

Sea Duck Joint Venture

Annual Project Summary for Endorsed Projects

FY 2006– (October 1, 2005 to Sept 30, 2006)

Project Title: Project #. 80. Surveys of Common Eiders and Other Migratory Birds in the Bathurst Inlet area of Nunavut. Year 1 of a 3 year study.

Principal Investigator(s): Lynne Dickson, Canadian Wildlife Service, Room 200, 4999-98 Ave, Edmonton, Alberta T6B 2X3. lynne.dickson@ec.gc.ca; Garnet Raven, Canadian Wildlife Service, Room 200, 4999-98 Ave, Edmonton, Alberta T6B 2X3. garnet.raven@ec.gc.ca

Partners: Sea Duck Joint Venture; Canadian Wildlife Service; Polar Continental Shelf Project; Inuvialuit Wildlife Management Advisory Council

Project Description: The Bathurst Inlet area (including Melville Sound, Parry Bay and Elu Inlet) supports about 25% of Canada's breeding population of Pacific Common Eiders (Dickson, unpublished data). The population dynamics of the Pacific Common Eiders is poorly understood, though they experienced a marked decline in recent years (Suydam et al. 2000), and are believed to be at moderate risk from resource development. Likely the entire Canadian breeding population stages in the southeastern Beaufort Sea for 2-3 weeks during spring migration (Dickson et al. 2005), hence they are highly vulnerable to development of offshore oil and gas reserves in that region. Three mines are currently under way in the Bathurst Inlet area, as well as a proposal for a port and road to the interior. The resulting habitat loss and increased human activity in the area are an additional threat to the Pacific Common Eider. This survey will provide a breeding population estimate for the Bathurst Inlet area, as well as provide a baseline for both monitoring abundance in the area and tracking population trends continentally. Survey results will also provide information on key areas for nesting and staging eiders. A comparable survey was conducted in 1995, and thus will add to our knowledge of population trend for the Pacific Common Eider.

The breeding pair survey was conducted from 27 June to 2 July, 2006. These dates were thought to be optimal based on a 5 year study of nesting chronology in the area. The survey was conducted from a Bell 206B helicopter flown at 50 to 75m (150-250 feet) and at 130-145 kph (80-90 mph). The flight path followed the coast and ice edges, as well as circled islands to obtain a complete count of all eiders. To maximize visibility of birds on the water the surveys were conducted during mid-day hours and when winds were calm or light.

Two observers, one on each side of the aircraft, recorded on tape the species, number, and when possible, sex and age of birds, as well as the time of the observation. Observations of ducks, including the Pacific Common Eider, were recorded as flock size, noting the number or proportion of adult males and number or proportion of "brown" birds. In areas of high bird concentrations, air speed was reduced to the point accurate counts could be made. FUGAWI GIS mapping software (Northport Systems Inc.,

Toronto, Ontario, Canada) logged all aircraft movements and provided real time locations at 2 second intervals, allowing observations to later be merged with specific locations using the time. Additional information on survey date and time, weather, amount of open water, and visibility were also recorded. Shoreline segments previously used during the surveys conducted in 1995 were again used for this survey so direct comparisons could be made and population trend information ascertained.

Objectives: The principle objectives of the study were: 1) to monitor population trend of the Pacific Common Eider in a core part of its North American breeding range, 2) to obtain a breeding population estimate for the Bathurst Inlet area, and 3) to identify key areas for nesting in Bathurst Inlet.

A secondary objective was to acquire a population estimate and trend data on several other bird species in the Bathurst Inlet, including the Long-tailed Duck, 3 loon species, 2 goose species and 2 gull species..

Preliminary Results: Pacific Common Eider numbers observed in 2006 were below numbers observed in the same segments in 1995. In the 48 segments that were surveyed in both years there were 3032 males observed in 1995 compared to 2006 males observed in 2006 (Table 1, Fig. 1). This is a decrease of more than 33%. For females the decrease was even greater with 2513 observed in 1995 and only 1069 observed in 2006 (Table 1, Fig. 1).

Project Status: It is unknown whether the lower counts in 2006 were a result of an actual decline in number of breeding pairs since 1995, or due to the 2-3 weeks early spring thaw at Bathurst Inlet in 2006. During the survey period, the search area for eiders is usually limited to a narrow lead of open water <400 m wide present along coastlines and around islands, whereas in 2006 much of the study area was free of ice. Where ice was present it was primarily broken and there were eiders loafing along its edge often far from shore. This undoubtedly affected our count, as birds located within the broken ice were difficult to see, and we were unable to survey all ice edges due to helicopter time restrictions. The early spring thaw resulted in nest initiation occurring about a week earlier, which might have also resulted in a lower count due to early departure of males on moult migration. The breeding pair count is primarily based on the males, since females are so difficult to detect when on islands. Thus, timing the survey for when the males are present is essential.

