

## **Sea Duck Joint Venture**

### **Annual Project Summary for Endorsed Projects**

**FY 2015**

**Multi-year funding, year 1 of 4**

#### **Project Title, SDJV # 143:**

Annual cycle distribution and movements of Pacific scoters: addressing gaps in population delineation of surf, white-winged and black scoters.

#### **Principal Investigator(s):**

Jason Schamber; Alaska Department of Fish and Game; 525 W. 67<sup>th</sup> Ave, Anchorage, AK 99518; jason.schamber@alaska.gov

Dan Rosenberg; Alaska Department of Fish and Game; 525 W. 67<sup>th</sup> Ave, Anchorage, AK 99518; dan.rosenberg@alaska.gov

Tim Bowman; US Fish and Wildlife Service; 1011 E. Tudor Rd, Anchorage, AK 99503; tim\_bowman@fws.gov

#### **Project Description:**

The effective management and conservation of North American (NA) sea ducks necessitates the delineation of demographically or spatially independent population units. Population delineation requires an understanding of how seasonal aggregations of sea ducks are affiliated among major life-cycle stages (e.g., breeding, molting, and wintering areas); and thereby fundamentally defines the geographic scale at which monitoring, harvest management, and habitat conservation efforts may be implemented. It is therefore, precursory to most other information needs and helps inform survey design, interpret population trends, identify critical habitats, and better understand population demographics. Despite numerous recent efforts using satellite telemetry, population delineation of many sea duck species still remains either incomplete or rudimentary.

In the Pacific flyway, several projects were conducted in the early 2000s to delineate scoter populations. Multiple agencies deployed satellite transmitters (PTTs) in SUSC, WWSC, and BLSC throughout their winter range. However, for a number of reasons adequate effective (defined here as location data for adult females linking wintering, breeding and molting areas) and representative (sample proportional to flyway abundance and distribution) sample sizes for SUSC and WWSC were achieved only in the southern portions of their winter range (e.g., from San Francisco to southern British Columbia [BC]), with the largest information gaps from the northern coast of BC to South-central Alaska. Similarly, for BLSCs effective sample sizes were insufficient throughout their primary winter range, most notably in western Alaska. Thus, data gaps from the north coast of BC to south-central and western AK need to be addressed to complete population delineations and potentially identify independent population units for each species.

We proposed to continue the efforts of past satellite telemetry projects by addressing remaining information gaps in delineation of the Pacific populations of SUSC, WWSC, and BLSC. Specifically, we proposed to mark adult female scoters with PTTs during winter in major coastal regions of AK; that includes marking SUSC and WWSC in the Southeast (2018) and South-central (2017) regions, and BLSC in the western (2015-2016) region. Satellite data from past

studies of Pacific scoters have indicated high return rates to specific winter locations suggesting an increased likelihood of the need to designate multiple management units throughout the Pacific flyway.

### **Objectives:**

1. Describe the timing and pattern of seasonal movements and the associated annual variability for SUSC, WWSC, and BLSC wintering in coastal regions of AK
2. Identify habitats/areas used for breeding, molting, wintering, and staging
3. Identify coastal habitats used by a large proportion of marked birds that may indicate high significance at the population level to inform harvest and habitat conservation efforts
4. Determine inter-annual return rates of marked birds to habitats used during major life-cycle stages (i.e., breeding, wintering, molting, staging)
5. Combine data from this project with existing data for Pacific scoters to delineate independent population units

### **Preliminary results:**

*Captures* - In April 2015, we completed the first (of 4 years) year of PTT deployments. We spent 10 days in Nelson Lagoon, Alaska with the intent of deploying 8 PTTs in adult female BLSCs. However, we were able to work successfully for only 1 of those days because of adverse weather conditions (30-40 knot winds, fog, snow, and rain) that weren't conducive to boating and trapping. The result was the instrumentation of 1 adult female BLSC. We terminated our stay after 10 days because the extended forecast was for similar weather conditions. We anticipated that conditions (i.e., inclement weather, capture difficulties) at Nelson Lagoon were such that it would require 2 years to achieve an effective sample size, so we proposed to return in 2016 with the intent of deploying additional PTTs.

We captured birds using over-water-floating mist-nets and decoys. A total of 10 BLSCs were captured: 3 adult males, 1 adult female, 1 sub-adult male, and 5 sub-adult females. We banded and weighed (nearest  $\pm$  g) all captured birds. In addition, we collected contour and flight feathers for future genetics and stable isotope analyses. The adult female was administered an intramuscular dose of midazolam, transported back to a surgical facility, and implanted with a PTT.

*Movements* - The marked female departed Nelson Lagoon in early May, traveled to a stopover site at Egegik Bay and resided there for ~12 days (Figure 1). The female departed Egegik Bay on 21 May, stopped briefly at Kuskokwim Bay and then at the mouth of the Black River enroute to the Seward Peninsula; which is 1 of 3 major BLSC breeding areas. The female arrived inland on the Seward Peninsula at the end of May and resided for the breeding period (30 May – 7 August). Notably, this is only the second bird out of 89 previous BLSCs marked from across their range that migrated to the Seward Peninsula. After departure from the Seward Peninsula, the female stopped at the mouth of the Black River for a few days and then traveled to Kvichak Bay for the molt period (Figure 1). Kvichak Bay is a major spring staging and molting area for BLSCs. The female departed Kvichak Bay at the end of October and flew to the Alaska Peninsula, stopping briefly near Nelson Lagoon and Izembek Lagoon before continuing on to the near-Aleutian Islands. The last signal transmitted in December indicated the bird was located at Umnak Island near Nikolski Bay, likely the terminal winter location (Figure 1).

Figure 1. Seasonal locations of a black scoter female marked at Nelson Lagoon in April 2015.



**Project Status:**

We will continue to collect and compile Argos data from the female marked in 2015. We received FY16 funds from SDJV to return to Nelson Lagoon in April 2016 with the intent of deploying 10 PTTs in BLSC adult females. We will try to compensate for weather delays by planning a more flexible schedule that accounts for adverse weather forecasts.

**Project Funding Sources (US\$).** Complete only if funded by SDJV in FY15; 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)
19,750					
	42,482				AK Dept Fish and Game
	5,000				USFWS-MBM R7

**Total Expenditures by Category (SDJV plus all partner contributions; US\$).** Complete only if project was funded by SDJV in FY15; total dollar amounts should match those in previous table.

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
<b>Banding</b> (include only if this was a major element of study)					
<b>Surveys</b> (include only if this was a major element of study)					
<b>Research</b>				<b>68,903</b>	<b>68,903</b>