

**Sea Duck Joint Venture Annual Project Summary for Endorsed Projects  
FY 2004 – (October 1, 2003 to Sept 30, 2004)**

**Project Title:** No. 28: Determination of breeding area, migration routes, and local movements associated with Surf and White-winged Scoters wintering in the inner marine waters of Washington State.

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**Partners:** Canadian Wildlife Service (CWS), USGS, and University of Wyoming.

**Project Description:** The marine areas of Western Washington have experienced rapid population growth, development, and alteration of natural resources that threaten habitat quality and food resources for a variety of sea ducks in the region, most notably Surf and White-winged Scoters. This combination of anthropogenic pressures and decadal variation in oceanic climate has the potential to severely impact sea duck populations. Scoters in particular are sensitive to disturbance of their non-breeding habitats, as well as their breeding areas.

Western Washington marine waters have historically hosted one of the more notable wintering scoter concentrations on the west coast of North America, comprised mostly of Surf and White-winged scoters. Based on both historic and ongoing monitoring surveys for these species, declines of at least 59% ( $P < 0.001$ ) have been documented between 1978 and 1999. Similar declines have been documented throughout North America. There have been few definitive studies evaluating the factors that may be contributing to these declines, and how various sub-populations may be responding. Information on foraging areas, migration routes, breeding areas, and molting areas are needed to address potential causes of the declines in these species.

**Objectives:** The project documents the patterns and fidelity to winter and spring foraging areas, night roosting areas, migration routes, breeding sites or range, and molting areas of White-winged and Surf Scoters that winter in the inner marine waters of Washington State. Documentation of this information is required in order to address the causes of scoter population declines and enact more effective management of these species.

**Preliminary Results:** Scoters were captured with floating mist nets between November 20, 2003, and March 12, 2004 in three areas of Puget Sound: 1) Peale Passage, Henderson and Eld Inlets (SPS); 2) Port Orchard and Sinclair Inlet (CPS); and 3) Penn Cove (NPS). The nets were set in areas frequented by White-winged and Surf Scoters. The 16 days when capture efforts were implemented resulted in the live-capture of close to 200 sea ducks, banding 64 White-winged and 115 Surf Scoters. Ten ATY White-wings (4 males and 6 females) and 14 ATY Surf Scoters (5 males and 9 females) were selected for implantation of satellite PTT's (PTT-100 satellite transmitters [39 g] manufactured by Microwave Telemetry Inc., Columbia, Maryland). Six White-wings were from the SPS and four were from CPS. Three Surf Scoters were from SPS, six from CPS, and five were from NPS. All captures occurred during pre-dawn and early post-dawn periods of each day, as scoters were flying into the feeding areas from their resting areas used at night. Blood and feather samples were collected from both species and shared with USGS (Genetics, Anchorage office), Canadian Wildlife Service (University of Saskatchewan), and University of Wyoming research (Dr. James Lovvorn and Eric Anderson). VHF transmitters were implanted in 25 Surf Scoters, distributed approximately equally between the three capture areas, and their movements were followed throughout the winter and spring until early May 2004.

Pre-northern migration: **White-winged Scoters:** All White-winged Scoters remained in the same areas of the Puget Sound (PS) during the winter to early spring where they were captured. Of the six that survived, the departure dates from PS / Fraser River Delta (FRD) ranged from 4 April to 19 May. Generally, the birds that left the PS earlier spent less time in the NPS (Bellingham Bay to Fraser River), while the birds that stayed longer in spent more time in the NPS. **Surf Scoters:** The Surf Scoters also generally stayed close to the capture areas during winter to early spring. Eight survived, to leave the PS, with departure dates ranging from 20 March to 12 May (six of the eight left in May). The bird that left in

March spent the spring along the east coast of Vancouver Island before heading to South East Alaska (SEAK). The 8 Surf Scoter PTT's we tracked showed several different distribution patterns. Those captured in southern Puget Sound remained there all winter, changing their distribution to attend the local herring spawning event, but then returned to their normal shoreline haunts and foraging areas. Those Surf Scoters captured in the north and central areas had areas they favored and herring spawning events they attended, but there was more interchange and movement between the two areas, with some Surf Scoters moving back and forth to most every herring spawning event occurring anywhere in the two areas.

Northern migration including staging areas used enroute: **White-winged Scoters:** Four areas were occupied for a period of time (up to several weeks) during migration before they headed inland to the breeding areas: 1) some of the northern bays in Washington like Bellingham Bay, 2) the mouth of the Fraser River, 3) the northeast side the Queen Charlotte Islands, and 4) selected sites in southeastern Alaska. Three females migrated along the west coast (two to central BC (CBC) & one to SEAK). These three birds then flew straight to the nesting areas around Great Bear Lake (GBL). The other three birds (two males one female) flew into staging areas in central Alberta (CAB). **Surf Scoters:** Two of those tracked went up through, stopping for a week at the Gulf Islands or the Denman/Hornby Island area in the Strait of Georgia in British Columbia before continuing up to southeastern Alaska, spending the most time closer to Ketchikan and Prince Rupert areas generally, before moving towards the interior breeding grounds. The other six Surf Scoters staged in the northern bays of Washington from Boundary Bay south to Skagit Bay and Penn Cove, as did a number of the VHF implants we tracked, before these scoters migrated northeast through British Columbia lake country on into central Alberta and then over into northern Saskatchewan and then to the north. One male never left the FRD, where it is still located at the time of this report.

