Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 06 – (October 1, 2003 to Sept 30, 2004)

Project Title: No. 12, Location of molting sites of scoters and eiders in the St. Lawrence estuary

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Partners: Canadian Wildlife Service

Project Description: Some of the most effective conservation actions are pro-active ones as they usually avoid conflicts. The location of important coastal areas for molting sea ducks will enable wildlife managers to adopt pro-active protective measures before any conflict arises. Potential threats include aquaculture, gill net fisheries, recreational boating, shipping lanes, shellfish harvesting. The species, sex and age composition of molting flocks has been poorly documented to date as has the molting chronology of birds themselves.

Objectives: The project had three major goals. First to compile and summarize unpublished data on the distribution, abundance and species composition of sea ducks molting in the St. Lawrence estuary and gulf; second, to confirm known molting locations and to locate new ones; and third, to estimate the number of molting birds. An other objective was to determine the seasonal use of important molting sites.

Preliminary Results: Some molting sites are used in spring and fall as well as during the molt but others are used mostly in summer and fall. In the spring, Black Scoters, Surf Scoters and White-winged Scoters are abundant in the St. Lawrence estuary. In the summer (molting period) Surf Scoters clearly dominate followed by White-winged Scoters. In the fall, Surf Scoters are clearly the dominant scoter with only a few Black Scoters. White-winged scoters are also present in the fall. The Black Scoters observed in the fall are mostly female plumage birds with very few males. This suggest that some black Scoter females and possibly young birds stage in the St. Lawrence estuary in the fall but that males do not in any large numbers. This contrasts with the Surf Scoter which occurs in large numbers (close to 100,000 birds) in September and October within the St. Lawrence estuary. Males dominate the large flocks but females are also present. There are also some indications that some Surf Scoter females may still be flightless in September.

However summer distribution of scoters is clearly more clumped than either spring and fall distribution. Molting sites are used each year. Preliminary results indicate that scoters are found mostly in the subtidal zone up to a depth of 30 feet. Most molting sites are good shellfish areas as denoted by the shells washed on the tide line. In late July, molting flocks are composed mostly of males (>90%) which are joined in early August by

females. By the time females initiate their molt, most males have regained their flight capabilities. Although Surf Scoters are less widely distributed during molt than in either the Spring or Fall, some molting sites cover areas of several kilometers. At one site in early August (1-4), species composition was 94% Surf Scoter, 5% White-winged Scoter and 1% Black Scoter (n = 2180 scoters distributed in 19 flocks). Sex ratio for Surf Scoters was 91.5% males and 5.6% females (n = 2054 Surf Scoters). Age ratios for males was 90.9% adult and 9.1% sub adults (n = 757 males in 8 different flocks). Preliminary observations indicated that molting flocks were quite dynamic, splitting and aggregating throughout the day. Feeding was the most frequent activity and diving synchrony varied among flocks. Most feeding was in the subtidal zone. Flocks were distributed along at least 7 km of shoreline in flocks ranging from 10 to 500 scoters, totaling more than 5,000 birds. Molt chronology varied within males flocks and females molted later than males. Better understanding of the requirements (habitat, food) of molting Surf Scoters will greatly help reduce potential conflicts with shellfish fisheries, aquaculture and recreational activities, and gill net fisheries.

Results from the summer 2003:

A few molting sites were revisited, confirming their constant use from year to year. A ground survey was conducted at the western end of Anticosti Island in the Gulf of St. Lawrence in mid-August. Several thousand Common Eiders males had been observed there (See project 12). The ground survey was done to confirm the molting status of these birds and to determine how well they could be observed from the ground. We counted over 3,000 molting Common Eiders males well distributed along the coastline. There are several good observations points from the ground. Most birds observed were males. A survey in mid June revealed the presence of several hundreds males already in the coastal waters of Anticosti Island with the presence of subadults males. Those could have been unpaired males and subadults that go directly to molting areas instead of the breeding islands. The June survey also revealed the presence of a flock of about 200 Black Scoters a species that was not known to molt there as it had not been detected during the last aerial survey (Project 12). The August survey yielded about 500 scoters molting in one of the bay. All three species were present in about the same proportions. While Eiders occurred in all the coastal areas surveyed, the scoters occurred only in that bay. The August survey revealed also the presence of a few thousands Red-breasted Mergansers in the same costal areas. Mergansers occurred in flocks of 100 to 1000 birds. This confirms that the St. Lawrence estuary and Gulf is a major molting site for Red-breasted mergansers. All birds were in eclipse plumage. Like the eiders these birds could be easily observed from shore. Only about 25% of the accessible coastal areas could be surveyed during the August survey. We hope to be able to survey the remaining in the coming years and establish the relative abundance and habitat preferences of the various molting sea ducks species present in the coastal waters of Anticosti Island.

