

**Sea Duck Joint Venture
Progress Report – September 2008**

Project Title: Molting ecology of Surf and White-winged Scoters in Southeast Alaska (SDJV Project # 107).

Principal Investigators:

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Project Description:

Although surf and white-winged scoters are being studied at most parts of the annual cycle, the period of wing molt has not been addressed on the Pacific coast. Surveys have shown that at least 185,000 scoters, a sizeable proportion of the Pacific populations of these species, undergo wing molt in SE Alaska. To provide a comprehensive evaluation of the ecology of these sea ducks, and to consider potential constraints on population dynamics, we propose research to quantify several aspects of molt ecology. This will provide data to evaluate population dynamics and identify important habitats of these declining species - high priorities in the SDJV Strategic Plan.

Objectives:

Our research addresses the following questions:

- 1) What is the timing of wing molt and does it vary by species, sex, age, or year?
- 2) What is the species, sex, and age composition of flocks of molting scoters?
- 3) How does body mass vary over the wing molt process, after accounting for effects of species, sex, age, date, and year?
- 4) What is the foraging intensity of scoters during wing molt, relative to during winter? Do they forage nocturnally?
- 5) What are survival rates during wing molt and do they vary annually?
- 6) How far do individuals move during wing molt, what habitats do they use, and is there annual variation in movements or habitat use?

7) What proportion of birds marked in the first year of study are recaptured in the second year, and how far from original capture sites are recapture locations? (Year 2 objective)

Preliminary Results:

Field work for this project was conducted in Upper Seymour Canal on Admiralty Island in southeast Alaska from 29 July to 18 September, 2008. The field crew consisted of at least three people with a maximum of seven for a total of 228 person days.

To investigate the question of chronology of wing molt, scoters were captured during three periods (30 July – 5 August, 13-16 August, 8-11 September) with a total of 310 scoters being captured (Table 1). All scoters were identified to species, sex was determined based on plumage and cloacal characteristics, and age class estimated based on bursal depth. We measured morphometric features (diagonal tarsus, culmen, bill width, and feather-free bill on SUSC) as well as wing attributes (wing chord, wing stub length, and ninth primary length) to determine stage of wing molt. Feather wear of individuals with fully grown wings was used to determine whether the primaries had been molted recently. Finally, body mass was measured (± 1 g) on an electronic scale to allow consideration of variation in mass in relation to stage of molt, species, age, and sex. All data are referenced to a uniquely-numbered metal tarsus band USFWS band attached to each captured scoter. To address questions concerning survival, movements, and foraging effort during the period of wing molt, VHF radio transmitters were attached to 52 scoters (Table 1). These scoters were monitored in the intervals between the capture periods.

Table 1. Summary of numbers of scoters captured and marked with radio transmitters in Seymour Canal, Alaska, 2008.

	SUSC female	SUSC male	WWSC female	WWSC male	Total
# captured	34	155	122	99	310
# radios deployed	15	18	6	13	52

Among scoters with transmitters attached, two mortalities and one case of probable transmitter loss were detected; all other radio-marked individuals were monitored for the duration of the field season or until the individual left the study area. We obtained 180 hours of foraging observations and 36 triangulated locations.

We also conducted surveys throughout the season to determine total numbers of scoters in Seymour Canal as well as species and sex composition of flocks. At the beginning of August there were 16 000 scoters present in Upper Seymour Canal and by late August numbers had decreased to 10 500. Weather conditions prevented us from completing a third count in September, but numbers of scoters appeared to have continued to decrease. Species and sex composition were surveyed in a subsample of flocks at the beginning, middle, and end of the field season. Male Surf Scoters were most abundant and female White-winged Scoters were least abundant in all surveys, with female Surf Scoters and male White-winged Scoters present in approximately equal numbers. Throughout the season, the proportion of females increased as well as the proportion of White-winged Scoters.

As the field season has just been recently completed, data entry is still in progress. Data summaries and analysis will be included in the 2009 progress report.

Project Funding Sources (US\$). Complete only if funded by SDJV in FY08; this is used to document: 1) how SDJV-appropriated funds are matched, and 2) how much partner resources are going into sea duck work. You may include approximate dollar value of in-kind contributions in costs. Add rows as needed for additional partners.

SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (name of agency or organization)
\$30,470					SDJV
	\$62,000				USGS
	\$10,000				USFWS
	\$ 3,000				USFS
				\$30,000	SFU-CWE

Total Expenditures by Category (SDJV plus all partner contributions; US\$). Complete only if project was funded by SDJV in FY08; total dollar amounts should match those in previous table.

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding (include only if this was a major element of study)					
Surveys (include only if this was a major element of study)					
Research		135,470			