

**Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 04 – (October 1 to Sept 30)**

Project Title: No. 24: Importance of the Alaskan Beaufort Sea to King Eiders

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Partners: Coastal Marine Institute, North Slope Borough, Conoco/Phillips Alaska, Inc.



Project Description: King eiders (*Somateria spectabilis*) migrate east along the Beaufort Sea during spring (May- June) to arctic nesting areas in Russia, Alaska and Canada. During the molt migration (early July - August) and fall migration (mid-August - October), eiders move west along the Beaufort Sea coast to areas in the Chukchi and Bering Seas; however, some adult male king eiders molt in the Beaufort Sea. Although the timing and route of the offshore spring migration is likely determined by the availability of open water in the pack ice, information on distance offshore and the frequency and location of potential staging areas is lacking. Little is known about the migration corridor and staging and molting areas of non-breeders. This study was begun to better understand use (timing, location, duration) of nearshore (barrier island to the mainland coast) and offshore (seaward of the barrier islands) habitats of the Beaufort Sea to migrating, staging, and molting adult king eiders using satellite telemetry (PTTs).

Objectives: This study plans to (1) document movements and locations of spring, summer and fall migrating adult king eiders marked on breeding areas in Kuparuk, Alaska, (2) describe potential staging areas used during spring and fall migration, (3) determine if adult female king eiders molt in the Beaufort Sea prior to fall migration to overwintering areas, and (4) describe sea ice and open water conditions of the Beaufort Sea relative to observed locations of satellite transmitter implanted king eiders.

Preliminary Results: We implanted PTTs in 21 king eiders in 2002 and 12 in 2003 at Kuparuk. In 2004, we implanted 15 eiders at Kuparuk and 12 at Teshekpuk Lake. Of the 33 transmitters deployed in king eiders in 2002 and 2003, all 21 2002 transmitters have stopped transmitting and of 12 transmitters deployed in 2003, 3 are still transmitting location information. All 27 king eiders implanted during the 2004 field season were alive and transmitting as of 31 July 2004. The results and analysis of location data presented here are preliminary and may be subject to change at a later date based on new information received.

For birds transmitted in 2002, males ($n = 10$) staged 7–17 days (mean = 10) in the Beaufort Sea prior to fall molt migration at a mean distance from shore of 17 ± 6 km (SD) and a mean water depth of 11 ± 7 m, $n = 94$ location data points. Females ($n = 11$) staged 9–32 days (mean = 20) in the Beaufort Sea prior to molt migration at a mean distance from shore of 14 ± 3 km and a mean water depth of 8 ± 5 m, $n = 174$ location data points. Males reached molting areas along the Chukotka Peninsula and Kamchatka Peninsula, Russia and St. Lawrence Island and Kuskokwim Bay, Alaska from 22 July through 12 August. Females reached molting areas along the Chukotka Peninsula and Kamchatka Peninsula, Russia and St. Lawrence Island, the Arctic Coastal Plain and the Alaska Peninsula, Alaska from 11 August through 18 September. Wintering locations for males included areas along the Chukotka Peninsula, Kamchatka Peninsula, and Meynypil'gyno, Russia and Kvichak Bay, the Alaska Peninsula, Chirikof Island, and Togiak Bay, Alaska. Wintering locations for females included areas along Karagin Bay and the Chukotka Peninsula, Russia and the Kenai Peninsula, Kvichak Bay, Chirikof Island, and the Alaska Peninsula, Alaska

For 2003 transmitted eiders, Males ($n = 9$) dispersed from the breeding area 24 June through 13 July 2003 and arrived in molt areas 18 July through 17 August 2003. Females ($n = 3$) left the breeding area between 7 July and 30 July and arrived at molt sites 22 August through 4 September. Molt areas included the Chukotka Peninsula for both males and females and Bristol Bay and the coast of Russia for two males. Wintering locations for males included areas along the Chukotka, Kamchatka, and Alaska Peninsulas, Meynypil'gyno and Olyutor Bay, Russia. Females wintered along the Alaska and Chukotka Peninsulas and in Olyutor Bay, Russia. Nine of the twelve birds transmitted in 2003 continued to transmit into June providing 2004 summering locations. All three females returned to the capture site at Kuparuk, Alaska. Males summered in Russia, Canada and the Beaufort Sea. At the end of July 2004, only three 2003 eiders (2 females and 1 male) were still transmitting location information. One female remained at the Kuparuk study area, one off the coast of Alaska in the Beaufort Sea and the male was located in the Beaufort near Banks Island, Canada.

By 31 July, all 2004 transmitted male king eiders had left the study areas and moved into the Chukchi and Bering Seas. Seven males were located along the Chukotka Peninsula, four south of St. Lawrence Island, two near Meynypil'gyno, Russia and one in the Chukchi Sea near Icy Cape. All but two females had left the study areas by the end of July, with nine located in the Beaufort Sea and two near Icy Cape, Alaska.

Project Status: Laura Phillips is analyzing location data and is writing her MS thesis, which she plans to complete by May 2005. We have received more funding from USGS to continue this work for another three years, and will be hiring another student in 2005.