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

Project Title: Central Arctic Waterfowl Breeding Population Surveys
Sea Duck Joint Venture Project 98
Arctic Goose Joint Venture Project 77

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Partners: Sea Duck Joint Venture (SDJV), Arctic Goose Joint Venture (AGJV), U.S. Fish and Wildlife Service (USFWS – Regions 2, 3, 6, 7, and 9), Canadian Wildlife Service (CWS), Central Flyway Council (CFC), Mississippi Flyway Council (MFC)

Project Description: During summers of 2005-2010, the AGJV, SDJV, USFWS, CWS, CFC, MFC, and other partners conducted aerial surveys of migratory birds throughout a large expanse of important lowland habitats in Canada's Arctic. These efforts and those of previous helicopter surveys were drawn upon to begin development of an operational survey of migratory birds in these regions. In this report we provide a summary of SDJV Project 98/Arctic Goose Joint Venture Project 77 activities in 2010 and a partial compilation of results from 2009 surveys.

In 2010, we surveyed several important breeding areas that had never before been systematically surveyed for nesting migratory birds, and some that had not been surveyed for nearly 20 years. With the successful survey of these new breeding areas project cooperators have achieved another and near final step toward the design of a comprehensive and reliable survey for breeding abundance of many important migratory bird populations in North America.

Objectives: Obtain indices to abundance, distribution, and evaluate population trends of several Arctic-nesting migratory bird species including the Long-tailed Duck, King Eider, Canada/Cackling Goose, Greater White-fronted Goose, Tundra Swan, and others.

Progress: In 2010, we conducted surveys using de Havilland beaver (western Arctic) and Quest Kodiak turbine-powered aircraft (eastern Arctic). We surveyed areas on Banks Island, Tuktoyaktuk Peninsula, Southampton Island, and Coats Island, NT and NU, Canada (Figures 1 & 2). The 2010 migratory bird surveys on Southampton and Coats Islands are the first systematic spring surveys ever conducted there. Portions of the 2010 Banks Island survey area had been systematically surveyed in 1992-1993 (Hines et al 2000, Hines and

Robertson 2006) but this SDJV/AGJV project updated their information and expanded survey coverage.

Transects were spaced systematically at 10-km intervals, resulting in a 4% sampling intensity. Survey procedures followed USFWS and CWS protocol for aerial waterfowl breeding population surveys (USFWS and CWS 1987). We flew each transect at a height of 30-45 m above ground level and at a speed of 145-170 km/hr. The pilot used the aircraft Global Positioning System (GPS) to navigate to transect "start" and "end" waypoints and to maintain the flight path along the transect centerline. Both pilot and observer recorded observations of all birds (excluding shorebirds and passerines) and large mammals within 200 m of the flight path. We recorded each observation to an electronic sound file, where it was linked with simultaneous GPS coordinates and stored via separate on-board computers for each observer.

Preliminary Results: Surveys were conducted on Banks Island and Tuktoyaktuk Peninsula, NT (western Arctic areas) during 21-29 June 2010 and consumed 58 hours of flight time (including ferry time). Snow cover was completely gone on Banks Island and shallow lakes were ice-free. Substantial numbers of snow goose goslings had hatched by 26 June. Spring phenology was quite early on Banks Island in 2010, and survey timing was somewhat later than optimal.

Surveys were conducted on Southampton and Coats Island, NU (eastern Arctic areas) during 26-29 June 2010 and used 41 hours of flight time (including ferry time). Observers reported a strong nesting effort in the region and high abundance of Canada geese on Coats Island. Data analysis is not yet complete.

Survey results from 2009 Arctic Migratory Bird Surveys (central Arctic – Fig. 3) have been compiled and preliminary waterfowl abundance estimates are appended to this report (Table 3).

Project Status: Based on the information being gained through these cooperative surveys, there is substantial support for continuing these efforts using turbine-powered fixed-wing aircraft, and for developing these surveys into an operational monitoring method for several migratory bird species and populations. During 2011, we intend to compile survey estimates from fixed-wing surveys 2005-2010, conduct one additional year of baseline data collection in all 3 regions (western, central, and eastern Arctic), analyze data and report in administrative and scientific outlets. Once reported we intend to develop a final survey design to efficiently monitor priority species in these important portions of the Arctic.

