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Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut

Third edition

**Occasional Paper
Number 114
Canadian Wildlife Service**



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Cover:

Cliffs at Nirjutiqavvik (Coburg Island) National Wildlife Area. They provide habitat for seabirds (site number 10 in Nunavut). Photo by Grant Gilchrist.

Ramparts River Wetlands (Tu'eyeta). These boreal wetlands comprise key habitat for migratory birds (site number 13 in the Northwest Territories). Photo by Donna Mulders.

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Abstract

This report identifies 83 key terrestrial habitat sites for migratory birds in the Northwest Territories and Nunavut. These sites support at least 1% of the Canadian population of at least one migratory bird species (or, in some cases, subspecies). Sites also include marine and freshwater habitats where the value of the terrestrial habitat is intimately linked to the presence of aquatic habitats. Data for the identification of sites were drawn from existing published and unpublished reports and personal communications.

In this updating of key terrestrial habitat sites in the Northwest Territories and Nunavut, eight new sites have been added and two have been removed. Four sites listed in the previous edition have been combined under a single location. Many of the sites recognized in earlier listings have been revised, some quite substantially. Eighteen of the key terrestrial habitat sites overlap with existing Migratory Bird Sanctuaries, and two sites overlap with National Wildlife Areas.

This report describes key terrestrial habitat areas that are essential to the welfare of various migratory bird species in Canada. It serves as a statement of the interest of Environment Canada's Canadian Wildlife Service in lands where special wildlife conservation measures may be required, and it is offered as a guide to the conservation efforts of other agencies having interests in the Northwest Territories and Nunavut.

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1.0 Introduction

The Northwest Territories and Nunavut comprise 34% of the landmass of Canada. This vast area stretches 3000 km from the Mackenzie Delta to eastern Baffin Island and 2500 km from the 60th parallel to the northern tip of Ellesmere Island. It consists of six ecozones: Taiga Plains, Taiga Shield, Taiga Cordillera, Southern Arctic, Northern Arctic, and Arctic Cordillera. These ecozones feature a wide range of landforms and vegetation, from the extensive coniferous forests and wetlands of the Taiga Plains centred about the Mackenzie River to the stunted forests clinging to immense expanses of exposed ancient bedrock and innumerable lakes and rivers of the Taiga Shield. Rugged mountains, fast-flowing rivers, and windswept uplands dominate the Taiga Cordillera, while extensive shrublands, wet sedge meadows, and cold, clear lakes characterize the Southern Arctic. In the far north, barren plains interspersed with well-vegetated wetlands and rocky outcrops and cliffs typify the Northern Arctic, while precipitous peaks, permanent ice caps, and glaciers comprise much of the Arctic Cordillera. Such diversity means a wide range of wildlife habitat supporting a broad range of Nearctic flora and fauna. Approximately 220 species of migratory birds breed regularly in the Northwest Territories and Nunavut (CWS 2005).

The preservation of adequate habitat (both in quantity and in quality) is fundamental to the conservation of all wildlife species. Accordingly, and consistent with its enabling legislation — *Migratory Birds Convention Act, 1994* (Sanctuary Regulations), *Canada Wildlife Act* (Wildlife Area Regulations), the Federal Policy on Land Use (Government of Canada 1981), the Northern Mineral Policy (Indian and Northern Affairs Canada 1986), and the Minerals and Metals Policy of the Government of Canada (Natural Resources Canada 1996) — Environment Canada's Canadian Wildlife Service (CWS) protects and manages terrestrial habitats of particular ecological value to wildlife. Key terrestrial habitat sites in the Northwest Territories and Nunavut have been previously documented and described by CWS (McCormick et al. 1984; Alexander et al. 1991), as have the known key marine sites in the Northwest Territories and Nunavut (Mallory and Fontaine 2004). Since the key terrestrial habitat sites were last catalogued by Alexander et al. (1991), however, continued research and monitoring of migratory birds in the Northwest Territories and Nunavut by CWS and other agencies have uncovered a number of additional terrestrial sites and updated information for the previously known sites.

Since 1991, northern Canada has witnessed change of an unprecedented scale and speed, both political and economic. Exploration and development associated with the extraction of minerals and hydrocarbons as well as forestry have accelerated greatly in various regions of the Northwest Territories, and mineral exploration in Nunavut shows every indication of following suit. The territory of Nunavut was created through the Nunavut Final Agreement (1993), and a number of Aboriginal land claims have been settled, such as the Gwich'in (1991), the Sahtu (1993), and the Tāichō (2003). Each of these final agreements gives Aboriginal people and government resource officials an equal voice in the management of wildlife and its habitat. Such change makes it incumbent on both wildlife managers and those with interest in the land and its resources, both renewable and non-renewable, to have the most up-to-date information on which to base land use decisions.

This report updates the catalogue of key terrestrial habitat sites (Alexander et al. 1991) within the Northwest Territories (see Figure 1 on page 12) and Nunavut (see Figure 2 on page 40) that are essential to the welfare of a large number of migratory bird species in Canada, using new information where it exists. For many sites, no new information has been collected over the intervening 14 years — an indication of the inadequate resources available to agencies such as CWS for managing these important areas. Based on a precautionary approach to management, these sites have been retained on the premise that this information is the best available. This report also describes a number of new key terrestrial habitat sites that have come to light as a result of information obtained since 1991. It does not, however, represent the last word, and more sites could be added in the future as our information improves. Furthermore, areas not included in this report should not be automatically interpreted as being unimportant to migratory birds.

This report serves as a statement of CWS interest in lands where special wildlife conservation measures may be required, and it is offered as a guide to the conservation efforts of federal and territorial governments, wildlife co-management boards established pursuant to land claim final agreements, Aboriginal and non-governmental organizations, and industry. The utility of the earlier cataloguing of key terrestrial habitat sites as a quick and accurate reference for CWS in its assessment of proposed mineral exploration leases, mine developments, and tourism activities in the Northwest Territories and Nunavut has been demonstrated repeatedly.

2.0 Protection of key terrestrial habitat sites

2.1 CWS mandate

In the Northwest Territories and Nunavut, several agencies have the legislative tools with which to protect terrestrial wildlife habitat; CWS is one of those agencies. CWS administers the *Migratory Birds Convention Act, 1994*, which gives it responsibility for the management and conservation of migratory bird populations in Canada. Pursuant to this Act, CWS administers the Sanctuary Regulations, which provide for the establishment and management of Migratory Bird Sanctuaries. CWS also administers the *Canada Wildlife Act*, through which CWS may take measures to protect wildlife species in danger of extinction and acquire lands for wildlife research, conservation, and interpretation. The acquisition and management of such lands, known as National Wildlife Areas, are carried out in accordance with the Wildlife Area Regulations. CWS is the lead federal agency in the implementation of the *Species at Risk Act*. This Act serves to prevent Canadian wildlife species from becoming extinct, to recover those that are in danger of becoming extinct, and to ensure that common wildlife species remain common. Under this Act, CWS can invoke measures immediately to protect the critical habitat of a species at risk.

2.2 Other legislated protection for migratory bird habitat

The Governments of the Northwest Territories and Nunavut, through their respective Parks Acts, can establish Territorial Parks that provide protection to land containing important migratory bird habitat. Some migratory bird habitats are protected from human land uses because they lie within National Parks or National Park Reserves established and managed by Parks Canada Agency. Regulations under the *Canada National Parks Act* do not deal with migratory bird habitats per se, but excellent protection is provided to them because of general prohibitions on many land use activities and types of development.

2.3 Recognition of important migratory bird habitat

CWS represents Canada on international and continental conventions and agreements related to wildlife habitat conservation. In 1981, Canada became a signatory to the Convention on Wetlands of International Importance,

especially as Waterfowl Habitat (also known as the Ramsar Convention). Under this Convention, Canada has obligations to identify wetlands of international importance and to ensure that they are adequately protected. CWS, with the cooperation of provincial and territorial governments, carries out the obligations of the Convention on behalf of Canada. Canada participated in the International Biological Programme (IBP) between 1964 and 1974, and 120 IBP Sites under the “Conservation of Terrestrial Communities” category were identified in the Northwest Territories, which included the present-day Nunavut. Many of those sites were selected on the basis of their importance to migratory bird populations. There are no special regulatory controls in place for protecting IBP Sites, but the designation serves to highlight the ecological importance of particular areas.

2.4 Land management and protection of migratory bird habitat

Land use activities on federal Crown lands in the Northwest Territories and Nunavut are regulated under the *Territorial Lands Act* and the Territorial Land Use Regulations. These are administered by Indian and Northern Affairs Canada, which is responsible for the control, management, and administration of northern lands and the disposition of land and resource rights. Wildlife habitat may be “withdrawn from disposition” under the Act and is effectively protected because development-related activities are not allowed. In addition, through the various land claim agreements in the Northwest Territories and the Nunavut Final Agreement, land use planning boards have been established that formally identify important wildlife habitat and recognize the need for its protection through land use plans. Land and water boards, also established through these final agreements, have the authority to place conditions in permits for developmental activities that afford considerable protection to migratory bird habitat. The Northwest Territories Protected Areas Strategy (1999) is a cooperative agreement between the federal and territorial governments; more broadly, it promotes a partnership approach between all interested parties to identify and establish legally protected areas in the Northwest Territories, especially areas of importance to northern Aboriginal communities. These areas are often either key terrestrial habitat or large, representative areas of northern ecozones.

3.0 Methodology and rationale

Like the establishment of hunting seasons and bag limits, the protection of key habitat sites is a population management tool. Such sites are so important that their degradation or destruction could have a significant negative impact upon a particular population. Since the severity of an impact is manifested in terms of a numerical decline in a population, the importance of a particular site is a function of the proportion of a population that the site supports for any part of the year.

The effectiveness of site protection as a management tool is dependent upon the biology of the species using the site. The following general statements can be made:

- Populations that are geographically widespread or widely dispersed throughout a variety of habitats are less vulnerable to site-specific threats, as only a small portion would be affected. For these species, it would be impractical to control and manage enough habitat to support a significant proportion of the population.
- Populations that are concentrated for any part of the year are more vulnerable to site-specific threats, because a significant proportion of the population could be affected. Such habitat sites include staging areas, moulting areas, nesting colonies, and the foraging areas of some species.
- Populations that occupy geographically restricted habitats are vulnerable if their habitat is threatened. Certain rare, threatened, or endangered species are prime examples.

