Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2007 – (October 1, 2006 to September 30, 2007)

Project Title (SDJV Project #95): Lake Ontario January Sea Duck Survey

Principal Investigators:
Shannon Badzinski, Long Point Waterfowl & Wetlands Research Fund (LPWWRF); sbadzinski@bsc-eoc.org
Scott Petrie, LPWWRF; spetrie@bsc-eoc.org
Ken Ross, Canadian Wildlife Service (CWS) – Ontario Region; ken.ross@ec.gc.ca
Norm North, CWS – Ontario Region; norm.north@ec.gc.ca

Project Description:
The Lake Ontario January Sea Duck Survey (LOJSDS) was formally initiated in early January 2007 to obtain better information on annual abundances and distributions of sea ducks on the Canadian side of Lake Ontario. The LOJSDS was conducted as part of the larger Lower Great Lakes January Survey, which is flown annually (2002-present) by Canadian and US agencies along the shorelines of lakes Ontario, Erie, and St. Clair. Focal species for the LOJSDS are Long-tailed Duck (primary), White-winged Scoter, Black Scoter, Surf Scoter, Common Merganser, Red-breasted Merganser, Common Goldeneye, and Bufflehead.

The LOJSDS is an aerial survey that is flown with a twin engine aircraft during early January. Two observers estimate abundances of all waterfowl species observed along each side of two transects out to a distance of 0.5 km from a height of 150 m during the mid-day (10:00 – 15:00 EST) period. The nearshore transect is flown parallel to the shoreline 0.5 km offshore and the offshore transect is flown at distance of 2 km offshore. Both transects are divided into 4 segments based on easily identifiable shoreline features, which provide additional data on geographic distribution of waterfowl. Offshore transects are flown before nearshore transects to minimize double counting large numbers of waterfowl in nearshore areas that might relocate offshore due to aircraft disturbance.

Objective:
1. Determine annual abundances and distributions of sea ducks on the Canadian side of Lake Ontario during winter.

Preliminary Results:
During 3 and 4 January 2007 personnel with the CWS (Jack Hughes & Don Fillman) flew the offshore and nearshore transects in eastern Lake Ontario from the St. Lawrence River near Gananoque, Ontario west to Second Marsh near Oshawa, Ontario (Figure 1). Personnel with the LPWWRF (Shannon Badzinski) and CWS (Paul Ashley) flew offshore and nearshore transects within the 3 western Lake Ontario survey areas from Second Marsh – Oshawa, Ontario to the mouth of the Niagara River on 5 January 2007.

In total, we estimated 136,812 sea ducks on transects over Lake Ontario from 3 to 5 January 2007. The Long-tailed Duck was by far the most abundant (>100,000) sea duck encountered on all transects within each survey area; scoter spp (>10,000), merganser spp (>10,000), Common Goldeneye (>5,000), and Bufflehead (>4,000) also were present, but in relatively lower numbers (Table 1).

Nearly 80% of all sea ducks on the Canadian side of Lake Ontario we counted were on the shoreline transect, but species distributions varied by distance from shore and geographic location (Table 2). Essentially 100% of Common Goldeneye, Bufflehead, and merganser spp were observed on nearshore transects, but 25% of Long-tailed ducks and 30% of scoter spp were counted on the offshore transect. The largest percentages of Common Goldeneye and merganser spp were observed in eastern Lake Ontario from the Gananoque, ON to Oshawa 2nd Marsh, whereas the majority of Long-tailed duck and scoter spp were located in the western portion of the lake between Hamilton Ontario and the mouth of the Niagara River. Similar percentages of Bufflehead were observed in the eastern and western portions of the lake.

Project Status: The first year of this survey was successful in that it allowed us to meet our main objective. Specifically, it enabled us to estimate numbers of sea ducks (providing an annual index to winter abundance) on the Canadian side of Lake Ontario. We also were able to gain a better understanding of sea duck winter habitat use and geographic distributions on Lake Ontario. Completion of future surveys will give us a better understanding of changes in sea duck distributions and broad-scale habitat use on Lake Ontario during winter, plus enable long-term monitoring of their winter population sizes.

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)
$9,800					SDJV - Flight costs: 22 hrs @ $950/hr
			$1,600		CWS - Salary: 2 obs wages @ $800/obs – in kind
			$500		CWS - Travel & accommodation
			$100		CWS - Materials & equipment
				$1,600	LPWWRF - Salary: 1 obs wage @ $800 & 1 scientist wage @ $1000 – in kind
				$500	LPWWRF - Travel & accommodation
				$100	LPWWRF - Materials & equipment