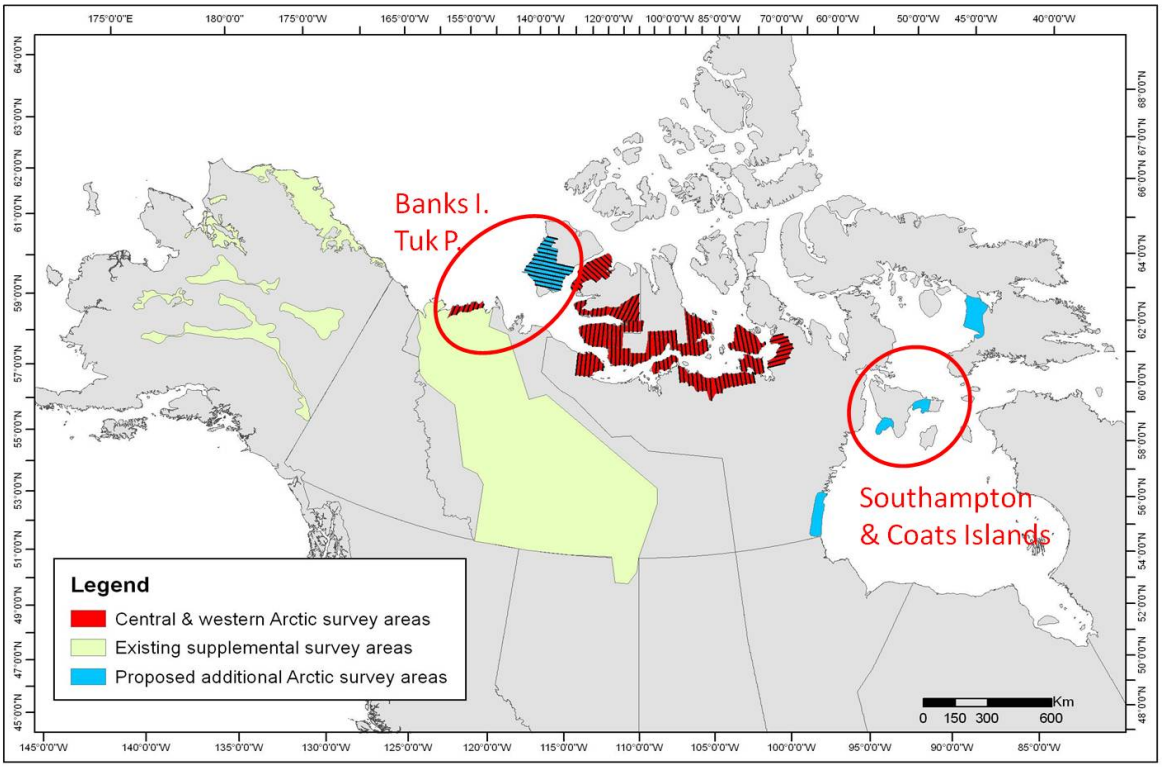

Figure 1. General regions surveyed during Arctic Migratory Bird Survey operations in 2010 (circled, and below) and during 2005-2009 (red). Geographic areas identified in 2009 as targets for new survey efforts are in blue, and areas surveyed during collateral survey efforts (e.g., Waterfowl Breeding Population and Habitat Survey) are in green.

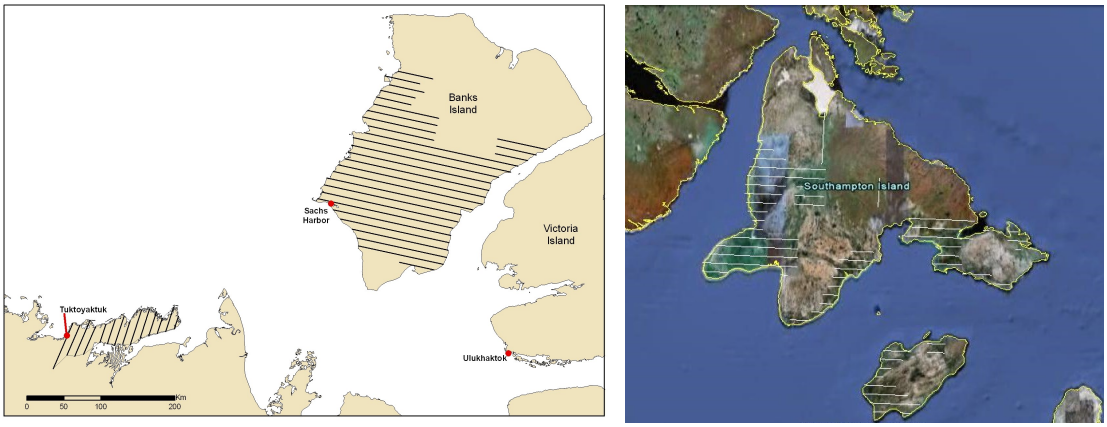

Figure 2. Survey transects on Banks Island and Tuktoyaktuk Peninsula in the western Arctic (left map) and on Southampton and Coats Island (right map) in the eastern Arctic were flown using turbine-powered, fixed-wing aircraft during June 2010.