Species occurring in the Northwest Territories and Nunavut that are considered within the context of the above statements are listed in Table 1. Population data are presented for all relevant subspecies, wherever possible. For Canada Geese, however, winter indices are reported in the literature by population management unit rather than subspecies. Each unit may contain more than one subspecies, and, conversely, each species may be represented in more than one management unit (see Table 1).

Sites that are believed to support at least 1% of a Canadian population are considered to be key terrestrial habitat sites. This criterion has been used extensively in Europe and in the selection of sites of international importance designated under the Convention on Wetlands of International Importance (Atkinson-Willes 1976; Prater 1976; Fuller 1980). It represents a compromise between recognizing a biologically significant portion of a population and the need to avoid identifying the entire geographic range of a

population as key habitat. It also meets the criteria established by the CWS Executive Committee in 2001 for the selection of terrestrial habitats of interest.

We have relied on the best available estimates of Canadian and regional bird populations and the numbers present at each site. This approach, however, has limitations. For example, in some cases, the only available information is outdated or limited to a single observation. Although such data are hardly ideal, they do provide an initial identification of sites and an indication of where surveys are needed.

Several sites do not expressly meet the 1% criterion for any one species. However, they are sites of exceptional species diversity, both avian and mammalian, typically surrounded by relatively barren areas. Their inclusion here recognizes the specialness of these sites.

For many sites that were also described in the Alexander et al. (1991), there is considerable discrepancy in the respective surface areas of the key site. In some cases this is because of actual changes to the boundaries of the key site. For those sites where there was no boundary change, the discrepancy likely reflects the more reliable geographic information system-based technique for determining surface area used for the present edition.

The recognition of key terrestrial habitat sites is a dynamic and iterative process. The importance of individual sites changes over time in response to population fluctuations and changes in habitat conditions. As a result, mapped delineations of biologically important areas do not always coincide with existing management boundaries. This report represents our present understanding of the habitat needs of selected migratory bird populations. As further information becomes available, site importance will be reevaluated.

Table 1
Canadian and territorial population estimates^a for certain bird species in the Northwest Territories and Nunavut

Species ^b	Subspecies or management unit breeding in NT or NU	Population estimates		Source
		Canada	NT and NU	
Greater White-fronted Goose <i>Anser albifrons</i>				
Mid-continent Population	<i>frontalis</i>	625 900 ^{c,d}	625 900 ^{c,d}	CWS Waterfowl Committee 2003
Snow Goose <i>Chen caerulescens</i>				
Greater	<i>atlantica</i>	678 000 ^{c,e}	678 000 ^{c,e}	CWS Waterfowl Committee 2003
Lesser	<i>caerulescens</i>	4 500 000 ^c	4 500 000 ^c	CWS Waterfowl Committee 2003
Ross's Goose <i>Chen rossii</i>		>800 000 ^c	>800 000 ^c	CWS 2004
Brant <i>Branta bernicla</i>				
Atlantic	<i>hrota</i>	164 500 ^{c,d}	164 500 ^{c,d}	CWS Waterfowl Committee 2003
Pacific	<i>nigricans</i>	30 000	30 000	Subcommittee on Pacific Brant 1996; J.E. Hines, unpubl. data
Western High Arctic or Grey-bellied	Western High Arctic or Grey-bellied Population ^f	6 200 ^{c,d}	6 200 ^{c,d}	CWS Waterfowl Committee 2003
Cackling Goose <i>Branta hutchinsii</i>				
Short-grass Prairie Population ^g		78 350 ^{c,d}	78 350 ^{c,d}	CWS Waterfowl Committee 2003
Tall-grass Prairie Population		200 000 ^{c,d}	200 000 ^{c,d}	CWS Waterfowl Committee 2003
Canada Goose <i>Branta canadensis</i>				
Short-grass Prairie Population ^g	<i>parvipes</i>	78 350 ^{c,d}	78 350 ^{c,d}	CWS Waterfowl Committee 2003
Southern James Bay Population	<i>interior</i>	106 500 ^c	17 300 ^c	CWS Waterfowl Committee 2003
Eastern Prairie Population	<i>interior</i>	229 200	229 200	CWS Waterfowl Committee 2003
Tundra Swan <i>Cygnus columbianus</i>				
Eastern Population		108 200 ^c	108 200 ^c	CWS Waterfowl Committee 2003
Trumpeter Swan <i>Cygnus buccinator</i>				
Rocky Mountain Population		3 279 ^c	294 ^c	Hawkings et al. 2002
American Wigeon <i>Anas americana</i>		2 500 000 ^c		CWS Waterfowl Committee 2003
American Black Duck <i>Anas rubripes</i>		528 000 ^c	unknown	CWS Waterfowl Committee 2003
Canvasback <i>Aythya valisineria</i>		560 000 ^c		CWS Waterfowl Committee 2003
Lesser Scaup <i>Aythya affinis</i> and Greater Scaup <i>Aythya marila</i>		3 700 000 ^c		CWS Waterfowl Committee 2003
King Eider <i>Somateria spectabilis</i>		315 000	315 000	Suydam 2000
Common Eider <i>Somateria mollissima</i>				
Hudson Bay	<i>sedentaria</i>	50 000	50 000	H.G. Gilchrist, unpubl. data
Pacific	<i>v-nigra</i>	35 000	35 000	Dickson and Gilchrist 2001
Northern	<i>borealis</i>	300 000	300 000	A. Mosbech, unpubl. data
Long-tailed Duck <i>Clangula hyemalis</i>		2 500 000	2 500 000	Hyslop 1996
Surf Scoter <i>Melanitta perspicillata</i>		<500 000 ^h	<300 000 ^h	Bellrose 1980; CWS Waterfowl Committee 2003
Black Scoter <i>Melanitta nigra</i>		185 000 ^c	90 000 ^c	Bordage and Savard 1995
White-winged Scoter <i>Melanitta fusca</i>		<500 000 ^h	<300 000 ^h	Bellrose 1980; CWS Waterfowl Committee 2003
Northern Fulmar <i>Fulmarus glacialis</i>	<i>minor</i>	201 000	200 000	Gaston et al. 2006
Whooping Crane <i>Grus americana</i> (S)		183 ^c	183 ^c	B. Johns, pers. commun.
Eskimo Curlew <i>Numenius borealis</i> (S)		23 ^{c,i}	23 ^{c,i}	Gollop et al. 1986
Glaucous Gull <i>Larus hyperboreus</i>		34 600	33 500	Gilchrist 2001
Sabine's Gull <i>Xema sabini</i>		72 000	72 000 ⁱ	Alexander et al. 1991; Day et al. 2001; V.H. Johnston, unpubl. data
Black-legged Kittiwake <i>Rissa tridactyla</i>	<i>tridactyla</i>	200 000	95 000	Nettleship 1980
Ross's Gull <i>Rhodostethia rosea</i> (S)		?	10	Macey 1981; Béchet et al. 2000
Ivory Gull <i>Pagophila eburnea</i> (S)		500	500	Gilchrist and Mallory 2005
Caspian Tern <i>Sterna caspia</i> (R)		7 890–8 390	287	Cairns et al. 1986; McCormick and Sirois 1988; Sirois et al. 1989, 1995; Sirois and Seddon 1990; H. Blokpoel, S. Brechtel, W. Campbell, G. Chapdelaine, S. Houston, B. Koonz, A.R. Lock, R.I.G. Morrison, K. Roney, and A.R. Smith, pers. commun.
Dovekie <i>Alle alle</i>		7 000 000	<100	Renaud et al. 1982
Thick-billed Murre <i>Uria lomvia</i>	<i>lomvia</i>	1 448 000	1 446 000	Gaston and Hipfner 2000
	<i>arra</i>	400–600	400–600	Ward 1979; Charlwood 2002
Razorbill <i>Alca torda</i>		38 000	56	Chapdelaine et al. 2001

Table 1
Canadian and territorial population estimates^a for certain bird species in the Northwest Territories and Nunavut

Species ^b	Subspecies or management unit breeding in NT or NU	Population estimates		Source
		Canada	NT and NU	
Black Guillemot <i>Cephus grylle</i>		50 000–100 000	60 000	Nettleship and Evans 1985; Butler and Buckley 2002
Atlantic Puffin <i>Fratercula arctica</i>	<i>ultimus</i>	365 000	30	Nettleship and Evans 1985; Robards et al. 2000
Shorebirds ^f				Morrison et al. 2001

^a Estimates are of breeding pairs unless otherwise indicated.

^b S = species at risk; R = rare species.

^c Individual adult birds in 2005.

^d Fall migration, midwinter counts.

^e Spring migration counts.

^f Taxonomic status of the Western High Arctic or Grey-bellied Brant Population is undetermined, but evidence points to this being a distinct subspecies (Shields 1990).

^g Short-grass Prairie Population consists of two species, according to the 2005 American Ornithologists' Union classification; it is assumed that 50% of the population is *B. c. parvipes* and 50% is *B. hutchinsii*.

^h Surf and White-winged scoter population sizes are best-guess estimates only.

ⁱ Estimation. For the Sabine's Gull, much of its range in the western Arctic is not well surveyed. From studies that are available for the entire Arctic (some of which are outdated), we estimated a summer population of at least 36 000 birds and then doubled it to account for unsurveyed areas.

^j Population estimates for shorebirds contained in Morrison et al. (2001).

4.0 Site summaries

4.1 Text legend

Key terrestrial habitat site information is summarized according to the following format:

Site number: A number that references each site on the accompanying geographic index maps of the Northwest Territories and Nunavut (Figs. 1 and 2).

Name: A prominent topographical feature of the terrestrial area.

Location: The latitude and longitude of the approximate geographic centre of each site.

Size: The approximate area, in square kilometres, of each site. For most seabird colonies, this descriptor is not applicable. The indicated boundaries represent the limits of biologically important sites.

Description: A brief description of the site, indicating its location relative to prominent topographical or human-made features, prominent topographical features, and vegetation types.












