

**Sea Duck Joint Venture
Annual Project Summary
FY22 (October 1, 2021 – September 30, 2022)**

Project Title: Advancing Trans-boundary Sea Duck Conservation Actions: Surf Scoter Habitat Use and Movement Patterns in the Salish Sea SDJV Project #166

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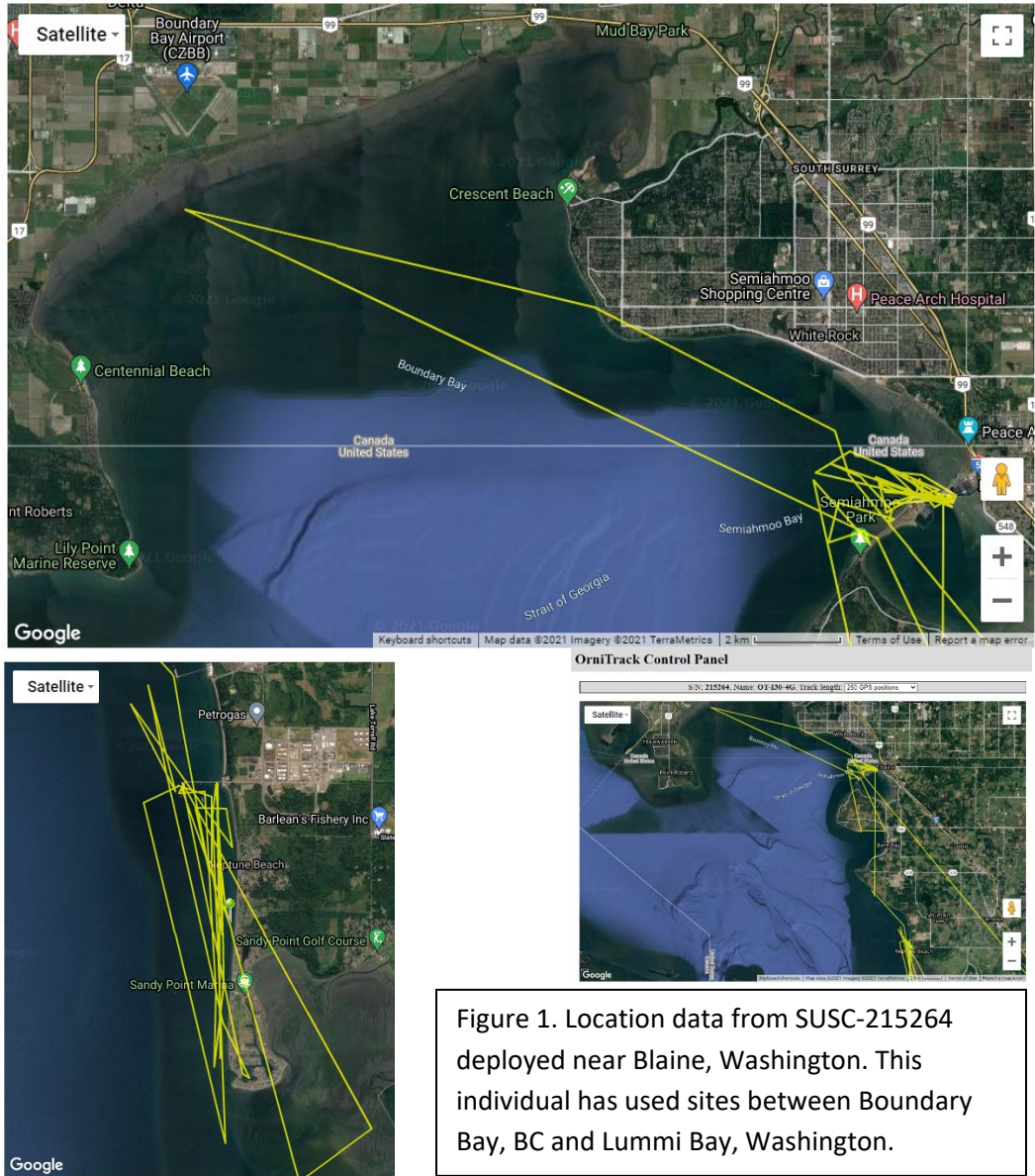
Project Description: In order to influence and guide sea duck conservation planning and actions on landscape-level transboundary issues such as aquaculture, conflicting species management (e.g. salmonid habitat and food web enhancements, Pacific Herring management and status), environmental assessments (e.g. oil/gas/other shipping, coastal and port development) and to assess effects and response to oil spills, there is an increasing need to produce coherent and relevant species data. Recent advancements in implantable GPS-quality devices offer the ability to refine and target our knowledge towards identifying critical habitat features and time periods for Surf Scoters in the Salish Sea.