Table 1. Project Funding Sources (US$) for Project 98/77 in 2010.

Source of funding (name of agency or organization)	SDJV (USFWS) Contribution	Other U.S. federal contributions	U.S. non-federal contributions	Canadian federal contributions	Canadian non-federal contributions	Total
Sea Duck JV	15,000					
Arctic Goose JV		15,000				
FWS Region 9 and 6		15,000				
Central Flyway Council			10,000			
Mississippi Flyway Council			5,000			
CWS				1,000		
Total						61,000

Table 2. Total Expenditures by Category for Project 98/77 in 2010 (US$).

ACTIVITY	Breeding	Molting	Migration	Wintering	Total
Banding (include only if this was a major element of study)					
Surveys (include only if this was a major element of study)	61,000				61,000
Research					

Literature Cited:

Hines, J. E., D. L. Dickson, B. C. Turner, M. O. Wiebe, S. J. Barry, T. A. Barry, R. H. Kerbes, D. J. Nieman, M. F. Kay, M. A. Fournier, and R. C. Cotter. 2000. Population status, distribution, and survival of Shortgrass Prairie Canada geese from the Inuvialuit Settlement Region, western Canadian Arctic. Pages 27-55 *in* K. M. Dickson, editor. Towards conservation of the biodiversity of Canada geese. Canadian Wildlife Service. Occasional Paper Number 103 Ottawa, Ontario.

Hines, J. E., and M. O. Wiebe Robertson, editors. 2006 Surveys of geese and swans in the Inuvialuit Settlement Region, Western Canadian Arctic, 1989-2001. Canadian Wildliew Service Occasional Paper 112.

U.S. Fish and Wildlife Service and Canadian Wildlife Service. 1987. Standard operating procedures for aerial waterfowl breeding ground population and habitat surveys in North America; revised. Unpublished report.

Appendix: Preliminary Results of Arctic Migratory Bird Surveys Conducted in the Central Canadian Arctic 2009.

In 2009, we conducted surveys using the turbine-powered de Havilland beaver aircraft on southern and southeastern Victoria Island, King William Island, and the north coast mainland (Figure 3). We conducted surveys from 19 June to 1 July 2009 and surveyed 5,847 km of transect in 65 hrs of flight time.

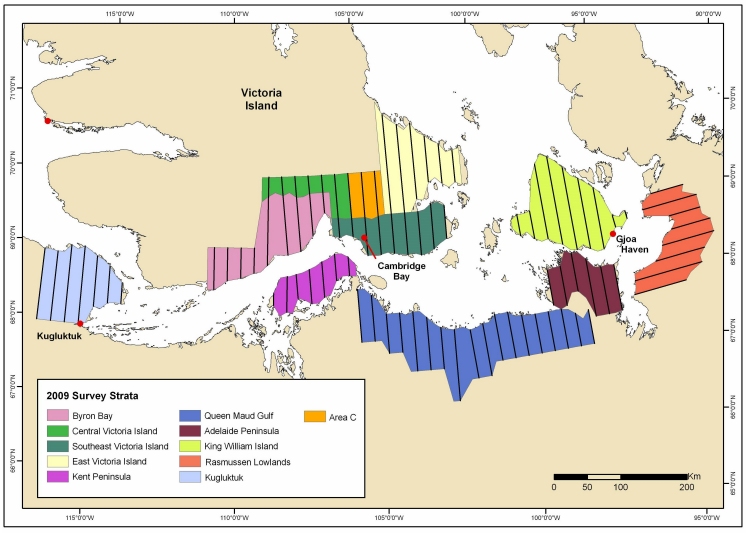

Figure 3. Survey areas and transects in the central Canadian Arctic flown via turbine fixed-wing aircraft during June 2009.

Table 3. Population indices, by area, of waterfowl from the fixed-wing survey in Nunavut, Canada, 19 June-1 July 2009. Singles birds (except snow/Ross's Geese, scaup, and tundra swans) were doubled when calculating estimates. Indices of selected species are presented both with and without visibility correction factors (VCFs) applied to adjust for incomplete detection. VCFs are from 1989-1991 fixed-wing vs. helicopter comparison surveys in Alaska tundra habitats (Conant et al. 1991).

