

Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 02 – (October 1, 2001 to Sept 30, 2002)

Project Title: No. 20: Breeding Ecology of Scoters nesting in the Lower Mackenzie River Watershed, NWT

Principal Investigator(s): Stuart Slattery, Ducks Unlimited Canada, Institute for Wetland and Waterfowl Research, Box 1160, Stonewall, Manitoba, R0C 2Z0. s_slattery@ducks.ca

Partners: Sea Duck Joint Venture/USFWS, Ducks Unlimited Canada

Project Description: The continental population of scoters (all three species combined) has declined by over 58% since 1978, from about 1.75 million to about 700,000 birds. We cannot reliably predict where limitations on these taxa have occurred or where they might be most responsive to management because we lack basic data on population dynamics. We are using a combination of aerial surveys, mark-recapture techniques (including radio-marking prenesting females), nest searching, and brood observations to estimate demographic parameters of scoters nesting in the Lower Mackenzie River watershed. This region is within the NWT, where over 65% of the scoter breeding population occurred, having declined by nearly 70% in the past 24 years.

Objectives: The primary objective of this study is to address a high priority SDJV information need by estimating vital rates associated with breeding in scoters, particularly breeding propensity, clutch size, nest success, breeding season survival of adult females, and duckling survival. Such information will help us develop population models to identify what rate(s) constraints may be acting on, develop more advanced hypotheses about limiting factors, and assess sensitivity of population trajectory to changes in different vital rates to evaluate potential targets for management actions. In addition, another objective was to test effects of mock satellite transmitters on survival of scoters when deployed in the breeding season. This objective was intended to benefit the scoter marking program in Alaska. Finally, part of the reason so little is known about scoters is that there are many logistical challenges associated with studying them. For example, prior to this summer, prenesting scoters had never been captured. Therefore, 2002 was a pilot year with the additional objective of determining best methods for capturing and tracking scoters at this site where no projects have yet been conducted.

Preliminary Results: We deployed 15 radio transmitters on white-winged scoters, 11 subcutaneous and 4 mock satellite units. Subcutaneous transmitters were deployed on females, while 2 each of the mock style were deployed in paired female and lone male scoters. One female with each type of transmitter died of unidentified causes during the breeding season at about 8 - 14 and 42 days for mock and subcutaneous styles, respectively. Surviving birds were seen at least once, and no readily apparent ill effects of transmitters were observed. Two females marked with subcutaneous units were confirmed nesting, each over 300 m from water, while a female with a mock unit was located on land for three consecutive days, consistent with a laying effort. This bird was found in a flock of non-breeding birds on the fourth day. Only one of the confirmed nesting females hatched her eggs, and this bird was suspected of making a post-hatch

trek of about 2 km, overland through boreal forest. All other females were on the study area during the estimated nest initiation period (10 – 23 June, based on back dating ages of unmarked white-winged scoter broods, n = 60 observations), with no indication of a nesting attempt. It is not known whether this apparent lack of nesting effort was a transmitter effect or resulted from low breeding propensity or high nest predation early in the laying period. In addition to this work, we conduct pilot invertebrate sampling to assess potential food availability. Finally, we collected feather samples and oral swabs for isotopic and genetic analyses to aid in delineating populations of white-winged scoters. Samples were also collected from long-tailed ducks captured incidentally.

Project Status: We consider this pilot year successful. Logistical challenges related to capturing and tracking scoters were largely resolved, and we plan on continuing this project in 2003, but as a full-scale program. In addition to finalizing methods for obtaining demographic data, we also will be developing sampling protocols to assess diet and food availability, habitat use of unmarked broods, and population distribution during the prebreeding period. Few surf scoters were seen on our study area, so the project will focus on white-winged scoters. We did not deploy all mock satellite transmitters, and so plan to continue this component of the project in 2003.

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)
\$10,000					USFWS/SDJV
				\$32,729	DU Canada

Total Expenditures by Category (US):

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding					
Surveys					
Research	\$42,729				\$42,729
Communication					
Coordination					