Biological value: Relevant species summaries, including numbers present and seasonal occupation and activities (nesting, staging, moulting, foraging, etc.). Supplementary information, such as the presence of other wildlife and features of the plant communities that would increase our understanding of the site, is also included. Scientific names of bird species are listed in Appendix B.

Sensitivities: Types of activities that could destroy or degrade the biological value of the site. Some habitats or species may be particularly susceptible to various factors, even if there are no known immediate threats to the key terrestrial habitat site.

Potential conflicts: Present or proposed activities or biological factors that could have a negative impact on the site.

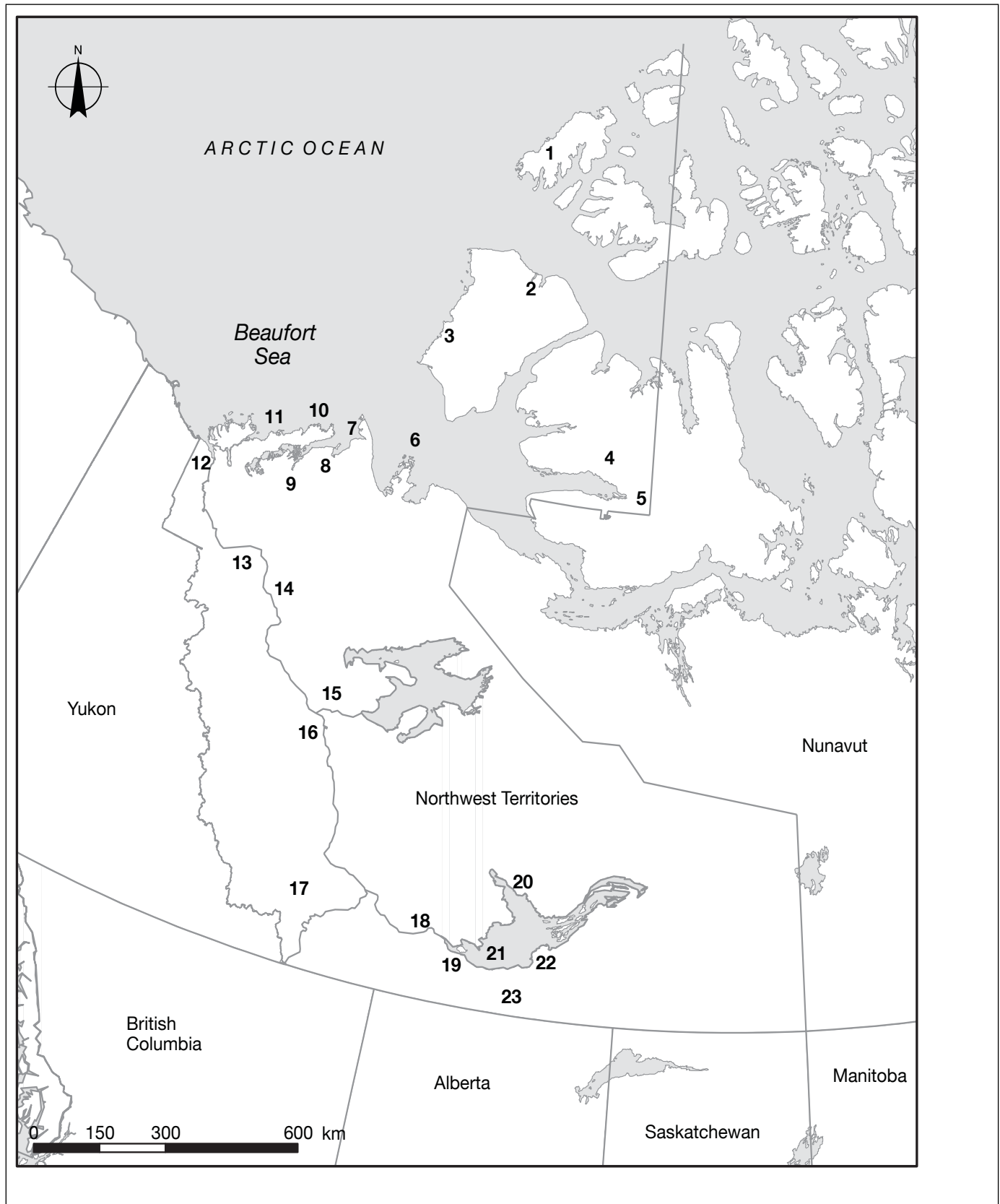
Status: Any “conservation area” designations that overlap with the terrestrial key habitat site.

4.2 Map legend

-  Previous colony
-  Community
-  Key habitat site
-  National Wildlife Area/Migratory Bird Sanctuary
-  National Park
-  Political boundary
-  River
-  Lake
-  Small lake
-  Glacier
-  Area of nesting concentration

5.0 Key migratory bird terrestrial habitat sites in the Northwest Territories

Figure 1
Map of site locations in the Northwest Territories



Map legend: Site locations in the Northwest Territories

- NT Site 1 – Prince Patrick Island
- NT Site 2 – Thomsen River
- NT Site 3 – Banks Island Migratory Bird Sanctuary No. 1
- NT Site 4 – Tahiryuak Lake
- NT Site 5 – Kagloryuak River Valley
- NT Site 6 – Cape Parry
- NT Site 7 – Harrowby Bay
- NT Site 8 – Lower Anderson River (and Mason River)
- NT Site 9 – Kugaluk River
- NT Site 10 – McKinley Bay – Phillips Island
- NT Site 11 – Kukjuktuk and Hutchison Bays
- NT Site 12 – Mackenzie River Delta
- NT Site 13 – Ramparts River Wetlands (Tu'eyeta)
- NT Site 14 – Lower Mackenzie River Islands
- NT Site 15 – Brackett (Willow) Lake
- NT Site 16 – Middle Mackenzie River Islands
- NT Site 17 – Southeastern Mackenzie Mountains
- NT Site 18 – Mills Lake
- NT Site 19 – Beaver Lake
- NT Site 20 – North Arm, Great Slave Lake
- NT Site 21 – Northwest Point
- NT Site 22 – Slave River Delta
- NT Site 23 – Sass and Nyarling Rivers

NT Site 1 – Prince Patrick Island

Location: 76°15'N, 119°30'W

Size: 950 km²

Description: This key site includes Prince Patrick Island, at the western edge of the Queen Elizabeth Islands, and Eglinton Island, located between Prince Patrick and Melville islands. The site includes the lowlands at the head of Wooley Bay, the coastal areas of Walker Inlet, Mould Bay, Green Bay, Intrepid Inlet, and the southern coast of Eglinton Island.

Devonian bedrock surrounds much of Wooley and Mould bays (Tozer and Thorsteinsson 1964), whereas Jurassic and Cretaceous sandstones and shales predominate near Intrepid Inlet. Unlike most of the island, south and southeastern Prince Patrick Island exhibits pronounced relief. Escarpments, sandstone bluffs, and sea cliffs reach elevations of 80 m above sea level (Miller et al. 1977). Southern Eglinton Island has limited relief.

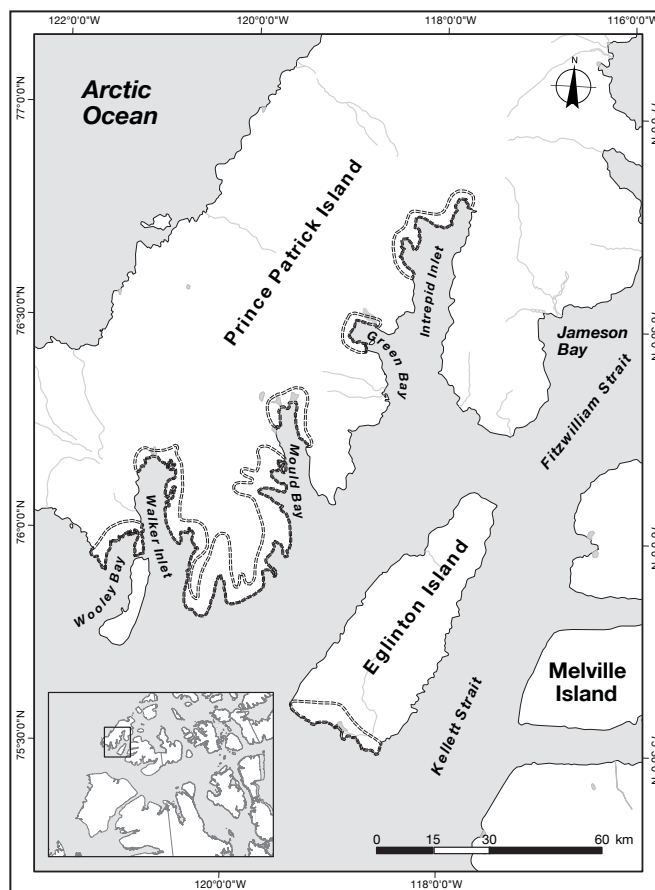
Vegetation is sparse throughout most of the island (Tozer and Thorsteinsson 1964). The lowland tundra sites support habitats of grasses, mosses, and sedges (MacDonald 1954), important to many species of birds.

A decommissioned meteorological station with an airstrip is situated at Mould Bay.

Biological value: The coastal lowlands are important nesting and moulting areas for Brant. Handley (1950) suggested that both subspecies (Atlantic *B. b. hrota* and Pacific *B. b. nigricans*) occurred on Prince Patrick Island. It now appears that these Brant are a distinct and homogeneous local group, somewhat intermediate in appearance between Atlantic Brant and Pacific Brant but genetically distinct from the two subspecies (Boyd and Maltby 1979; Shields 1990; Reed et al. 1998). The particular stock has been termed the Western High Arctic or Grey-bellied Brant Population (Reed et al. 1998). This segment of the Pacific Flyway Brant Population is estimated from wintering ground counts to have numbered fewer than 20 000 individuals during peak abundance (Reed et al. 1998) and only 5000–9000 birds in recent years (CWS Waterfowl Committee 2003).