Species	VCF	Kugluktuk	SE	Byron Bay	SE	Central Victoria Island	SE	Southeast Victoria Island	SE	Area C	SE	East Victoria Island	SE	Kent Peninsula	SE	Queen Maud Gulf	SE	Adelaide Peninsula	SE	King William Island	SE	Rasmussen Lowlands	SE	Total	SE
Canada/Cackling Goose	---	18,899	4,602	31,811	6,726	9,646	1,771	30,661	3,153	5,278	1,999	56,225	8,677	8,670	1,676	55,883	4,887	27,312	4,472	42,501	6,021	18,872	4,595	305,758	16,212
Large-sized Canada Goose	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104,976	41,389	1,494	901	2,905	1,685	3,855	1,597	113,230	41,464
White-fronted Goose	---	12,811	2,907	8,794	2,545	2,067	458	12,255	2,609	2,702	1,439	13,815	1,888	9,467	1,170	57,153	8,614	11,096	1,791	13,657	2,795	48,503	9,378	192,320	14,217
Brant	---	0	0	0	0	0	0	1,572	1,533	0	0	203	226	0	0	1,124	1,124	0	0	0	0	0		2,899	1,914
Snow/Ross's Goose	---	1,227	807	814	518	0	0	31,586	19,474	251	252	8,990	5,206	897	711	1,556,859	749,912	433,878	220,619	107,577	29,176	159,899	46,754	2,301,978	783,891
Mallard	---	409	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	409	397
Mallard	4.01	1,640	1,595	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,640	1,595
Am. Green-winged Teal	---	409	389	0	0	0	0	0	0	0	0	0	0	0	0	195	133	0	0	0	0	90	89	694	421
Am. Green-winged Teal	8.36	3,418	3,255	0	0	0	0	0	0	0	0	0	0	0	0	1,634	1,129	0	0	0	0	750	745	5,802	3,525
Northern Pintail	---	3,725	451	4,940	3,993	345	310	0	0	0	0	0	0	8,520	7,279	53,734	8,698	4,438	742	357	249	2,510	1,415	78,569	12,145
Northern Pintail	3.05	11,362	1,616	15,067	12,198	1,051	946	0	0	0	0	0	0	25,986	22,224	163,888	29,176	13,537	2,475	1,088	761	7,657	4,343	239,636	39,026
Scaup sp.	---	363	165	0	0	0	0	0	0	0	0	0	0	0	0	195	194	0	0	0	0	0	0	558	255
Scaup sp.	1.93	701	326	0	0	0	0	0	0	0	0	0	0	0	0	377	374	0	0	0	0	0	0	1,078	496
White-winged Scoter	---	91	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	86
White-winged Scoter	1.17	106	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	101
Common Eider	---	1,635	659	0	0	0	0	740	346	0	0	508	287	797	356	3,224	3,024	171	178	204	151	0	0	7,279	3,156
King Eider	---	999	333	11,671	2,899	6,201	1,293	8,417	2,139	3,770	495	9,396	1,122	1,495	257	10,161	1,445	3,414	647	5,504	898	3,810	1,230	64,838	4,600
Long-tailed Duck	---	8,632	2,864	8,577	1,180	4,995	1,779	7,076	1,752	2,513	759	3,403	1,000	6,079	2,598	47,628	4,589	13,272	2,066	4,434	984	5,828	1,170	112,437	7,199
Long-tailed Duck	1.87	16,141	5,796	16,039	3,196	9,341	3,561	13,232	3,769	4,700	1,563	6,364	2,068	11,367	5,082	89,064	15,488	24,819	5,258	8,291	2,183	10,898	2,683	210,256	19,563
Red-breasted Merganser	---	409	290	543	333	0	0	0	0	0	0	0	0	100	105	0	0	0	0	0	0	0	0	1,052	454
Red-breasted Merganser	1.27	519	382	689	448	0	0	0	0	0	0	0	0	127	133	0	0	0	0	0	0	0	0	1,335	604
Tundra Swan	---	2,090	413	4,180	878	1,550	455	3,099	521	1,194	65	2,590	657	2,242	629	8,646	1,052	3,798	1,600	5,504	1,012	4,348	903	39,241	2,785
Tundra Swan Nest	---	227	102	597	131	301	168	509	151	63	63	254	140	349	173	537	166	128	49	713	170	359	122	4,037	454