

Sea Duck Joint Venture
Annual Project Summary
FY 2015 – (October 1, 2014 to Sept 30, 2015)

Project Title: SDJV Project# 146: Point Barrow, Alaska, Migration Counts for King and Common Eiders

Principal Investigator(s):

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Project Description: Most of the king (*Somateria spectabilis*) and common eiders (*S. mollissima v-nigra*) nesting in northern Alaska and western Canada migrate past Point Barrow, Alaska twice annually. At Point Barrow, Alaska this spectacular concentration of migrating birds passes very close to shore, allowing for migration counts, which have been intermittently conducted under varied protocols since the early 1950s. By standardizing the analysis of spring migration counts conducted at Barrow in 1953, 1970, 1976, 1987, 1994, and 1996, it was determined that the king eider population appeared to remain stable between 1953 and 1976, but declined by 53% between 1976 and 1996. Similarly, the common eider population declined 56% during the same time period. The counts were repeated in 2002-2004, at which time it appeared that since 1996 the number of common eiders passing Point Barrow had increased, but only slightly, and that the number of king eiders had remained stable, but not returned to 1970 levels. It was suggested that periodic migration surveys be conducted to monitor population trends of king and common eiders, but it had been ten years since the last survey.

We coordinated a new spring migration count in 2015. Counts were conducted at the same general location and using the same methods as in 1996 and 2002-2004 allowing us to acquire new population indices directly comparable to the earlier indices to determine the status of the population and further explore population trends. The reasons for the reported declines are unknown, and establishing current population trajectories is of critical conservation and subsistence interest. This project provides information on the population trajectories of king and common eiders migrating past Point Barrow. This information is vital for state, local and federal managers.

The count was conducted from a site close to the edge of the shore fast ice northwest of Barrow, Alaska (about 7 miles from land), and on land near Barrow when the ice degraded. Four observers counted eiders for up to 16 hours per day, in teams of two people at a time. We were often supported by North Slope Borough's local guides to help ensure our safety on the ice. Dr. Robert Suydam and other members of the earlier counts (Michael Knoche and Michael Wald) trained observers so that the same protocols were used. Counts typically followed a pattern of two hours on, two hours off between 5am-1pm and 5pm-1am although there were counts that ended early due to the proximity of polar bears or high

winds causing unsafe ice movement or break-up. Sex, species, and age-ratio were determined both visually by ground-based observers and by photographic sampling using a high-resolution camera with telephoto lens. For each counting period, we collected data on weather conditions (temperature, wind speed, wind direction, cloud cover, visibility). For each flock sighted we will record time, direction of travel, species composition, number sighted, ratio of males to females for each species, and other comments on behavioral observations.

Data will now be analyzed consistent with previous counts in order to compare results with previous estimates. Regression analysis will be applied to determine the population trend estimate. A full scientific report will be provided once this analysis is finished.

Objectives:

1. Obtain estimates of king and common eider populations that can be compared with those from 1996 and the early 2000s in order to evaluate current trends. The proposed migration counts in 2015–2016 will use the same methods, locations, time periods, and some of the same observers as in 1996 and 2002-2004, providing an excellent opportunity to compare current eider population estimates with past estimates.
2. Use high-resolution photography to calculate a correction factor for the visual counts. This may result in a correction factor (simple ratio) that can be applied to past estimates.
3. Determine the sex and age ratios of king and common eiders passing by Point Barrow through visual and photographic methods. This will allow us to determine the timing of migration by the different ages and species and compare it to previous timing and use of this area.

Preliminary Results:

We successfully completed a migration count during the spring of 2015 (April 23-June 2) at Point Barrow. Fortunately the sea ice was relatively stable, when compared to recent years, and we established an excellent perch about 7 miles northwest of Barrow, on a grounded pressure ridge. There were whaling camps established on either side of the perch and the one to the north landed a bowhead whale on May 7. The remains of the whale attracted a considerable number of polar bears and we eventually (May 13) moved south to another perch that was slightly further from the lead edge and where it was not as easy to determine sex ratios. Fortunately this was after the peak in migration. The sea ice degraded in warm weather forcing the crew, and the whalers, on shore on May 21. The last week of the count was done from the land, at a site south of Barrow.



Eider count perch at the lead edge, Barrow, Alaska, 2015

We counted a total of 322,187 eiders during the spring count, April 20-June 4, 2015, of which 174,352 were king eiders and 19,289 common eiders (Figure 1). Passage of eiders was variable with none seen on many days and up to 47,021 king eiders seen in 24 hours on May 3, 2015 (Figure 1). There is some consensus among locals and past researchers that wind is a critical factor in slowing or supporting the migration. Our reported numbers for species are lower than the total number of king eiders passing, as not all migrating eiders can be identified to species, especially during periods of high passage. For example, on May 7, 2015, 83,934 eiders passed during 24 hours, of these, 47,021 were identified as kings and 958 as commons. We will control for effort and visibility, as well as proportion of kings/commons with future analyses and calculate an estimate of the king and common eider population.

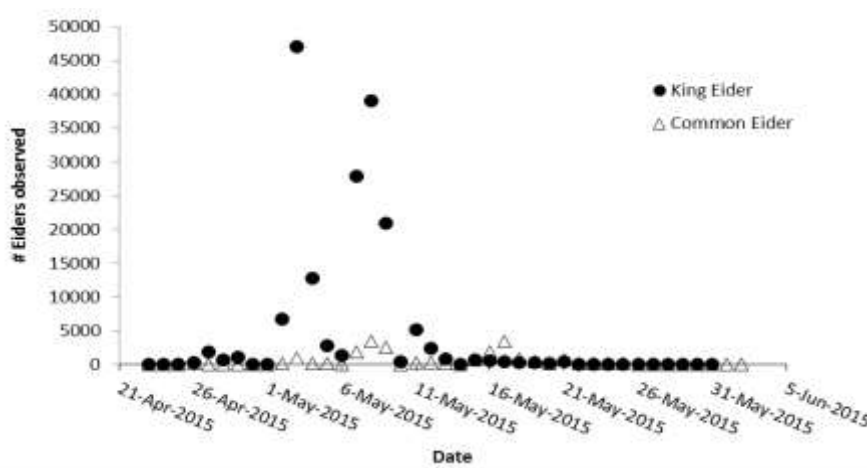


Figure 1. Numbers of positively identified eiders passing Point Barrow Alaska, 2015.



Counting migrating eiders at the edge of the pack ice, Barrow, Alaska, 2015

Project Status: We successfully completed a migration count during the spring of 2015 (April 20-June 4) at Point Barrow. Some obstacles had to be overcome (polar bears, dangerous sea ice conditions, see above). All in all, the count was a good one, we were very lucky to remain right at the lead edge for the majority of the migration. We are planning an additional spring migration count in 2016. We will further analyze the data and prepare a manuscript for submission to a peer-reviewed scientific journal.