In 1973, approximately 530 Brant (breeders and non-breeders) were noted between Wooley Bay and Intrepid Inlet. In 1974, approximately 2600 moulting birds were observed in the same areas, and an additional 855 birds were seen along the southern coast of Eglinton Island (Boyd and Maltby 1979). More recent counts of Brant were made in the same area as part of a banding and research program in 2000 (M. Fournier and S. Boyd, unpubl. data). A total of 581 adults and more than 98 young (including 35 family groups) were recorded. Similar surveys revealed at least 2206 adults and 13 young (in five family groups) on Eglinton Island. These counts, which are a minimum estimate of the number of Brant that use the key site, could have represented as much as 50% of the Western High Arctic Brant Population in 2000. Brant arrive by early June (MacDonald 1954). Fall migration begins by early August and continues until the end of the month (Handley 1950).

Other species observed frequently in or near the key site in 2000 included Snow Geese (possibly both Lesser



and Greater subspecies) — seven observations, totalling >40 adults and 19 young; King and/or Common eiders — several sightings of 1–15 females, primarily in coastal areas; Long-tailed Ducks — several flocks numbering 25–200+ birds in coastal areas; Pacific Loons (several sightings); and Glaucous Gulls (several sightings). A pair of Peregrine Falcons (possibly nesting) and a small nesting colony of Black-legged Kittiwakes were observed at Salmon Point on Prince Patrick Island (M. Fournier and S. Boyd, unpubl. data).

The coastal lowlands are also used by Peary caribou and muskoxen, mainly in the summer (Miller et al. 1977).

Sensitivities: Brant are sensitive to disturbance throughout the summer period. Lowland habitat is very limited in area and susceptible to terrain disturbance and degradation.

Potential conflicts: The area has potential for hydrocarbons, and both seismic exploration and some exploratory drilling activity occurred in the 1960s and 1970s (Beak Consultants Ltd. 1975a; Urquhart 1973, 1982).

Status: This key site is an Important Bird Area in Canada (NT044; IBA Canada 2004). It has also been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Holman Community Conservation Plan (WMAC 2001).

Location: 74°00'N, 119°45'W

Size: 436 km²

Description: This key site is located on north-central Banks Island and lies within Aulavik National Park. The community of Sachs Harbour is situated 200 km to the southwest. The Thomsen River flows through a flat-bottomed valley surrounded by low, rolling hills that are dissected by gullies and underlain by Devonian and Cretaceous sandstone and shale. The plain grades to lowlands closer to the coast, where the river empties into the Arctic Ocean at Castel Bay (Thorsteinsson and Tozer 1962). This area is surrounded by deeply cut badland topography of Tertiary sandstone and shale (Zoltai et al. 1980).

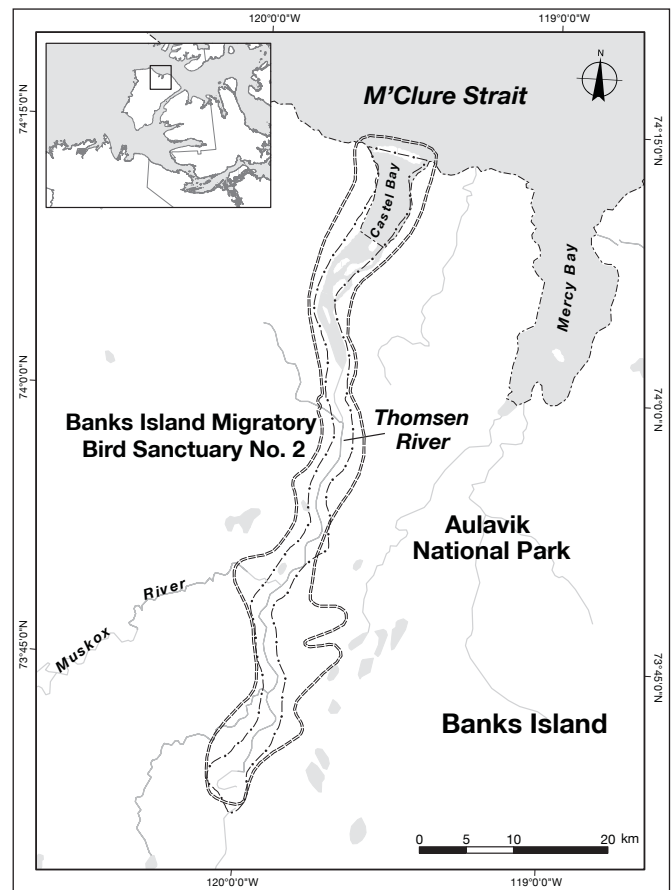
The vegetation is dominated by polar desert and Arctic tundra communities. The main types are dwarf shrub, lichen–legume, and willow–sedge tundra (Zoltai et al. 1980). The valley bottoms of the Thomsen and Muskox rivers support extensive wet sedge meadows, usually in association with low-centred ice-wedge polygons (R.S. Ferguson, pers. commun., in Alexander et al. 1991).

Open water appears at the entrance to M'Clure Strait as early as January or February, and all ice disappears by July, except for occasional pack ice. In some years, the polynya extends as far east as Mercy Bay (Stirling and Cleator 1981).

Biological value: Up to 25 000 Lesser Snow Geese, 5% of the present population, were reported to moult in the Thomsen River valley from the beginning of July to mid-August in the 1970s (CWS 1972). However, it is not clear how consistently or to what extent this area is used by moulting geese. Barry (pers. commun., in Allison 1977) states that the entire valley is used by moulting Lesser Snow Geese. In 1974, Beak Consultants Ltd. (1975b) recorded only 730 moulting Snow Geese near Castel Bay and none elsewhere on 28 July and about 1200 flying birds in upper parts of the Thomsen River valley on 11 August (Castel Bay was not surveyed). They saw no birds on the lower Thomsen River on 5 and 9 August. In 1988 and 1989, scientists working in a large area near the confluence of the Muskox and Thomsen rivers did not see any Snow Geese during the moulting period (July), but several hundred geese were observed in late August 1988, feeding in wet sedge meadow habitats along these river valleys (R.S. Ferguson and B. McLean, pers. commun., in Alexander et al. 1991). Past reports indicate that most of the Snow Geese are non-breeders, although sometimes a few adults and young are present (Allison 1977).

Castel Bay and the lower Thomsen River provide important habitat for moulting Pacific Brant. Approximately 5000 (12% of the national population) were observed there in the early 1970s (Beak Consultants Ltd. 1975b) and 470 in July 1992 (Cotter and Hines 2006).

Muskoxen are common in this area throughout the year, and Peary caribou move through the area regularly.



Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.

Potential conflicts: Seismic exploration has occurred over most of the area. Unsuccessful wells have been drilled to the east and to the west of the site. The potential for further activity remains.

Status: The majority of this site occurs within Banks Island Migratory Bird Sanctuary No. 2 and entirely within Aulavik National Park. It is an Important Bird Area in Canada (NT043; IBA Canada 2004) and has been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Sachs Harbour Community Conservation Plan (WMAC 2001).

NT Site 3 – Banks Island Migratory Bird Sanctuary No. 1

Location: 72°40'N, 123°30'W

Size: 20 201 km²

Description: This key site is situated in southwestern Banks Island and borders the eastern Beaufort Sea. The community of Sachs Harbour is situated adjacent to the sanctuary. The area is composed of gently rolling hills consisting of undifferentiated glacial drift and late Tertiary sands and gravels (Thorsteinsson and Tozer 1962). The area is drained by several westward-flowing rivers lying in broad valleys of gravelly and sandy alluvium and numerous shallow ponds. In lower reaches, the rivers become highly braided and broaden into deltas near the coast.

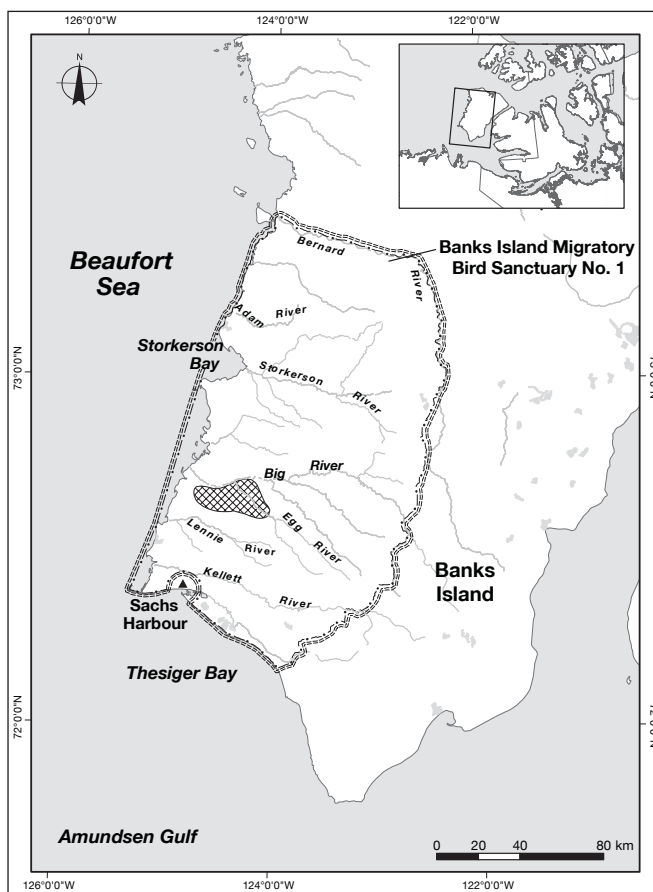
The valleys are usually well vegetated with grass- and sedge-dominated tundra in lower areas and mountain avens and a variety of other flowering plants on the drier slopes. The surrounding hills and plateaus are sparsely vegetated.

Between December and July, open water occurs off the west coast of Banks Island in leads associated with the Amundsen Gulf – Cape Bathurst polynya. The open water off Banks Island may join with leads along the south coast or with a polynya that appears in western Amundsen Gulf off Cape Bathurst (Stirling and Cleator 1981).

Biological value: About 95% of the Western Arctic Population of Lesser Snow Geese and >10% of the Lesser Snow Geese in Canada nest near the confluence of the Big and Egg rivers and at a few smaller, nearby “satellite” colonies (Kerbes et al. 1999). Numbers of nesting Snow Geese on Banks Island have grown steadily from 165 000 birds in 1976 to over 570 000 birds in 2002 (Kerbes et al. 1999; K.M. Meeres and F.D. Caswell, pers. commun.). The population growth rate (~5% per annum) is similar to that for the Mid-continent Population, which has caused substantial damage to lowland tundra in some breeding and staging areas (Kerbes et al. 1990; Batt 1997).