Project Objectives: 1) Deploy a minimum of 60 GPS-GSM transmitters (approximately 30 per year over 2 seasons) on Surf Scoter, 2) Create detailed spatial data products that can be used to identify critical habitat features to inform marine spatial planning, emergency preparedness and response, and other relevant conservation planning initiatives in the Salish Sea, 3) Establish relationships with regionally relevant interpretive centers using data collected from marked Surf Scoter.

Preliminary Results: *Objective 1* - The Project Team and collaborators secured 37 Ornitela OrniTrack-I30 4G transmitters for deployment. The Project Team conducted capture efforts in both British Columbia and Washington waters of the Salish Sea. Each capture crew were assisted by surgical implantation expertise of Dr. Malcom McAdie in British Columbia and Dr. Joe Gaydos in Washington. Between November 29, 2021 and December 10, 2021, a total of 67 surf scoters were captured and banded (47 in BC and 20 in WA), with 28 surf scoters, that met thresholds for implant per banding permits requirements, were deployed with GPS-GSM

transmitters (19 in BC and 9 in WA). Post-deployment mortalities are currently being monitored by both crews, but in both deployment areas mortality exceeded 35% of deployed surf scoters. The capture period in both BC and WA were followed by an intense sequence of Atmospheric River events that were centered upon this region of the Pacific Northwest and are one of the anticipated products of a La Niña weather pattern, the second consecutive during the 2021-2022 winter. This was a tremendous undertaking with 21 individuals involved in the BC crew and 18 individuals involved in the WA crew, including staff, volunteers, and other partners. **Objective 2** – Preliminary spatial data analyses have demonstrated the incredible improvement of GPS-quality location data and the ability to collect this information during specified time periods of habitat use and movement in an effort to inform various regional efforts, including examples of the appropriateness of winter survey assumptions of limited movement (Figure 1), differences of spatial use between diurnal and nocturnal tendencies (Figure 2), or importance of regional events such as herring spawn where more than 50% of BC deployed surf scoters visited the spawn event in Baynes Sound, movement of scoters was often before date first recorded by surveys, and individuals visited more than one spawn site. Preliminary information and project awareness has been shared by request with several regional groups in both British Columbia and Washington. **Objective 3** – In an effort to educate the public on this effort and to dispel some of the concerns around capture and handling of wild birds, the SeaDoc Society produced an episode for their series Salish Sea Wild that highlighted the capture and procedures, led by Dr. Joe Gaydos, Director of the SeaDoc Society and veterinarian for the Washington efforts in winter 2021-2022. View this episode (Season 3, Episode 3) at: <https://www.seadocsociety.org/salish-sea-wild>

Example 1:



Example 2:

