Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2010 – (October 1, 2009 to Sept 30, 2010)

Project Title
SDJV project #127
Molting White-winged Scoters (*Melanitta fusca*) in the St. Lawrence estuary: location of fall staging, wintering, spring staging and breeding areas, and philopatry to molting sites

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Project Description:
Although recent progress has been made on the western population, much remains to be done on the eastern population of White-winged Scoters (*Melanitta fusca*). The relatively small size of the eastern population and the high hunting pressure (SDJV 2005) it sustains is cause for concern. The White-winged Scoter is on the list of Recommended USFWS Migratory Bird Program Focal Species (USFWS 2005). A recent compilation by the Sea Duck Monitoring Working Group suggests that as much as 14.1% of eastern population of White-winged Scoter is harvested (SDJV 2005). White-winged Scoters are the largest and least numerous of the scoters so that extreme caution is needed in their exploitation. It is still unknown whether there are one or several North American populations and the species is still addressed globally in Management plans (SDJVMB 2007). Management of the eastern population, which is the most impacted by hunting, is impaired by lack of knowledge on its ecology and distribution (Brown and Fredrickson 1997, SDJVMB 2007). Brown and Fredrickson (1997), in their review of the state of knowledge on the species in North America, emphasized the absence of knowledge on the molting distribution and ecology of White-winged Scoters. Studies of the eastern population of White-winged Scoters have been impaired by its poorly known breeding distribution (Limoges and Morrier 1996) and by the remoteness of the only known breeding concentration (Benoit et al. 1994, Bergeron et al. 1996). The recent discovery of White-winged Scoter molting sites in the St. Lawrence estuary (CWS unpublished data; >4,000 birds) and the development of an efficient capture technique (Gilliland et al. 2007, Lepage and Savard 2007) provided an opportunity to learn more about the molt ecology of White-winged Scoters and the relationships between molting, wintering and breeding sites.

Objectives:
White-winged Scoters have several high priority categories of information needs for management, as identified by the SDJV. Population definition/delineation as well as population size and trends are classified high priority. Our main objectives were to determine the fall staging and wintering areas and the breeding areas of White-winged Scoters molting in the St. Lawrence estuary and to assess the level of fidelity to molting sites.

Preliminary results:

Implementation of PTTs.- A total of 20 satellite transmitters (Argos PTTs) were successfully implanted on the following molting birds: 1 male Surf Scoter (*Melanitta perspicillata*), 3 subadults female White-winged Scoters and 16 adult males White-winged Scoters.

Capture and Banding.- Molting birds were captured on 7, 8 and 9 August 2010 near Forestville, Quebec over sandy shores where several thousands scoters molt every year (Figures 1 and 2). Birds were captured when flightless, using a technique developed for the capture of molting Surf Scoters: birds are driven towards submerged light fishing nets and forced to dive (with cracker shells and/or starter gun) into the net.

Figure 1. Localization of Forestville, Quebec

Figure 2. Localization of the 4 catches, 7-9 August 2010, St. Lawrence estuary

Even though captures were initially conducted to implant 20 birds, a total of 311 birds were also banded (Table 1).

Table 1. Number of birds banded for each species of scoters, St. Lawrence estuary, Quebec, 7-9 August 2010 (WWSC = White-winged Scoter; SUSC = Surf Scoter; BLSC = Black Scoter)

No. banded	WWSC	SUSC	BLSC	Total
Males	196	38	3	237
Females	23	50	1	74
Total	219	88	4	**311**

Molt Phenology.- Molt phenology was highly variable within and between species. For White-winged Scoters, even though there were males in all classes of 9th primary length, 90% were in middle to late molt stages (classes 61-160 mm; Figure 3). We measured the length of the 9th primary on only 4 females for this species, so sample size is insufficient to draw any conclusions. For Surf Scoters, 88% of females were in the early molt stages (0-60 mm) compared to 19% of males in the same stages (Figure 4). Males Surf Scoters were distributed in all classes of 9th primary length, with 72% in middle molt stages (61-120 mm). As expected, males Surf Scoters molted earlier than females. They also molted earlier than White-winged Scoters males (Figure 5). Although sample sizes are small, subadult male Surf Scoters molted slightly earlier than adult males (Figure 6). Subadult Surf Scoter males were lighter in average than adult males (961 ± 6.3 g [SE], n = 13 vs 1017 ± 8.6 g, n = 17) but heavier than females (871 ± 5.7g, n = 33). We did not differentiate subadult and adult males in White-winged Scoters. We only have weights for males (1668 ± 10.1 g; n = 68).