Snow Geese arrive on Banks Island in late May and begin laying within 1–3 weeks, the exact timing of nesting depending on how fast the ground becomes snow free (Samelius et al. 2003). Shortly after hatching, broods disperse widely to the valleys of the Storkerson, Bernard, Lennie, and Big rivers, as well as to other areas with suitable sedge-dominated habitats (Samelius et al. 2003). There they join thousands of flightless non-breeders and failed breeders that have moulted near larger ponds and lakes. During 1996–1998, there were, on average, 303 190 non-breeders and failed breeders, 225 913 brood-rearing adults, and 227 673 goslings present in the sanctuary in mid-July (Samelius et al. 2003). Fall migration begins in late August or early September.

Over 6000 Pacific Brant occur within the Banks Island Migratory Bird Sanctuary No. 1 in June of each year. About half of those birds occur as breeding pairs, and the remainder in flocks of non-breeders (Barry and Barry 1982; Cotter and Hines 2006). Most Brant nest in small colonies of 10 or fewer pairs — typically on islands in small lakes or ponds. Brant colonies are widely distributed throughout the sanctuary, with the largest concentration of colonies



occurring in the valley of the Big River (Cotter and Hines 2001). Cotter and Hines (2006) reported that at least 2000 flightless Brant, many of them with origins outside Banks Island, moulted within the Banks Island Migratory Bird Sanctuary No. 1 each year. The population of moulters may include individuals of the Grey-bellied or Western High Arctic form of Brant. Overall numbers within the key site would make up about 20% of the Canadian population of Pacific Brant.

Large numbers of King Eiders nest in the area. Based on extensive helicopter surveys, 25 500 King Eiders were estimated within the key site (Dickson et al. 1997). This comprises 10% of the western Arctic population of King Eiders.

Over 1600 Long-tailed Ducks (probably well over 1% of the western Arctic population of this species) were estimated to be present in the sanctuary in 1992–1993 (R.C. Cotter and J.E. Hines, unpubl. data). Minimum population estimates (not corrected for visibility) for some other common species in 1992–1993 were Sandhill Cranes (1197), Tundra Swans (724), Rough-legged Hawks (126), Glaucous Gulls (2683), Sabine’s Gulls (2882), Pacific Common Eiders (460), and Snowy Owls (383) (R.C. Cotter and J.E. Hines, unpubl. data). Populations within the key site probably exceed 1% of the Canadian population for both Glaucous Gulls and Sabine’s Gulls. The floe edge off the west coast of Banks Island provides a staging area for tens of thousands of King Eiders and lesser numbers of Common Eiders during

spring migration (Barry and Barry 1982; Alexander et al. 1988a).

Several species of shorebird nest in the key site at moderate densities compared with other mid-Arctic sites (P.B. Latour and C.S. Machtans, unpubl. data), including Black-bellied Plover, Semipalmated Plover, American Golden-Plover, White-rumped Sandpiper, Ruddy Turnstone, Baird's Sandpiper, Buff-breasted Sandpiper, Sanderling, Semipalmated Sandpiper, and Red Phalarope. Based on the amount of available habitat, several of these species (e.g., Black-bellied Plover, American Golden-Plover) likely exceed 1% of their estimated Canadian population (Morrison et al. 2001) within the Banks Island Migratory Bird Sanctuary No. 1.

Polar bears are abundant along the floe edge offshore from the western and southwestern coasts of Banks Island during the winter. Most maternity dens in the western Arctic occur near these coasts (Stirling et al. 1975). Muskoxen occur throughout the area. Banks Island is well known for its abundant lemming and arctic fox populations. A large number of fox dens are present in or near the Snow Goose colony at Egg River (Samelius and Alisauskas 2000).

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods. Concerns have been expressed about the possible impact of overgrazing by Lesser Snow Geese on lowland habitats and other breeding birds.

Potential conflicts: Seismic exploration has previously taken place over much of the island, and a few exploratory wells have been drilled in northern areas. The potential for further activity within the site remains.

Status: The site coincides with Banks Island Migratory Bird Sanctuary No. 1. It is an Important Bird Area in Canada (NT017; IBA Canada 2004) and an International Biological Programme Site (Site 3-5; Beckel 1975). It has also been identified as Class D ("lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year") and Class E ("lands and waters where cultural and renewable resources are of extreme significance and sensitivity") in the Sachs Harbour Community Conservation Plan (WMAC 2001).

NT Site 4 – Tahiryuak Lake

Location: 71°00'N, 112°00'W

Size: 2352 km²

Description: This key site consists of Tahiryuak Lake and the surrounding lowlands, which contain numerous small lakes and shallow ponds and have continuous vegetation cover of predominantly sedges, cottongrass, saxifrage, and moss. The area is surrounded by rocky upland that is largely devoid of vegetation.

Tahiryuak Lake is within the Northern Arctic ecozone and has a mid-Arctic ecoclimate, with a summer mean temperature of 1.5°C, winter mean temperature of -29°C, and mean annual precipitation of 100–150 mm (Kirkwood et al. 1983; Environment Canada 1986).

Biological value: The lowlands around Tahiryuak Lake have one of the highest densities of nesting King Eiders in the western Canadian Arctic (1.3–1.7 birds/km²) (Dickson et al. 1997). An estimated 3000–4000 King Eiders, or approximately 1% of the western Canadian Arctic population, nest in the lowlands. Likewise, about 1% of the population of Cackling Geese (about 2700 geese) nest in the region (Hines et al. 2000). Over 500 Sabine's Gulls, which is perhaps 2% of the Canadian breeding population, occur in the area. Other species present in notable numbers include Pomarine Jaeger (up to 1000), Arctic Tern (300), Pacific Loon (200–250), and Long-tailed Duck (up to 1200) (Cornish and Dickson 1996).

Sensitivities: The well-vegetated wetlands that support these high bird densities are sensitive to disturbance, and recovery would be slow. Most bird species are sensitive to disturbance during nesting season, when human activity could seriously jeopardize their breeding success.

Potential conflicts: There has been considerable prospecting and mining exploration on Victoria Island in recent years. Low-flying aircraft in support of this activity may cause excessive disturbance during critical times, such as the breeding season (May through July).

Status: None.



Location: 70°20'N, 110°30'W

Size: 4886 km²

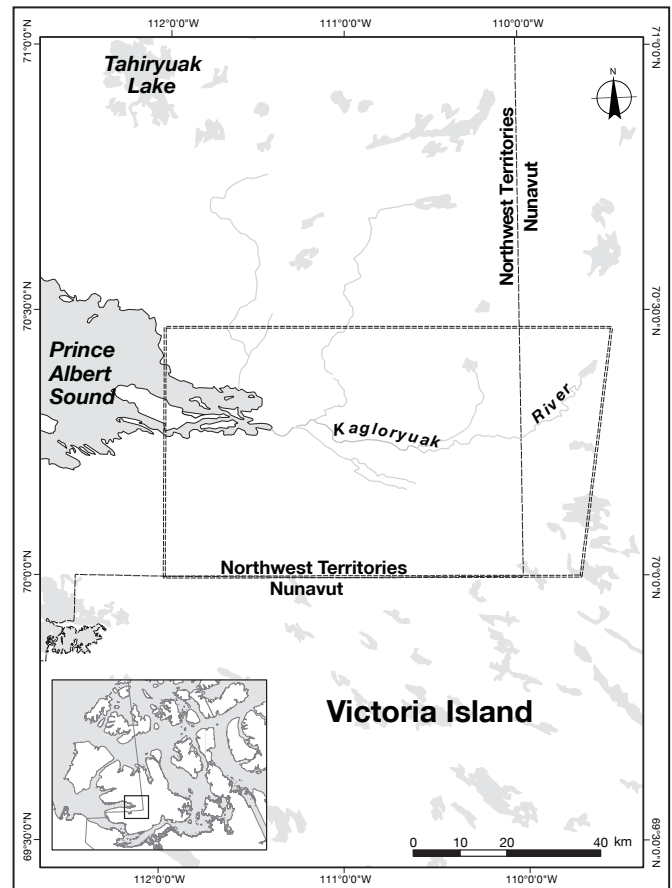
Description: This site occurs in both the Northwest Territories and Nunavut. The Kagloryuak River lies in a wide valley with extensive areas of drumlinoid ridges, as well as several well-developed eskers. The valley slopes gently westward, draining into Prince Albert Sound. Much of the at, lowland areas has a continuous vegetation cover of predominantly sedges, willows, and cottongrass (Cornish and Dickson 1996). In parts of the river valley, there are clusters of shallow ponds. Other areas, particularly to the south of the river, have lakes interspersed by drier uplands. Upland vegetative cover is discontinuous and dominated by purple saxifrage, *Dryas* spp., and arctic willow.

Kagloryuak River is within the Northern Arctic ecozone and has a mid-Arctic ecoclimate, with a summer mean temperature of 2°C, winter mean temperature of -28°C, and mean annual precipitation of 100–200 mm (Kirkwood et al. 1983; Environment Canada 1986).

Biological value: The Kagloryuak River valley is among the richest areas on Victoria Island in terms of diversity and abundance of bird life (Cornish and Dickson 1996). It provides nesting habitat for over 30 species, many of which are found in higher densities there than in other parts of western Victoria Island (McLaren and Alliston 1981; Cornish and Dickson 1996). Nesting birds generally occur in greatest densities in lowland areas where there are continuous vegetation cover and numerous ponds (Allen 1982). An estimated 6000–8500 King Eiders (2–3% of the western Canadian Arctic population) nest in the Kagloryuak River valley, occurring there in higher densities than anywhere else in the western Canadian Arctic (1.3–1.9 birds/km²) (Dickson et al. 1997). Likewise, the breeding pair density of Cackling Geese (2.46 pairs/km²) is the highest in the western Canadian Arctic. An estimated 22 500 Cackling Geese (8% of the national population) nest in the valley (Hines et al. 2000). There are also approximately 800 Sabine’s Gulls, or possibly 3% of the Canadian population (Cornish and Dickson 1996).