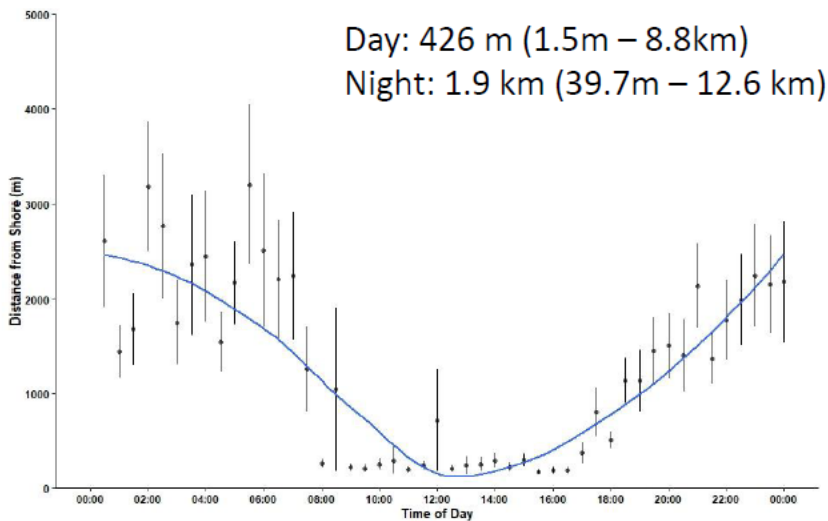
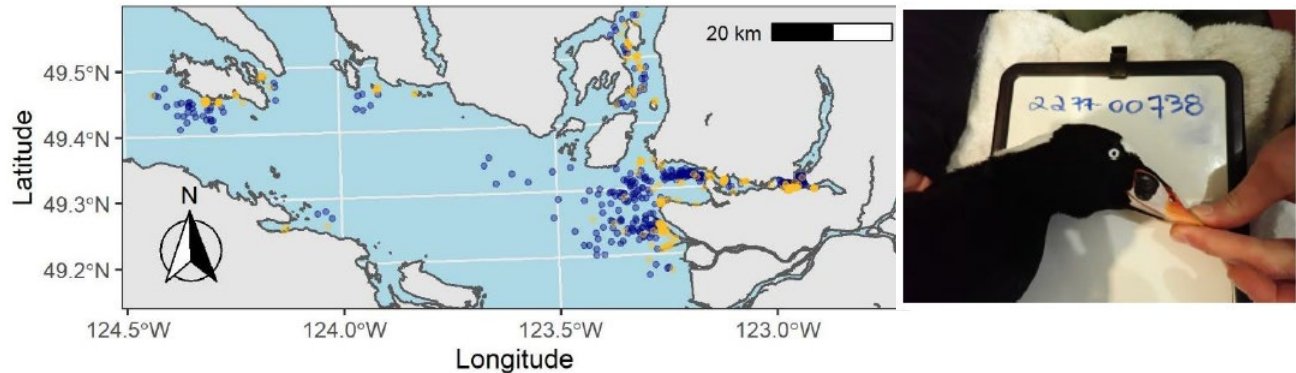


Figure 2. Location data from SUSC-227700738 deployed in British Columbia. Map displays diurnal (day = yellow) versus nocturnal (night = purple) locations of received GPS-locations. Graph illustrates tendency of closer to shore during diurnal, but further offshore during nocturnal long assumed, but not verified.

Project Status: August 10, 2022 – Agreement for the second year amendment for this project was finalized between Washington Department of Fish and Wildlife and the Sea Duck Joint Venture. September 28, 2022 – Project team reconvened to discuss project funding status, lessons learned from the previous winter, transmitter sample size and allocation for second season deployment, and to discuss strategies with respect to veterinarian availability, and any concerns that may arise given recent status of Highly Pathogenic Avian Influenza (HPAI) in North America. Anticipated dates of second deployment will be early to mid-November in Washington, and late-November to early-December in British Columbia. In consultation with Dr. Malcom McAdie whom preformed all implants in BC during December 2021, over concerns of lower-than-anticipated survival and predictions of a third-consecutive La Niña weather pattern in the Pacific Northwest and with consideration of the anticipated captures in the Boundary Bay region being more evenly split between both surf scoter and white-winged scoter the Project Team strongly recommended while preference will be to implant on surf scoter, that white-

winged scoter will also be implanted to reduce concerns over device-related impacts as white-winged scoters have shown much higher tolerability to procedures (pers. comm. Dr. McAdie). Captures circumstances will influence this decision as guidance to reduce hold-times related to individual condition, but also concerns over HPAI will be assessed against effective sample sizes given the rate or mortality experienced during the winter 2021-2022 deployments.

Project Funding Sources (US\$). Complete only if funded by SDJV in FY22. 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)
\$25,256					
			\$19,000 + \$8,000 inkind	\$3,800	Pacific Birds Habitat Joint Venture
	\$16,189				WDFW – WSFR grant (not match)
		\$5,000 in-kind			WDFW – Puget Sound Partnership (not match)
		\$5,000			WDFW – State Duck Stamp fund

Total Expenditures by Category (SDJV plus all partner contributions; US\$). Complete only if project was funded by SDJV in FY22; 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)			Scoters marked during December, but not operational		
Research			Info on spring migration, but this is secondary to winter movements.	\$82,245	\$82,245