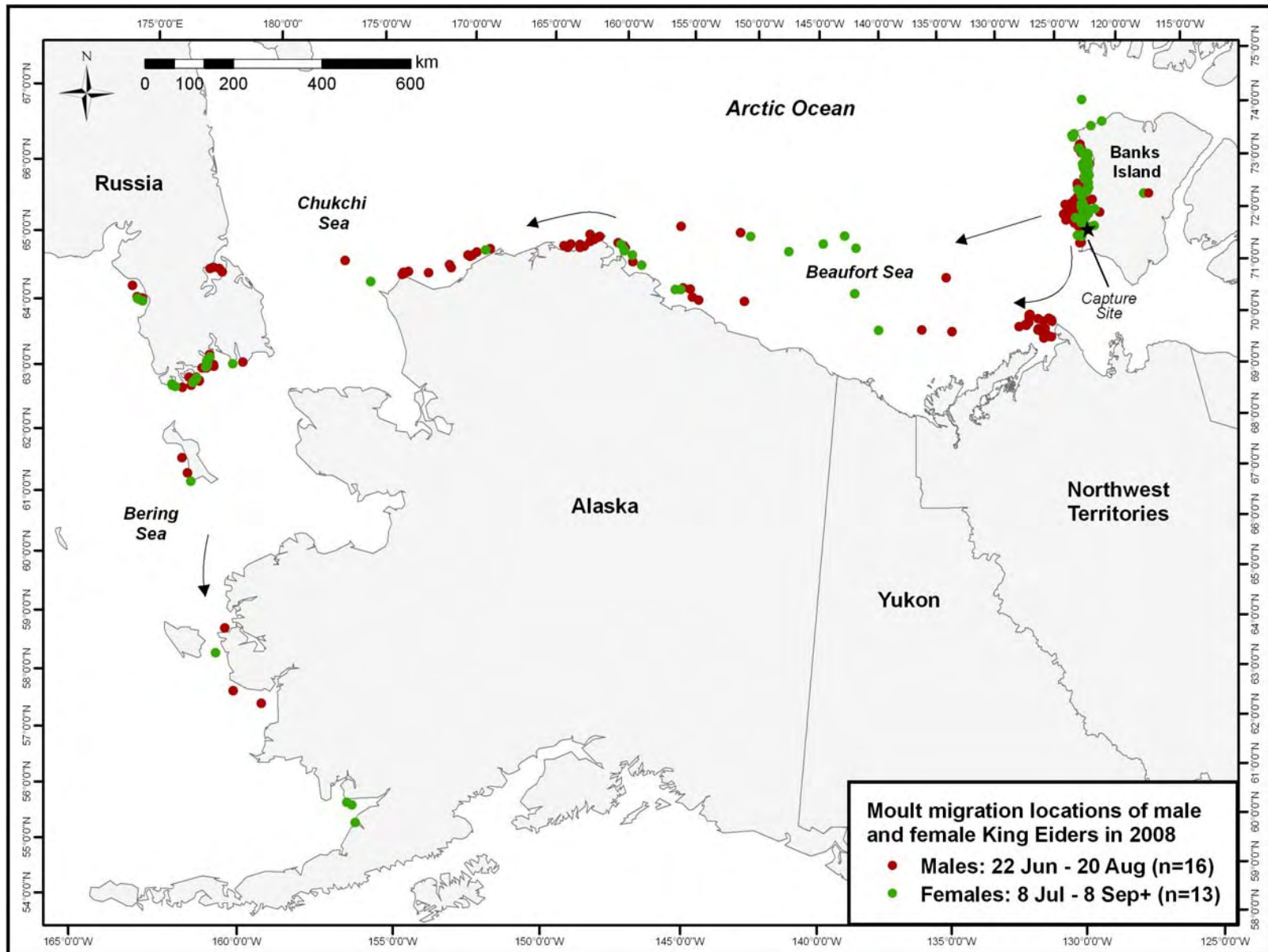


Figure 1. Locations during moult migration of 15 male and 13 female King Eiders that were implanted with satellite transmitters in June 2008. Dates include last day on nesting area on Banks Island and first day on moulting area.