Peak numbers of 700 Pomarine Jaegers and 1100 Parasitic Jaegers were estimated during 3 years of aerial surveys in the early 1990s (Cornish and Dickson 1996). Other species that are notably abundant are Pacific Loon (500–1000), Tundra Swan (1500–2000), Pacific Brant (500), Arctic Tern (300–400), and Snowy Owl (400 in some years). The most frequently observed shorebirds during 2 years of ground surveys in the early 1990s were Semipalmated Sandpiper and Pectoral Sandpiper, followed by Red Phalarope, White-rumped Sandpiper, American Golden-Plover, and Stilt Sandpiper (Cornish and Dickson 1996).

Sensitivities: The well-vegetated wetlands that support the highest bird densities in the area are sensitive to physical disturbance, and recovery would be slow. Most bird species are sensitive to disturbance during nesting season, when human activity could seriously jeopardize their breeding success.



Potential conflicts: There have been considerable prospecting and mining exploration on Victoria Island in recent years. Low-level aircraft traffic in support of these activities may cause excessive disturbance during critical times, such as the breeding season (May through July).

Status: None.

NT Site 6 – Cape Parry

Location: 70°12'N, 124°40'W

Size: 2.3 km²

Description: Cape Parry consists of three points at the northern tip of the Parry Peninsula, 100 km north of Paulatuk. The underlying limestone forms three outcrops of coastal cliffs that rise 20 m above sea level. The coastline has beaches of sand and gravel and is deeply incised, forming numerous bays and small inlets. The peninsula is sparsely vegetated and is dotted with small lakes and ponds. A Distant Early Warning (DEW) site was located 3 km south of Police (West) Point from the 1950s to the 1980s.

Marine currents and a variable bathymetry result in marine upwellings that produce a rich marine environment in the vicinity of Cape Parry. Offshore, a series of lead and polynya systems form annually, typically coinciding with the 30-m depth contour (Marko 1975), which provide critical habitat for migrating marine birds (summarized in Mallory and Fontaine 2004). Open water usually persists between May and November (Smith and Rigby 1981).

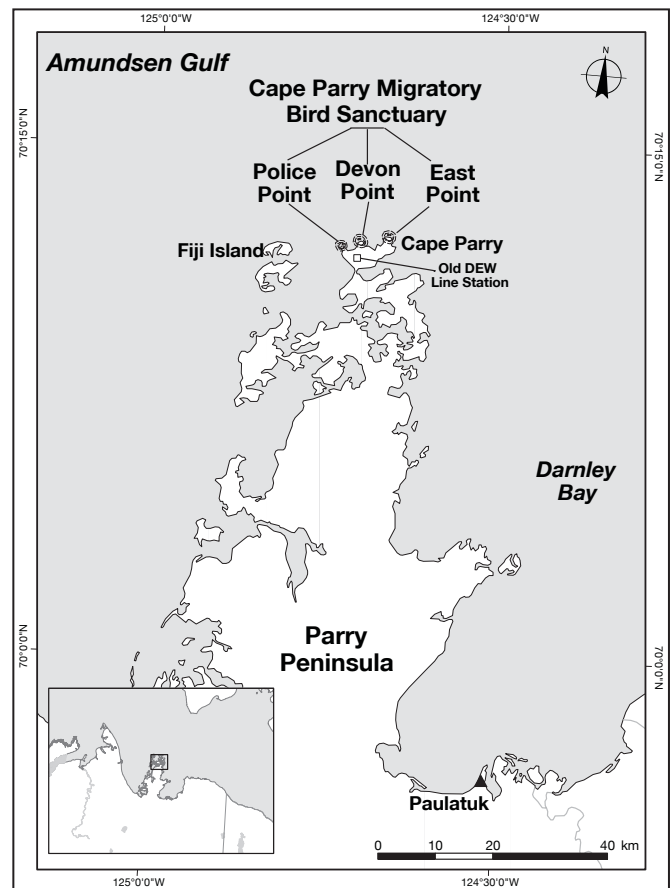
Biological value: The limestone cliffs at Cape Parry provide nesting habitat for the only Thick-billed Murre (*U. l. arra*) colony in the western Canadian Arctic (Johnson and Ward 1985) and the only colony of this subspecies in Canada. The colony is at least 1300 km from the next closest murre colonies in Alaska or Nunavut. The colony was estimated to support 800 birds in 1979, with the principal portion of the colony at Police (West) Point and secondary colonies at Devon (Central) Point and East Point. The latter sites are not occupied every year. Maximum numbers of murres counted have varied from 125 to 784 since 1953 and in 2002 were estimated at 570 birds, with birds found only at Police (West) Point (J. Charlwood, unpubl. data). Black Guillemots also occur here and apparently nest; this is one of two sites in the western Arctic where this species is thought to breed.

The recurrent leads immediately north of Cape Parry serve as a migration corridor for nationally significant populations of King Eiders, Common Eiders, Long-tailed Ducks, Glaucous Gulls, and Yellow-billed Loons (Barry and Barry 1982; Alexander et al. 1988a). There is some evidence that Ivory Gulls and Ross's Gulls may overwinter in the offshore leads in some years (Barry 1976).

The offshore areas are important for bearded seals, ringed seals, polar bears, belugas, and bowhead whales (Alexander et al. 1991).

Sensitivities: Migrating seabirds are heavily dependent upon open leads for feeding and resting. The degradation of these open-water areas could result in severe negative impacts on the birds. Offshore foraging areas for marine birds are susceptible to pollution and disturbance from increased ship traffic.

Potential conflicts: Extensive offshore drilling and ship traffic occur throughout the area, although mostly west of Hutchison Bay on the Tuktoyaktuk Peninsula (Alexander



et al. 1997). Exploitation of hydrocarbon resources in the Beaufort Sea increases the possibility of oil spills in these sensitive areas.

Status: This key site is within the Cape Parry Migratory Bird Sanctuary, an International Biological Programme Site (Site 4-11; Eng et al. 1989), an Important Bird Area in Canada (NT041; IBA Canada 2004), and part of a Key Marine Habitat Site (Site 19; Mallory and Fontaine 2004). It has been identified as Class D ("lands where cultural or renewable resources are of particular significance and sensitivity throughout the year") in the Paulatuk Community Conservation Plan (WMAC 2001).

Location: 70°10'N, 127°20'W

Size: 657 km²

Description: Harrowby Bay opens into the Beaufort Sea on the western side of the Bathurst Peninsula. This bay is the original outlet of the Horton River, which, around 1800, broke through its channel and created a new outlet and delta on the east side of the peninsula, leaving the Old Horton Channel. Recent alluvial deposits cover the area around the bay and to the north, and Cretaceous shale forms the bedrock to the south (Yorath et al. 1975). The north shore consists of low sea bluffs and gravel and sand beaches and spits, whereas the south shore is marshy. Inland from southern barrier beaches, the land rises in a series of terraces to the upland plateau that surrounds the shallow, muddy Ikpisugyuk Bay. This bay empties into Liverpool Bay along high mud bluffs near the western entrance of Harrowby Bay. The remnants of the old Horton River now consist of oxbow lakes and channels. Nearby lowlands are well vegetated with sedges and grasses.

The communities of Tuktoyaktuk and Paulatuk are situated 150 km to the southeast and southwest, respectively.

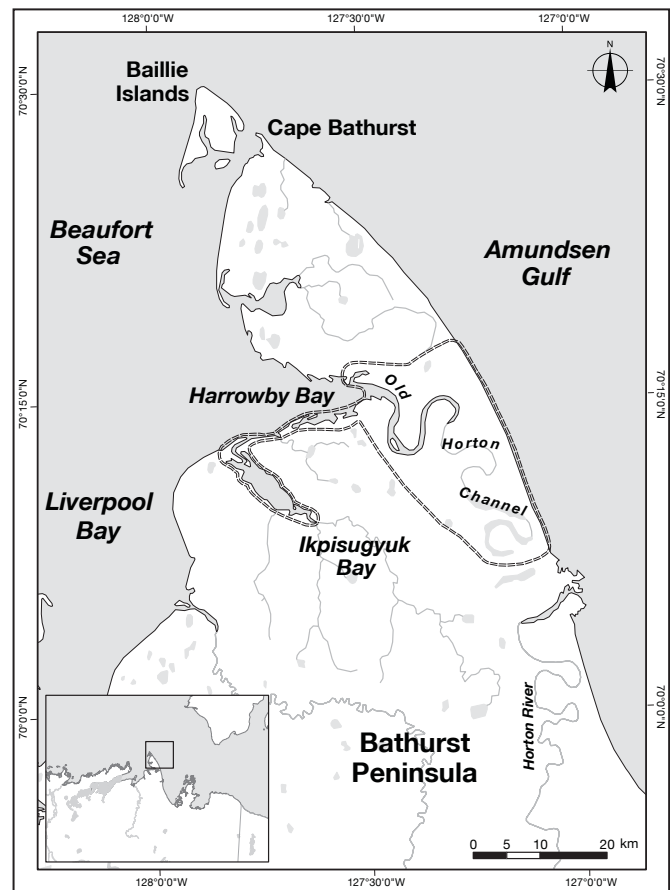
Biological value: From late June until early August, the Old Horton Channel provides habitat for 10 000–20 000 moulting, non-breeding Canada Geese (Short-grass Prairie Population; probably *B. c. parvipes*) and 5000–15 000 moulting Greater White-fronted Geese (Alexander et al. 1988a,b; Hines et al. 2000). These numbers represent up to 10% of the Short-grass Prairie Population of Canada Geese and about 2% of the Mid-continent Population of Greater White-fronted Geese. The delta at the east end of Ikpisugyuk Bay is also used by up to 1000 moulting Greater White-fronted Geese (Alexander et al. 1988a,b).

In years when spring snow conditions were poor on Banks Island, up to 5000 Lesser Snow Geese have nested near the northeast coast of Harrowby Bay. This area is also used by migrating geese in late August and early September (Barry and Barry 1982).