The unusual conditions in 2006 illustrate why it is important to survey annually or at least in as many years as possible to detect population changes. For this survey to succeed we recommend a minimum of 3 years of surveys every 6 years.

We were only able to survey about half of the study area in 2006, primarily due to the unexpectedly large amount of open water. To rectify this problem in future years, we recommend the surveys aircraft, pilot and observers be on site and ready to survey 4-5 days earlier. We also recommend budgeting for an additional 25 hours to complete the survey.

Project Funding Sources for FY 06:

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)
\$23,772					
			\$62,000		PCSP, CWS

Total Expenditures (SDJV plus partner contributions) by Category in FY 06:

ACTIVITY	BREEDING	MOLTING	MIGRATION	WINTERING	TOTAL
Banding					
Surveys	\$85,772				\$85,772
Research					
Communication					
Coordination					

Area (segment)	Males - 1995	Males - 2006	Females - 1995	Females - 2006
85 (8)	46	11	38	6
86 (1,3)	12	11	9	7
87 (2,3)	248	586	227	258
88 (1,2,3,4)	627	229	524	192
89 (1,2,3)	258	236	225	129
90 (1,2,3,5,6,7)	565	304	541	146
92 (3,4)	6	23	5	12
94 (2,3,4)	225	109	216	49
96 (1,2,3)	90	46	86	28
97 (1,2,3,4,5,6,7)	179	115	210	53
98 (1,2,3,4,5,6)	634	204	338	98
99 (1)	2	0	3	0
100 (1,2,3)	111	51	75	34
101 (2)	6	32	4	33
102 (6,7,8)	19	47	7	24
117 (1)	4	2	5	0

Table 1. Number of male and female Common Eiders observed in 2006 compared to 1995.

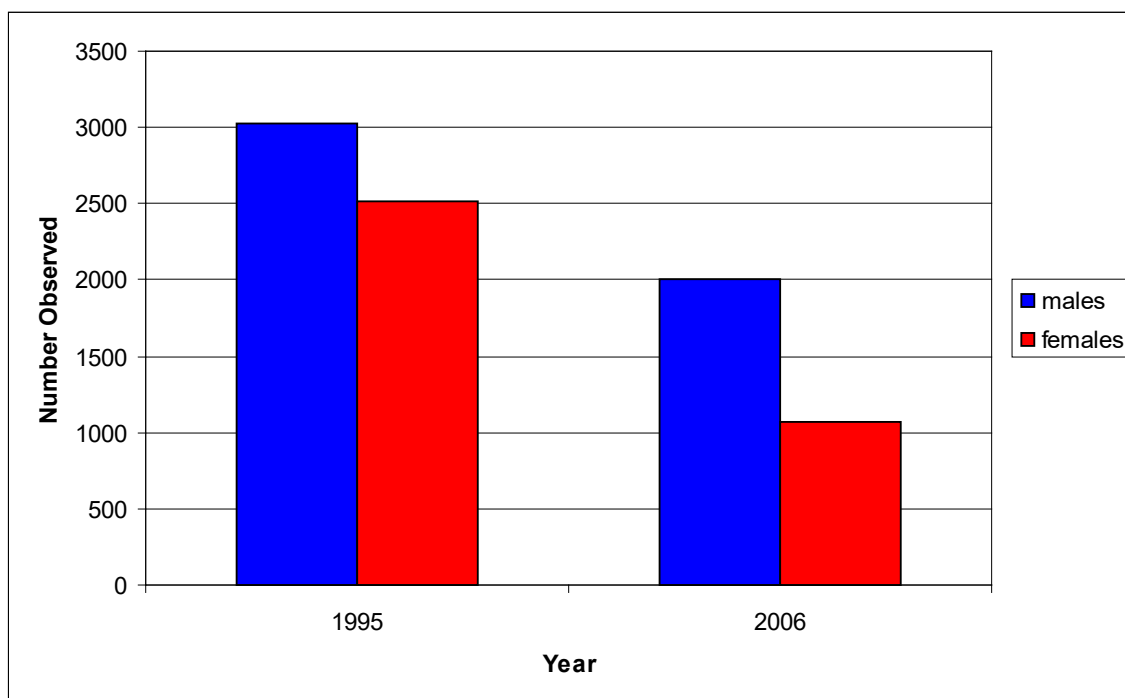


Figure 1. Numbers of male and female Common Eiders observed in the 48 segments surveyed in the Bathurst Inlet, Nunavut in both 1995 and 2006.

