

**Sea Duck Joint Venture**  
**Annual Project Summary for Endorsed Project**  
**FY 03 – (October 1, 2003 to Sept 30, 2004)**



**Project Title:** No. 37. Food resources available to migrating seaducks at the Restigouche River in New Brunswick, Canada and potential contaminant problems.

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**Partners:** USFWS and CWS; Province of New Brunswick, Canada

**Project Description:** Populations have declined for some species of seaducks in North America and there has been an increased concern over the status of seaducks in general. Four species, including the black scoter (*Melanitta nigra*), are at risk and deserve immediate attention. Surveys of seaducks wintering on the Atlantic coast (1991-99) have shown major declines for the black scoter. Surveys are continuing in hopes to better understand and delineate the size and location of Atlantic coast black scoter populations. Approximately 100,000 black scoters use the Restigouche River in New Brunswick, Canada every spring as a staging area before movement north to breeding areas in Quebec and Manitoba.

The coastline of the Restigouche River has paper mills and power plants, possibly contributing contaminants that could accumulate in the food resources available for seaducks feeding in these areas during migration. There is an urgent need to know more about the potential role of these contaminants to scoter populations. There also is a need to create some baseline data on what food resources are available for these ducks and to monitor the seasonal and annual availability of these food resources.

**Objectives:** The objective of this study is to create a baseline database of the food sources available to black scoters in the Restigouche River. This data will then be correlated with feeding ecology of the ducks using these areas. The specific objectives are as follows:

1. Determine what benthic food organisms are available for migrating seaducks in the Restigouche River.
2. Determine food habits of seaducks feeding in the Restigouche River.

**Preliminary Results:** Initial benthic sampling on the Restigouche River conducted during the spring of 2003 indicated that the blue mussel (*Mytilis edulis*) and the Baltic clam (*Macoma balthica*) formed large percentages (48% and 9%, respectively) of the available food to migrating black scoters. Sea lettuce (*Ulva lactuca*) was the dominant vegetation and formed 27% of the benthic sample, although it is not considered a food of the black scoter. Thirty-two other species of potential food were recorded. If these food resources were altered due to human impacts, there would be a major decline in the scoter populations using this vital area during migration route.

**Project Status:**

*Food Availability:* Benthic samples were collected in early May 2004 to determine availability of food. Boat surveys were conducted on the Restigouche River to locate general areas where black scoters are foraging. A systematic grid design was established over all shoal waters (1-7 m depth) of the River, and three grabs were taken from a boat with a Petersen dredge at 100 randomly selected stations. Each food item from benthic samples was separated by species and percent of total sample volume determined. Percentages for all samples then were averaged to calculate average percent volume of each species for the whole River. In addition, the food items were analyzed for contaminant concentrations (pers. comm., Neil Burgess).

*Food Habits:* Because no black scoters are available from local hunters during the spring, 10 males were collected from two areas of the Restigouche River. One area was the upper part of the River near Campbellton, New Brunswick and the other was the lower area near Dalhousie, New Brunswick. Ducks were collected while feeding at night with nets from the bow of boats equipped with night-lighting equipment and with shotguns.

During dissection the ducks were aged, weighed, sexed, and selected organs were measured. The location of the ducks at time of collection was recorded. The quantities of food in gullet (esophagus and proventriculus) and gizzard were analyzed. The weight of the gizzard was recorded before and after removal of food items. Food material was separated, identified to species, and then measured volumetrically. The average percent volume and frequency of occurrence was tabulated for each food item. Duck tissues (livers, kidneys, breast muscle) also were analyzed for contaminant concentrations.

**Project Funding Sources (US\$):**

SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Source of funding (agency or organization)
	\$ 10,000				USGS (in kind)
			\$ 15,000		CWS (in kind)

**Total Expenditures by Category (US\$):**

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
<b>Banding</b>					
<b>Surveys</b>					
<b>Research</b>			\$ 25,000		<b>\$ 25,000</b>
<b>Communication</b>					
<b>Coordination</b>					