Thousands of Long-tailed Ducks, scoters, and, in some years, scaup moult in the waters of Harrowby Bay. Small numbers of Glaucous Gulls breed in the area (Alexander et al. 1988a,b).

Caribou calving on Bathurst Peninsula are now recognized as a unique population (the Cape Bathurst Herd). Barren-ground grizzly bears den in the area, and polar bears frequent the leads north of the peninsula. Bearded and ringed seals occur in Harrowby Bay in the summer. Beluga and bowhead whales summer in Franklin Bay, east of the Bathurst Peninsula (Speller 1975; Barry 1982).

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.



Potential conflicts: None.

Status: The key site is an Important Bird Area in Canada (NT040; IBA Canada 2004). It has also been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Tuktoyaktuk Community Conservation Plan (WMAC 2001).

NT Site 8 – Lower Anderson River (and Mason River)

Location: 69°42'N, 129°00'W

Size: 1289 km²

Description: This key site includes the land and water surrounding the lower Anderson River. The river spans the transition from spruce forest to dwarf shrub tundra and flows through a gradually widening floodplain that is flanked by river terraces. The delta of low alluvial islands, channels, and lakes extends northward into the shallow waters of Wood Bay. The surrounding landscape is generally low and rolling and is dotted with lakes and ponds. The lower river passes through sedimentary rocks of Cretaceous origin. Tundra polygons have developed in poorly drained soils around the river mouth. Vegetation of the outer delta is primarily sparse grasses, sedges, and arctic willows, whereas the land becomes increasingly vegetated upriver.

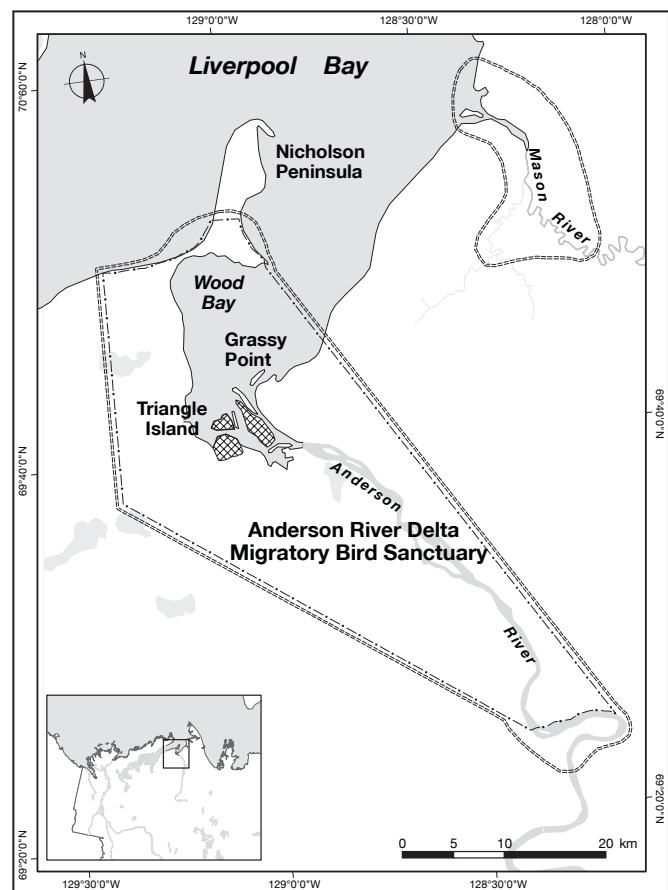
Although it is much smaller in size, the delta of the Mason River, located about 30 km northeast of Anderson River, has lowland terrain and vegetation similar to those of the lower Anderson River.

There are numerous archeological sites in the area, because the abundance of wildlife and the availability of driftwood made the area very important to the Inuvialuit. The community of Tuktoyaktuk is 150 km to the west of the key site.

Biological value: In the 1970s and 1980s, a colony of 4000–8000 Lesser Snow Geese nested on islands covering about 30 km² of the Anderson River delta. This total represented about 1% of the Canadian population of the subspecies at the time (Kerbes 1986, 1988; Alexander et al. 1988a,b; Kerbes et al. 1999). The outer delta also provided nesting habitat for up to 2500 Pacific Brant — nearly 6% of the Canadian population of this subspecies. Since the 1980s, the numbers of both Snow Geese and Brant have declined markedly (Armstrong 1998; Hines and Wiebe Robertson 2006), possibly owing to heavy nest predation by grizzly bears or vegetation changes in the outer delta. Numbers of nesting Snow Geese averaged about 1200 from 1995 to 2001, and, at most, only a few hundred nesting Brant were present during the same period (Hines and Wiebe Robertson, 2006). Large numbers of Snow Geese, bound for breeding grounds on Banks Island, stage within the key site each spring.

The inner delta supports 75 breeding pairs and 1200 non-breeding Tundra Swans, which arrive in May and leave in late September or early October. Greater White-fronted and Canada geese (*B. c. parvipes*) are scattered nesters along tributary streams, and about 1000–2000 Greater White-fronted Geese moult in the area. Snow Geese, Brant, and Greater White-fronted Geese first appear in late May and begin fall migration by the end of August.

Long-tailed Ducks, scaup, and scoters use the shores of Wood Bay for nesting and moulting, and shorebirds use the tidal flats for feeding and staging. Between 3000 and 5000 dabbling ducks moult and stage along the river valley. The variety of plant communities has resulted in a high diversity of songbirds (J.E. Hines, pers. obs.). Raptors



also nest in the delta (Barry 1967; Barry and Barry 1982; Alexander et al. 1988a,b).

The Mason River delta supports approximately 1000 moulting, non-breeding Greater White-fronted Geese, 100 moulting Tundra Swans, and up to 50 pairs of Glaucous Gulls (Alexander et al. 1988a,b). In the past, as many as 100 pairs of Brant may have nested there, but far fewer Brant have nested there in the past 10 years (J.E. Hines, unpubl. data). In the past, the delta of the Mason River was a brood-rearing area for up to 500 Lesser Snow Geese from the Anderson River delta (Alexander et al. 1988a,b), but few brood-rearing Snow Geese have used the area in more recent years (J.E. Hines, unpubl. data).

The Eskimo Curlew formerly nested in the Anderson River area. Although almost extinct, eight probable sightings were made between 1961 and 1989 in this general area, from the Anderson River delta to 140 km upriver (Gollop et al. 1986; T.W. Barry, pers. commun., in Alexander et al. 1991). Part of the Anderson River area was unglaciated, providing a refugium for some plants and insects that now exhibit a unique geographical distribution.

Barren-ground grizzly bears are common, and denning occurs in the area. The proximity of the treeline results in moose inhabiting the area during summer.

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and

degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.

Potential conflicts: Seismic work was conducted in the area during the 1970s. Although there have been no recent activities within the key site, the cumulative effects that gas and oil activities, related industrial growth, climate change, and other environmental stressors will have on the wildlife of the region are of great concern for the long term. The Anderson River is popular for canoe trips. Most canoeing parties are picked up by boat plane at the delta, leading to possible disturbance. The key site is a popular place for spring waterfowl hunting for Inuvialuit from Tuktoyaktuk.

Status: Most of the site is within the Anderson River Delta Migratory Bird Sanctuary. It is an Important Bird Area in Canada (NT038; IBA Canada 2004) and an International Biological Programme Site (Site 43; Beckel 1975). It has also been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Tuktoyaktuk Community Conservation Plan (WMAC 2001).

NT Site 9 – Kugaluk River

Location: 69°20'N, 130°50'W

Size: 599 km²

Description: The Kugaluk, Smoke, and Moose rivers lie south of the Tuktoyaktuk Peninsula and flow into Liverpool Bay. The area is of low relief, with extensive tidal flats and sandy soils resulting from glacial deposition. Vegetation consists mainly of meadows and marshes of sedges and grasses. Campbell Island is primarily a low-lying coastal wetland. There is an archeological site in the northeastern part of the Smoke River delta. The community of Tuktoyaktuk is situated 50 km to the southeast.

Biological value: The sedge marshes and sand flats of the Kugaluk River and estuary, Smoke and Moose river deltas, and Campbell Island are important moulting areas for several species of waterfowl. As many as 10 000–20 000 non-breeding Canada Geese (Short-grass Prairie Population; probably subspecies *B. c. parvipes*) moult on the three river deltas and Campbell Island during July and August (Alexander et al. 1988a,b; Hines et al. 2000). These numbers represented as much as 10% of the Short-grass Prairie Population in the 1980s. In the 1980s, 7000–15 000 Greater White-fronted Geese moulted on the three deltas and would have constituted about 3% of the Mid-continent Population.

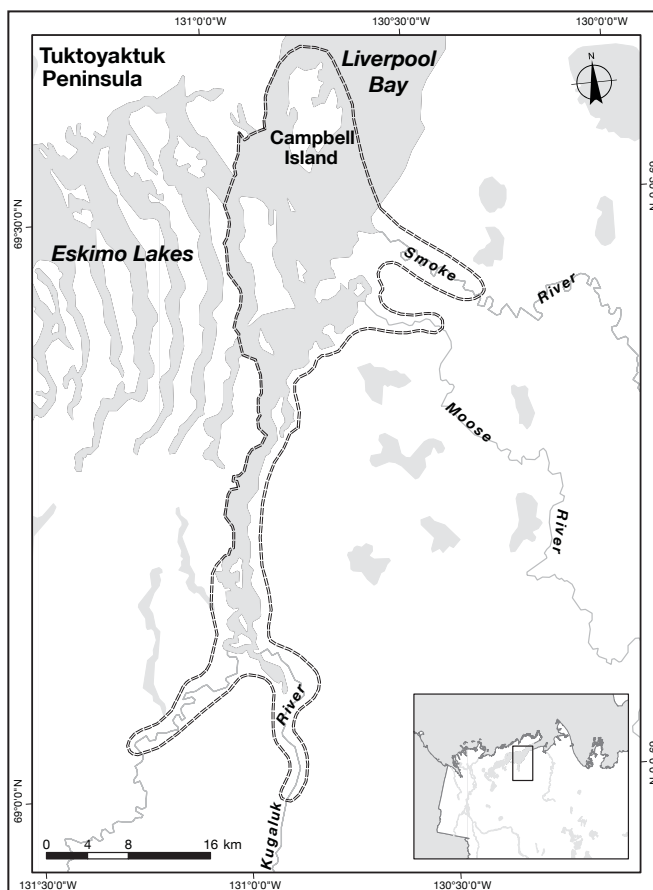
This area is one of the most important breeding areas for Pacific Brant in the western Canadian Arctic, and about 400 nesting pairs and over 3000 total birds are associated with the area (Hines and Wiebe Robertson 2006). The latter number is approximately 10% of the Canadian population of Pacific Brant.