Figure 3. Length of 9th primary for White-winged Scoters

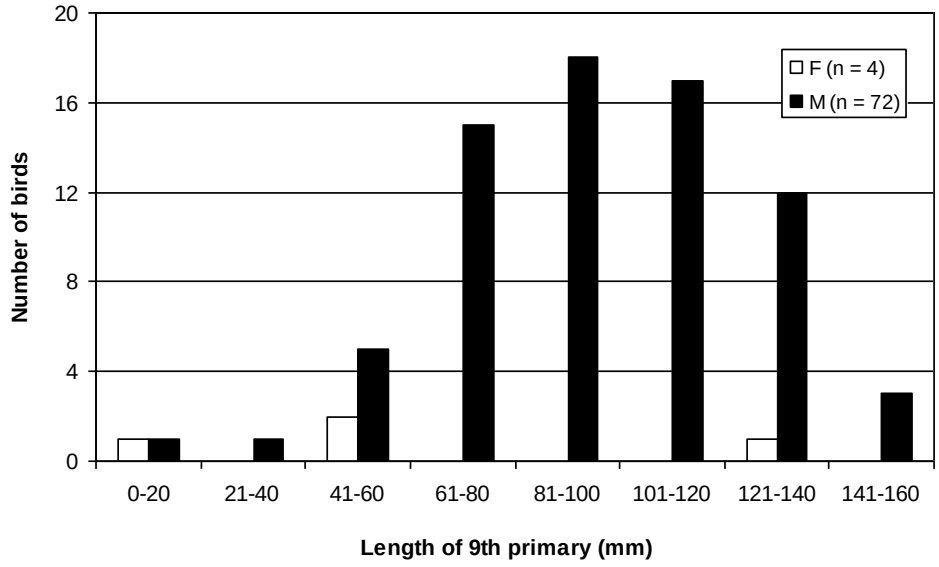


Figure 4. Length of 9th primary for Surf Scoters

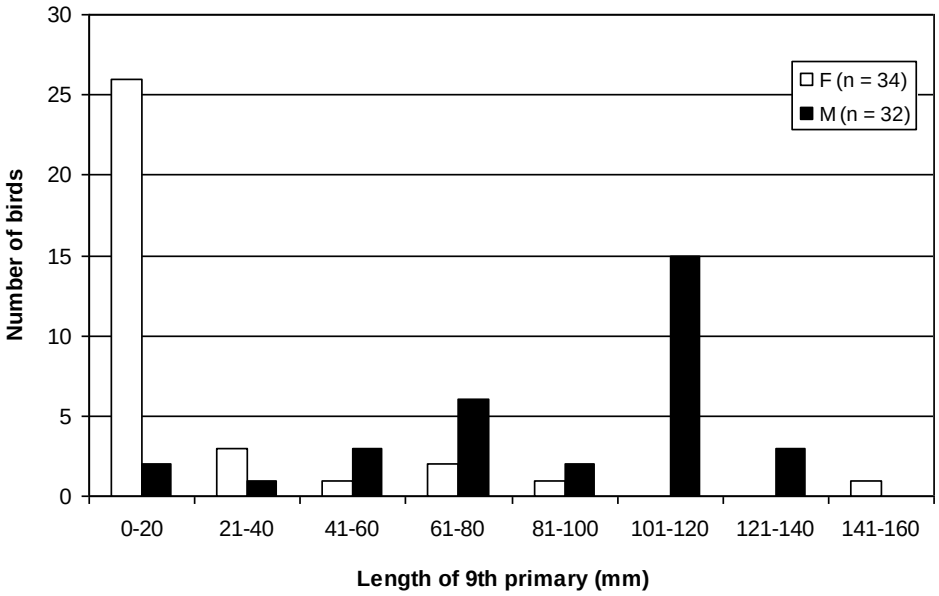


Figure 5. Comparison of timing of molt in male Surf and White-winged scoters

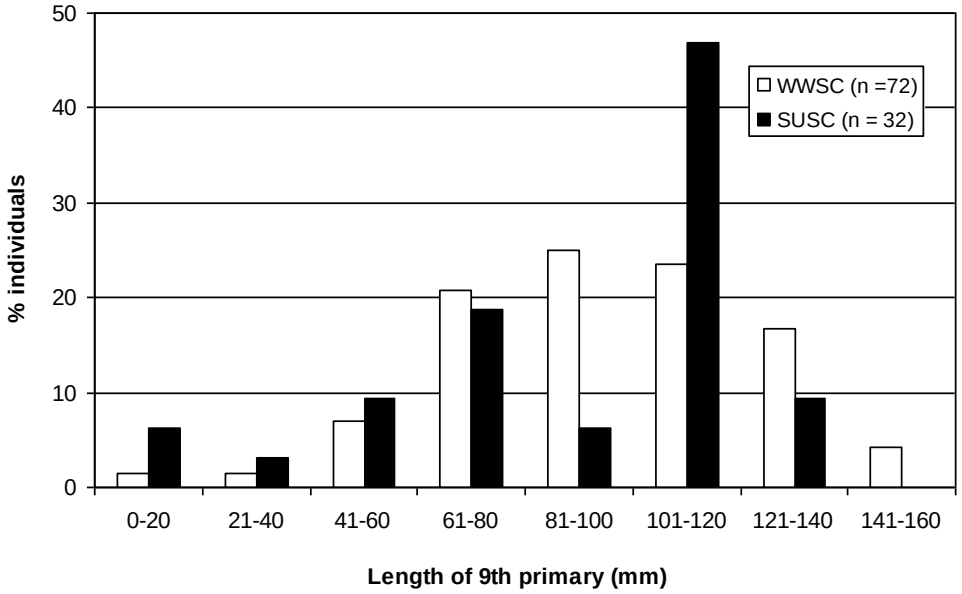
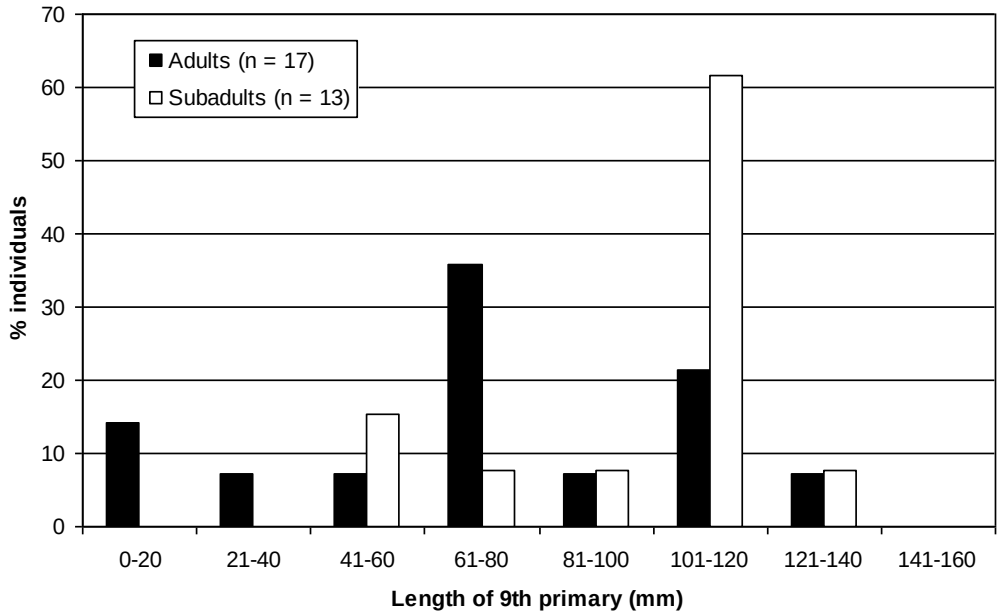


Figure 6. Comparison of timing of molt in adult and subadult Surf Scoter males



Project Status:

The project has been successful to date with the capture of 332 birds (amongst 311 were banded) and the implantation of 19 White-winged Scoters. It success now depends on the reliability of the radios and on the survival of the implanted birds. Radios from Microwave Telemetry have proved reliable in the past and the veterinarian team had a lot of experience