Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2005 – (1 October 2004 to 30 September 2005)

Project Title: Survival, Productivity, and Recruitment of Pacific Common Eiders Breeding at Kigigak Island, Yukon Delta National Wildlife Refuge, Alaska

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Project Description: Aerial surveys have documented a >90% population reduction over the past 40 years in the Yukon-Kuskokwim Delta population of Pacific common eiders (Stehn et al. 1993, Hodges et al. 1996) and the U.S. Fish and Wildlife Service (Region 7) has identified common eiders as a "*species at risk*". This study builds upon a previously established sample of marked adult females (n = 190) and ducklings (n = 250) at one site (Kigigak Island) in an effort to characterize annual variation in survival and productivity and generate the first estimates of recruitment and age-specific breeding for incorporation into population models.

137 common eider nests were located in 2005 and 46 adult females were resighted. An additional 11 females were banded.

In 2005, while conducting research on spectacled eiders, we opportunistically monitored a sample of common eider nests and adult females.

Objectives:

1. **Estimate nest initiation date, hatch date, clutch size, and nest success.**
2. **Document nest habitat type and record nest location with GPS coordinates.**
3. **Resight or trap incubating females to identify previously marked individuals for estimation of survival. Capture and mark additional females.**
4. **Mark ducklings at hatch to establish a known-age sample from which to estimate recruitment rate and age-specific breeding.**
5. **Estimate mean annual survival and temporal variation in annual survival; relate temporal variation to climatic factors.**
6. **Incorporate estimates of demographic parameters into a Pacific common eider population model.**

Preliminary Results:

Nesting Chronology

During nine days of nest searching, 137 nests were located. We caution the interpretation of nest initiation and hatch dates. Because of the opportunistic nature of data collection in 2005, nests found after 5 June were not recorded. Estimated mean nest initiation and hatch dates were 17 May (range 6 May – 5 June) and 18 June (range 9 June – 7 July), respectively.

Clutch and Egg Size

Clutch size ranged from 1 – 9 eggs with mean clutch size of 5.3. Mean egg length, width, and volume were 74.5mm (SE = 0.16), 49.8mm (SE = 0.11), and 185.9cc (SE = 0.91), respectively.

Nest success

Estimated daily survival rate for common eider nests was 0.990 (SE = 0.002) and was similar to the daily survival rate estimated for sympatrically nesting spectacled eiders (DSR = 0.994, SE = 0.001). Assuming a constant daily survival rate and an exposure period of 31 days, estimated common eider nest success was 0.73 (95% CI = 0.62 – 0.83).

Marked Adult Females

We identified 46 previously marked females, and an additional 11 females were captured and banded.

Marked Ducklings

No ducklings were banded in 2005.

Project Status:

All data collection objectives were met in 2005 except banding of ducklings. If SDJV funding is secured, we anticipate continued and more directed monitoring of nests for estimation of productivity, resighting and banding of adult females for estimation of annual survival, and banding of ducklings for estimation of recruitment and age-specific breeding.