Results from the summer 2004:

In 2004, the coastal waters of Anticosti Island were resurveyed and the area was confirmed as an important molting site for sea ducks. Molting flocks of Common Eiders, Surf Scoters, Black Scoters, White-winged Scoters, Harlequin Ducks and Red-breasted Mergansers.

Results from 2005 :

A first draft of a manuscript on the spring distribution of scoters in the St. Lawrence estuary and gulf is nearly completed. Scoter sex ratios varied between species with 54.5% males in Black Scoters (n = 76 766 birds) and 66.5% males (n = 138 780 birds) in Surf Scoters. These data were collected on several years of surveys. If we calculate an average ratio based on flocks of more than 48 birds we obtain a mean proportion of males of 54.5% for Black Scoters (n = 93 flocks; CV = 19%) and of 66.5% for Surf Scoters (n = 180 flocks; CV = 15%).

As birds depart for their breeding areas, sex ratios change with the proportion of males increasing in flocks. The proportion of males in Black Scoter flocks was 57.0 ± 1.2 % (SE) before May 20th (n = 66 flocks; CV = 17%) and 65.2 % ± 5.7% after June 1rst (n = 11; CV = 29%). In Surf Scoters, similar proportions were 67.4 ± 0.7 (n = 136; CV = 13) and 79.1 ± 4.3 (n = 16; CV = 22) for Surf Scoters. For a given site, sex ratios were similar between years. For example for Baie Comeau, the average proportion of Black Scoter males in flocks was 51.2 ± 0.4 % (n = 17; CV = 3%) in 1996 and 51.9 ± 0.5 % (n = 21; CV = 5%) in 1998. The average proportion of Surf Scoter males was 68.0 ± 1.6 (n = 35; CV = 14%) in 1996 and 65.2 ± 0.6 (n = 49; CV = 6%). Finally, the proportion of males seemed greater futhur east in the gulf as at Sept Îles, the proportion of males in flocks averaged 70.0 ± 3.3% in Black Scoters (n = 15; CV = 18) and 71.0 ± 2.0 (n = 36; CV = 17%).

Surveys were conducted again on Anticosti Island for determining the distribution and abundance of molting sea ducks. Surveys covered all species but special efforts were made on Red breasted Mergansers which molt by thousands there. This is part of another project endorsed by the SDJV (No. 51: Post-breeding ecology of Red-breasted Mergansers in a marine environment).

Project Status :

The summer and Fall 2002 data is being analyzed and a report is progressing. Now that important sites in the St. Lawrence estuary have been located and that their seasonal use by scoters documented, it would be important to characterize the food resources at these sites and their use by scoters. This information would permit to better assess the quality of these sites for scoters and to better evaluate the impacts of potential aquaculture or fisheries activities.

2003: Access from the ground and observation conditions on Anticosti Island were better than expected, indicating great possibility for further survey and research there. It is planned to continue work on Anticosti Island, among which the survey of other sectors and possibly the initiation of research on some of the most important molting species.

2004: Key moulting areas in the coastal waters of Anticosti Island have been identified and sites for the study of molting Red-breasted Mergansers were located for the initiation of a study on
their molt ecology. A project on the molt ecology of Red-breasted Mergansers is being elaborated.

2005: Work will continue on four manuscripts, one on molt distribution and abundance of Common Eider in eastern North America, one on Spring distribution and abundance of

scoters in the St. Lawrence estuary and gulf, one on molt distribution and abundance of scoters in the St. Lawrence estuary and gulf and one on fall distribution and abundance of Surf Scoters in the St. Lawrence. Surveys will again be conducted on Anticosti Island for molting birds.

2006 : Work is continuing on the manuscripts; Another year of surveys was done in the coastal waters of Anticosti Island. Satellite transmiters were implanted in 4 Surf Scoters and 10 Common Eiders to locate some molting grounds.

Project not funded in 2006.