with this type of surgery and the survival of their birds is high. Therefore we expect to be able to achieve the determination of the fall staging and wintering areas of White-winged Scoters molting in the St. Lawrence estuary.

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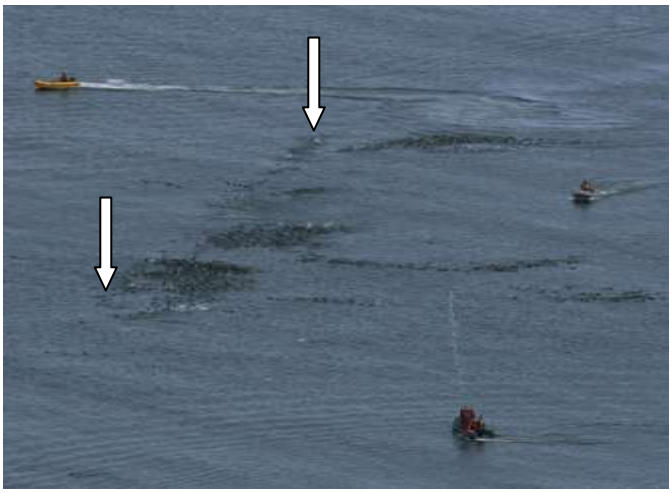
Field work pictures:



Three zodiacs driving scoters towards the gill net (between the two arrows). Photo: Jean-Pierre Savard

Recuperating the net and the entangled scoters. Photo: Francis St-Pierre

Taking out scoters from the net. Photo: Pascal Provost

Banding, recording data and taking samples on White-winged Scoters. Photo: Christine Lepage

Implementing White-winged Scoters with PTTs. Photo: Francis St-Pierre

Releasing a White-winged Scoter equipped with a PTT. Photo: Stéphane Lair