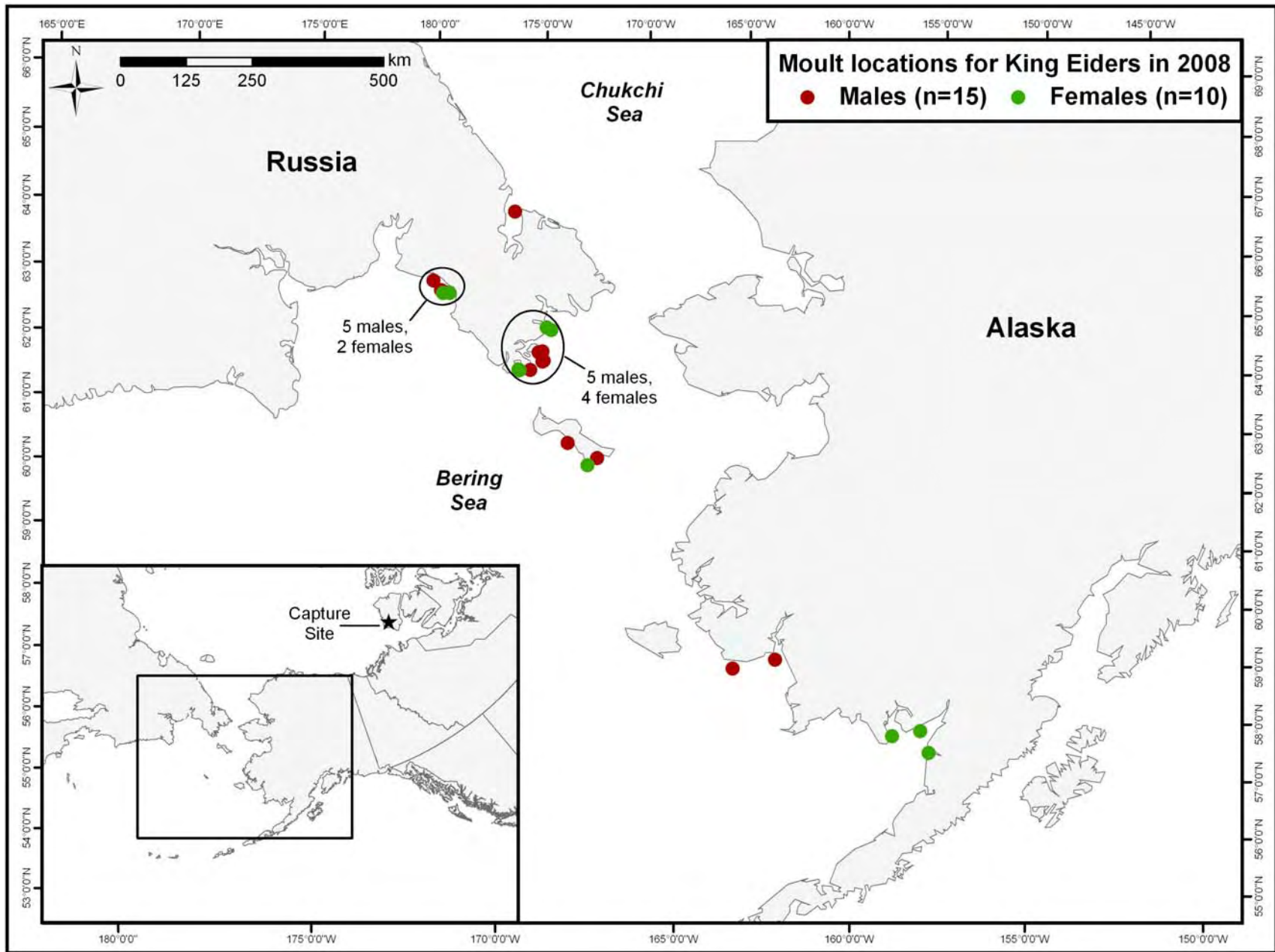


Figure 2. Location of moulting areas for 15 male and 10 female King Eiders with satellite transmitters in 2008.