Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2006 – (October 1, 2005 to September 30, 2006)

Project Title (SDJV Project #82): James Bay Black Scoter Survey.

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Partners: Canadian Wildlife Service, Ontario Ministry of Natural Resources

Project Description: Black Scoters form major summer moulting concentrations offshore along the western James Bay coast of Ontario. These are thought to represent the bulk of the species breeding in northern Quebec and northern Ontario. Given the stability of these flocks during the flightless period, this situation provides an ideal opportunity for population monitoring. Such concentrations are not found on the wintering grounds.

Establishing an operational monitoring survey of moulting scoters requires development of a standardized methodology. Ross undertook the initial surveys in the 1980s and 1990s, and produced what should be considered minimal estimates as he recorded what was encountered in the "near" offshore area. A wider ranging survey running further offshore is needed to ensure completeness. Also an investigation of survey conditions and timing is needed to establish a standard operating procedure. The use of digital imaging should be assessed as it would greatly decrease processing time and could facilitate computerized counting.

Objectives: To collect information required for effective implementation of a regularly undertaken, operational survey of moulting Black Scoter concentrations in James Bay, namely:

a) Determine the distribution of moulting flocks to establish whether a census is feasible or whether some form of sampling must be implemented. Determine flying time needed for appropriate coverage.

b) Determine the influence of the survey aircraft on scoter behaviour

c) Photograph the flocks using both film and digital imaging equipment and determine the best method.

d) Examine the effect of time of day and tide on flock configuration and detectability.

e) Determine sex ratios and the presence of other species.

f) Assess feasibility of visual estimates.

Preliminary Results: Aerial survey work using a Cessna 337 was undertaken from July 30 to August 2, 2006 based out of Moosonee and Attawapiskat in southern James Bay. The offshore area from the Quebec border to Cape Henrietta Maria (northwestern limit of James Bay) was fully covered including all known areas where moulting Black Scoters have been recorded. Special effort was made to establish how far offshore the flocks extend. Survey flights were made at 500 feet asl and 100 knots. KR estimate all flock visually, and KA photographed a sample of the flocks and took co-ordinates. The census based on visual estimates yielded the following preliminary results.

Location	Co-ordinates	Count
Puskwuche Point	51°37'N 80°30'W to 51°48'N 80°37'W	16000
Eastern Akimiski Island	52°50'N 81°30'W to 52°8'N 81°0'W	49100
Northwestern James Bay	53°24'N 82°8'W to 54°58'N 82°8'W	75000

These are substantially higher values than those of earlier surveys and may point to a rising population. However, more analysis is needed as this is based solely on a visual count. Approximately 63 flocks were photographed; these photos will be analyzed this fall and the result compared to the visual estimates in order to calculate a correction factor. Usually visual estimates tend to underestimate closely packed scoter flocks.

Conditions were good for the survey with light winds and good lighting for the initial coverage. It was clear that the flocks could be easily seen from a distance and that they tended to be clumped and in a relatively narrow zone making transect methods ineffective. Total coverage was easily obtained under these conditions. Flock size was mostly in the 200 to 400 bird range which should facilitate visual estimates; photography of larger flocks would still be desirable.

Reaction of the scoters to the aircraft was usually limited. Very active avoidance diving only seemed to occur when the aircraft flew under 300 feet asl over the flock. An altitude of 500 feet caused no diving and provided a better view for estimation and photography.

Digital images were also taken of flocks and these will be compared with photographs in the fall. Electronic viewfinders proved ineffective in locating the birds due to low resolution; a digital SLR may be better suited for this work.

The scoter flock at Puskwuche Point near Moosonee was surveyed 6 times during the 3 days to examine effects of time, tide, and weather conditions. Initial impressions suggest that feeding activity subsided during high tide and that the scoters form tighter more discrete flocks then, making surveying easier. Low sun angle and high winds had major negative impacts on visibility.

Visual inspection suggested that flocks were composed virtually entirely of adult male Black Scoter with only a few (<1%) female-coloured individuals which could possibly be subadult males. Analysis of the photographs is needed before we can determine if other species were present in any numbers.

Project Status: This study aimed to establish the methodology for a regular monitoring survey of the moulting Black Scoters. Although some analysis remains, the goal of developing an SOP should be met and a cost-effective and easily implemented survey could be developed. It would likely require 2 observers and take 2 days to complete using an estimated 12 hours of flight time not including ferrying.

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)
$7740					USFWS
			$5200		CWS
				$1160	OMNR

Total Expenditures by Category (SDJV plus all partner contributions; US$).

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding					
Surveys		**$14100**			
Research					
Communication					
Coordination					