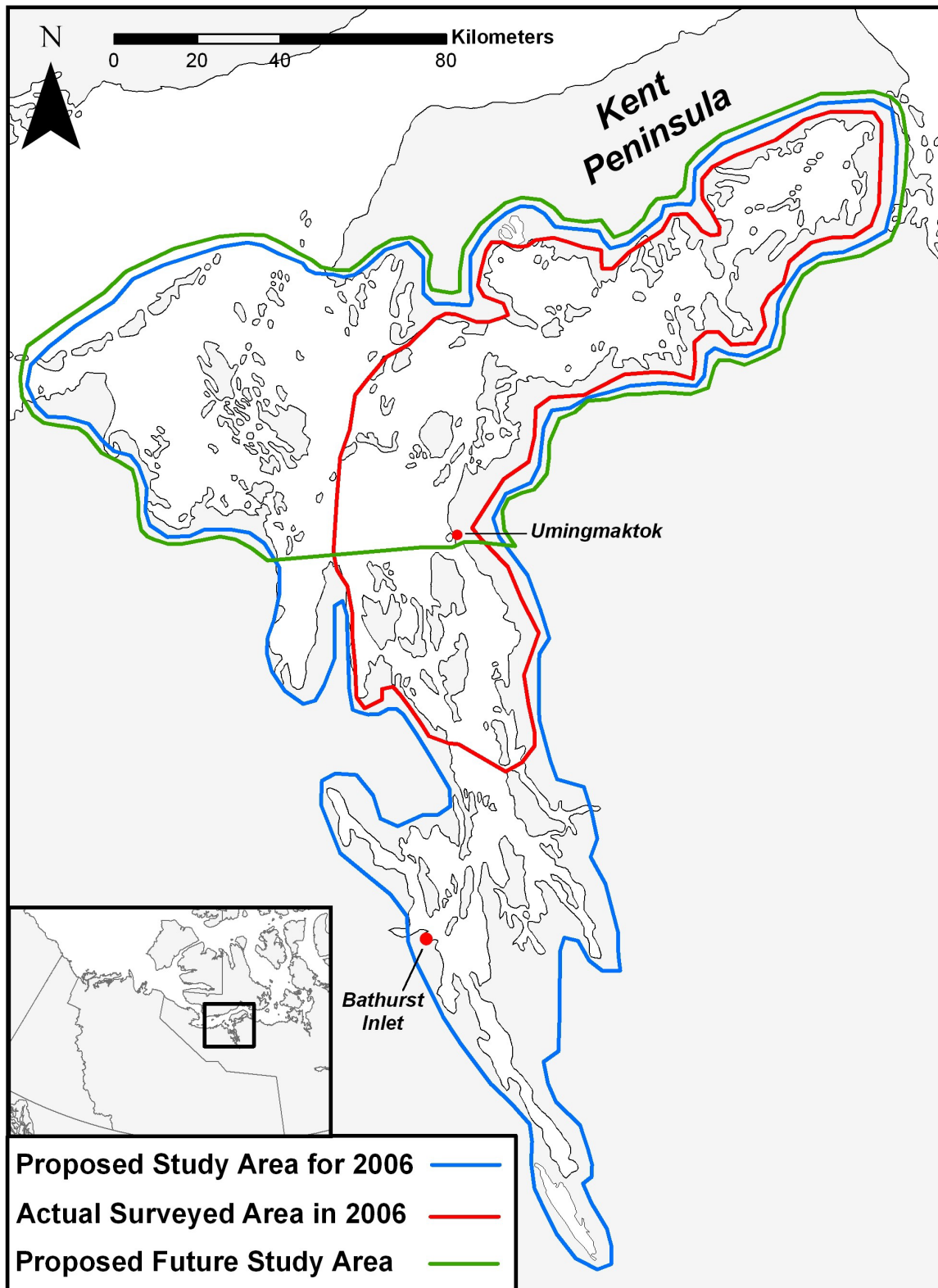


Figure 2. Map showing extent of proposed and actual survey coverage for Pacific Common Eiders in the Bathurst Inlet area of Nunavut in 2006, as well as the proposed future survey coverage.