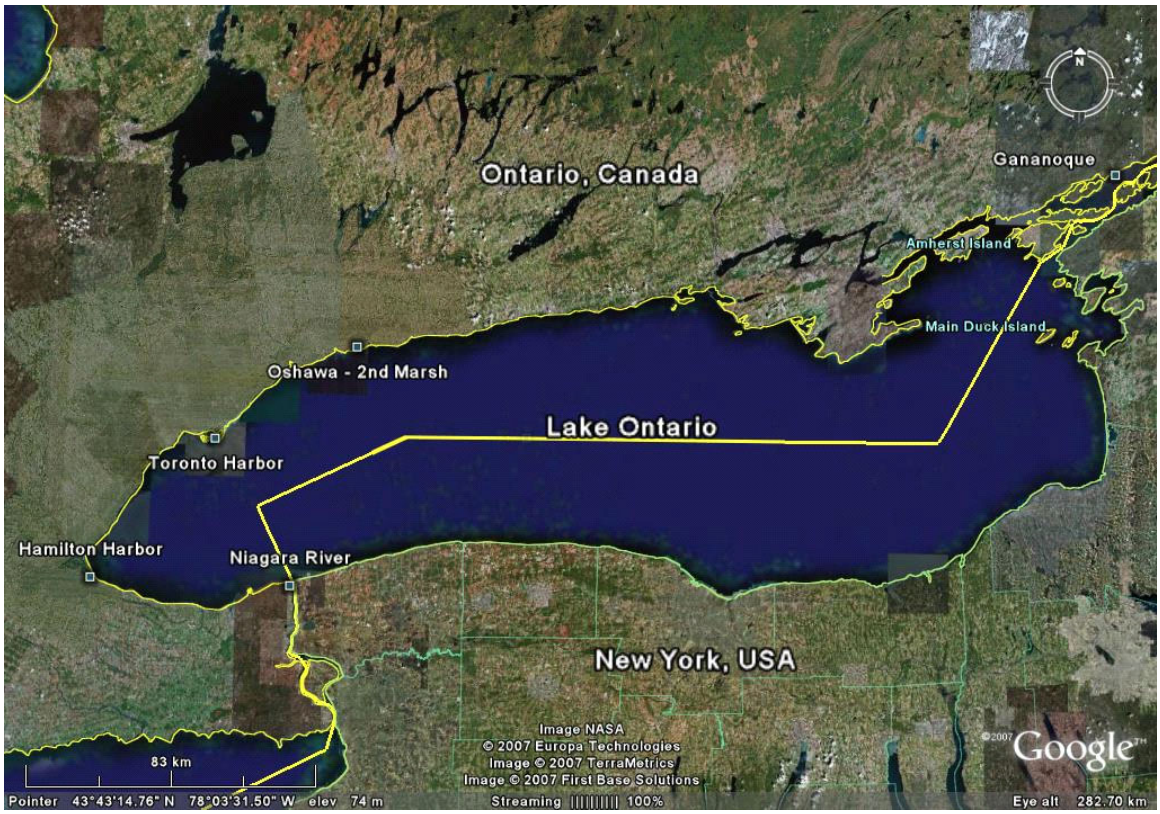

Figure 1. Map of Lake Ontario showing key locales used to divide the Lake Ontario January Sea Duck Survey into geographic areas. Survey transects within each of the four major geographic (1/ Gananoque – Oshawa, 2nd Marsh, 2/ Oshawa 2nd Marsh – Toronto Harbor, 3/ Toronto Harbor – Hamilton Harbor, & 4/ Hamilton Harbor – Niagara River) areas are located 0.5 km (nearshore) and 2 km (offshore) parallel to the Ontario shoreline.

Table 1. Numbers of sea ducks estimated in nearshore (0.5 km) and offshore (2 km) transects along the Ontario, Canada side of Lake Ontario from 3-5 January 2007 during the Great Lakes Winter Sea Duck Survey.

	Gananoque to Oshawa 2nd Marsh			Oshawa 2nd Marsh to Toronto Harbor			Toronto Harbor to Hamilton Harbor			Hamilton Harbor to Niagara River			Species
Species	0.5 km	2 km	Total	0.5 km	2 km	Total	0.5 km	2 km	Total	0.5 km	2 km	Total	Total
Long-tailed Duck	20,393	7,610	28,003	4,234	3,734	7,968	4,081	1,081	5,162	48,806	12,846	61,652	102,785
Scoter spp (total)	426	3	429	8	168	176	141	135	276	7,393	3,065	10,458	11,339
Black Scoter		2	2										2
Surf Scoter										75		75	75
White-winged Scoter				1	168	169	124	135	259	5,318	3,065	8,383	8,811
Unidentified Scoter	426	1	427	7		7	17		17	2,000		2,000	2,451
Common Goldeneye	4,246	1	4,247	418	4	422	1,264		1,264	822	1	823	6,756
Bufflehead	2,158		2,158	525		525	972		972	976		976	4,631
Merganser spp (total)	9,975	8	9,983	68	75	143	460	15	475	676	24	700	11,301
Hooded Merganser	159		159										159
Common Merganser	4,973		4,973	38	44	82	404	12	416	461	20	481	5,952
Red-breasted Merganser	3,427	3	3,430	30	31	61	56	3	59	215	4	219	3,769
Unidentified Merganser	1,416	5	1,421										1,421
Total Sea Ducks	37,198	7,622	44,820	5,253	3,981	9,234	6,918	1,231	8,149	58,673	15,936	74,609	136,812

Table 2. Percentages of sea duck species counted on nearshore (0.5 km) and offshore (2 km) transects and within four geographic survey areas on the Ontario, Canada side of Lake Ontario from 3 – 5 January 2007 during the Great Lakes Winter Sea Duck Survey.

	Transect		Geographic Location			
Species	Nearshore	Offshore	Gananoque to Oshawa 2nd Marsh	Oshawa 2nd Marsh to Toronto Harbor	Toronto Harbor to Hamilton Harbor	Hamilton Harbor to Niagara River
Long-tailed Duck	75%	25%	27%	8%	5%	60%
Scoter spp (total)	70%	30%	4%	2%	2%	92%
Common Goldeneye	99%	<0.1%	63%	6%	19%	12%
Bufflehead	100%		47%	11%	11%	21%
Merganser spp (total)	99%	1%	89%	1%	4%	6%
Total Sea Ducks	79%	21%	33%	6%	6%	55%