Breeding areas: **White-winged Scoters:** Three females nested in the vicinity of the GBL and the fourth female nested in the vicinity of the Great Slave Lake (GSL). Of the two males, one located in south-central Saskatchewan, near the North Saskatchewan River, where it remained during the month of June. The other male was located along the Alberta/NWT border near the Hay River. Arrival dates to the nesting areas generally fell on the last week of May through the first week of June. **Surf Scoters:** The nesting range of the female surf scoters all remained south of the latitude of GSL. One female nested in the SW portion of the Northwest Territories (NWT) near the Liard River, one nested just to the east of GSL, and the third nested in Saskatchewan SW of Wollaston Lake. The males were more widely dispersed, perhaps due to the larger sample size, with locations during the nesting period ranging from northern Alberta and Saskatchewan, through the GSL, and NW of the GBL near Anderson River. As with the White-wings, arrival dates to the nesting areas generally fell around the beginning of June. All males from both species departed the nesting areas for marine waters by mid July or earlier.

Southern migration staging areas and molting areas: **White-winged Scoters:** Three female White-wings have remained near the nesting areas to molt (two near the GBL, and one near the GSL). They did move away from the nesting locations, but generally to areas with more open water; these three have yet to return south. The other female left the GBL for coastal SEAK, ~100 Km WNW of Juneau in Glacier Bay. One male left the breeding areas and traveled west to Alaska, stopping near Kayak Island and Ugak Bay near Kodiak before arriving at northeastern Kuskokwim Bay. The other male flew directly to the outer Washington coast, near Tahola, making a brief stop on Lake Wynoochee on the Olympic Peninsula. This bird stopped reporting shortly after arrival. **Surf Scoters:** None of the surf scoters remained in the Canadian Interior to molt. Four birds left for areas dispersed along the AK coastlines, and the other three headed for the PS and Oregon. Of the two that returned to PS, one arrived at Point Bolin (CPS) where she wintered (stopping in central BC then heading south near northern Vancouver Island), and the other female went to Padilla Bay (no stops were detected during the southern migration). The male scoter that molted in Oregon migrated along the coast, making brief stops near Windham, SEAK, the west coast of Vancouver Island, and Sekiu, WA, before stopping near Florence, Oregon. Of the four that molted in AK, one female utilized Duncan Canal near Petersburg. After the molt she flew coastally along western BC, through the Strait of Georgia, to return to the CPS. One male left the nesting areas and was tracked as he was traveling west through central BC, probably headed for SEAK. However, he stopped transmitting before arriving to the coast. The final two males spent time on the Eskimo Lakes and Liverpool Bay, just

east of the Mackenzie River Delta. Both left between 15-16 July, one following the coast of northern AK to the Colville River, where it turned southwest to molt on Norton Bay. The other bird probably flew overland to Tuxedni Bay, western Cook Inlet. This latter male just returned to southern PS, after the map was prepared, sometime between September 21 and 28.

**Nocturnal and Diurnal Distribution and Activity Patterns:** Preliminary evaluation of the differences between scoters in their nocturnal and diurnal locations based on PTT data is showing some differences. In the wintering areas, the evening roosting locations are documented usually in areas of more open water that are removed from the daytime locations. These findings were reinforced by our subsequent VHF tracking. Additionally, birds that have different diurnal locations would often join together at the same nocturnal roosts. On the nesting grounds, some scoters showed differences between day and night locations too, especially those nesting near larger lakes. The majority of daytime locations would be on the lake, with a mix on land and water, while the nocturnal locations were nearly all on land. When we were fortunate enough to record actual migratory routes, most of these were recorded during hours when the sun was down. No differences have been noted on the molting areas. One important note regarding the location quality is that the locations recorded during nocturnal hours were notably better than the diurnal locations. This is likely because the birds are moving less and are less likely to be diving during the hours of darkness.

**Project Status:** We are encouraged with the continued success of the project, but we need a larger sample size of female Surf Scoters to track. That was our intent this year, but survival was not good this year. We are still receiving frequent location data from 14 scoters throughout this last year. Maps of these data will be distributed to interested and collaborative agencies, while a web site is being constructed once map issues are resolved. While the tracking patterns of Washington scoters may have some degree of overlap with the British Columbia effort, we feel that there were clear enough differences and usage patterns, which are important for understanding and managing these species in Washington. We plan to continue and flesh out these efforts during the next two years by implanting PTT's in additional scoters the next two years. We are documenting interesting differences between subregions in Washington used by wintering scoter concentrations and our work complements the foraging/prey work ongoing by Anderson and Lovvorn.

**Project Funding Sources (US\$) (complete only if funded by a SDJV partner):**

SDJV (USFWS) contribution	Other U.S. federal contributions	U.S. State non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (agency or organization)
\$31,850					
	\$58,150				Federal State Wildlife Grant
		\$200,048			WDFW

**Total Expenditures by Category (US\$) (complete only if project is funded by a SDJV partner):**

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding				\$16,000	\$16,000
Surveys					
Research	\$24,700	\$34,700	\$68,700	\$145,948	\$274,048
Communication					
Coordination					