Moderate numbers of Tundra Swans, Greater White-fronted Geese, Canada Geese, and (intermittently) Lesser Snow Geese nest in the area (Barry and Barry 1982; Alexander et al. 1988a,b; J.E. Hines, unpubl. data). Approximately 500 non-breeding Tundra Swans moult in the area as well (Alexander et al. 1988a,b). A few thousand shore-eating waterfowl, notably Red-breasted and Common mergansers as well as Glaucous Gulls, feed in the area from June to mid-August. Moulting scoters, scaup, and Long-tailed Ducks are present during mid- to late summer (Alexander et al. 1988a,b).

The area lies on a migration route of the Cape Bathurst caribou herd. Barren-ground grizzly bears, arctic and red foxes, marten, and muskrats are common. Bearded seals and occasionally beluga are observed in the Liverpool Bay area.

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.

Potential conflicts: The region has been subject to extensive seismic and exploratory drilling activity. The development of a pipeline network, compressor stations, and related facilities is likely in the near future. The cumulative effects that gas



and oil activities, related industrial growth, climate change, and other environmental stressors will have on the wildlife of the region need to be addressed.

Status: This key site is an Important Bird Area in Canada (NT037; IBA Canada 2004) and an International Biological Programme Site (Site 44; Beckel 1975). It has also been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Tuktoyaktuk Community Conservation Plan (WMAC 2001).

Location: 69°59'N, 130°01'W

Size: 581 km²

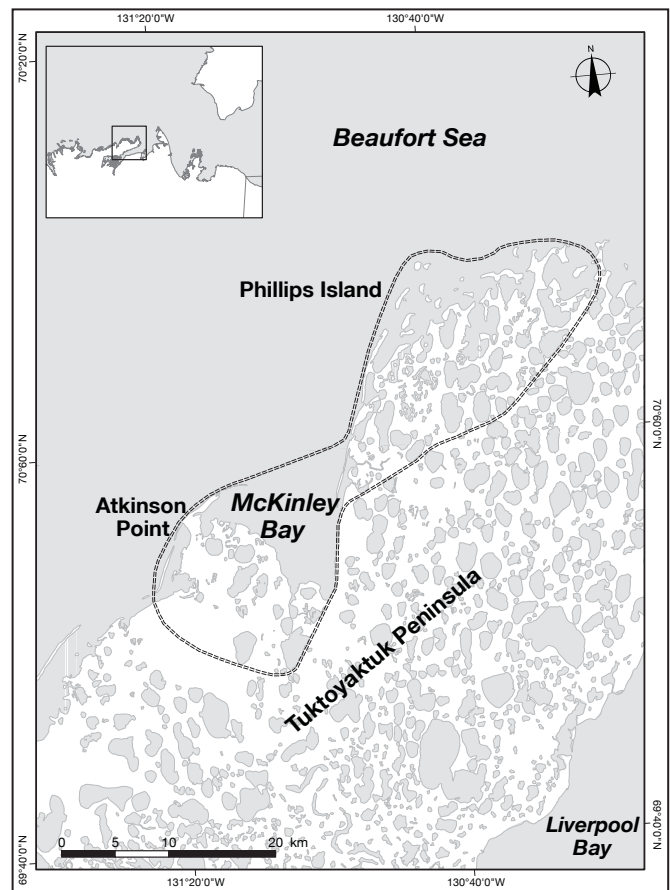
Description: The McKinley Bay – Phillips Island area is located on the northern coast of the Tuktoyaktuk Peninsula, 120 km northeast of Tuktoyaktuk. It is an area of convoluted coastline, numerous sand barrier islands, and sheltered bays and lagoons. Inland from the Beaufort Sea coast, the relief is low and the landscape is characterized by numerous ponds and lakes, abundant tundra polygons, extensive wetlands, and lowland tundra.

McKinley Bay is a large (>100 km²), shallow, and sheltered bay. Since 1979, the outer part of the bay has been used as a harbour and support base for offshore drilling operations in the Beaufort Sea. An entrance channel and mooring basin were dredged in the outer bay, and an artificial island was constructed to shelter ships. An airstrip, accommodations for crews, and a number of related facilities were constructed on the island as well. The use of McKinley Bay for harbouring ships peaked in 1982–1985, and use of the area fell off greatly in the early 1990s. Some industry-related structures and facilities used by reindeer herders also occur on the northwestern side of McKinley Bay (near Atkinson Point).

The area near Phillips Island, like much of the northern coastline of the Tuktoyaktuk Peninsula, features a diversity of coastal landforms, including bays and lagoons of various sizes, offshore barrier beaches and sand bars, projecting and recurved sand spits, muddy tidal flats and marshes, numerous islands, and sandy/gravelly shoreline beaches. The lowlands near the coast contain numerous ponds and lakes and wetland communities dominated by grasses and sedges.

Biological value: McKinley Bay and the various bays and lagoons near the coast are heavily used by moulting and pre-moulting ducks and geese. More than 10 000 diving ducks (primarily Long-tailed Ducks and Surf and White-winged scoters) use the marine part of McKinley Bay during most years (Arner et al. 1985; Cornish and Dickson 1994). Densities of diving ducks in other parts of the area are somewhat lower (Alexander et al. 1988a,b; Cornish and Dickson 1994), but, at a conservative estimate, well over 20 000 moulting diving ducks would be present in the McKinley Bay – Phillips Island area during most years. Given the high proportion of Long-tailed Ducks and scoters among all diving ducks counted during surveys in the area (Cornish and Dickson 1994), it is probable that well over 1% of the western Arctic populations of these species visited within this key site.

The area is important for over 65 species of birds from late May through September (Arner et al. 1985; Alexander et al. 1988a,b). Numerous small colonies of Pacific Brant (totalling about 200 breeding pairs) (J.E. Hines, unpubl. data) and Common Eiders (~100 pairs) nest and raise young in this area (Alexander and Hawkings 1988; Alexander et al. 1988a,b). Colonies of Glaucous Gulls, Sabine’s Gulls, and Arctic Terns occur in the area as well (Alexander and Hawkings 1988; Alexander et al. 1988a,b).



The area near McKinley Bay – Phillips Island supports among the highest densities of breeding Greater White-fronted Geese in the Inuvialuit Settlement Region; as well, several hundred Greater White-fronted Geese moult in this area each year (Alexander et al. 1988a,b; Cornish and Dickson 1994; J.E. Hines, unpubl. data). Several hundred loons (mainly Red-throated and Pacific) nest in the area, and several thousand dabbling ducks are found in the area during most years (Alexander et al. 1988a,b; Dickson 1992; Cornish and Dickson 1994).

Sensitivities: Lowland habitats are susceptible to terrain disturbance. Geese and seabirds are sensitive to disturbance during the nesting, brood-rearing, and moulting periods.

Potential conflicts: The general region has been subject to extensive seismic and exploratory drilling activity. The development of gas processing plants and a pipeline network is possible in the near future. The dredging of the harbour and development of facilities at McKinley Bay could have an impact on migratory birds and their habitat.

Status: This key site has been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Tuktoyaktuk Community Conservation Plan (WMAAC 2001).

NT Site 11 – Kukjutkuk and Hutchison Bays

Location: 69°43'N, 132°23'W

Size: 284 km²

Description: Kukjutkuk and Hutchison bays are located on the northern coast of the Tuktoyaktuk Peninsula, 25–50 km northeast of the community of Tuktoyaktuk. This and other parts of the northern Tuktoyaktuk Peninsula have a highly irregular coastline and diverse geographic features, including sandy barrier islands, sand spits, and sheltered bays and lagoons. Inland from the coast, the relief is low and the landscape is characterized by numerous ponds and lakes, abundant tundra polygons, extensive wetlands, and lowland tundra with numerous pingos.

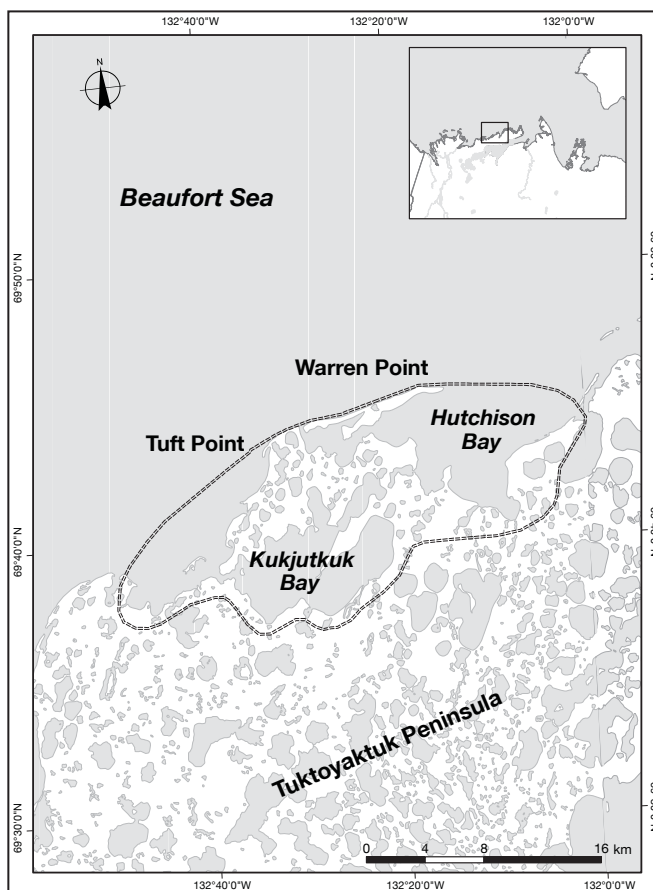
Kukjutkuk Bay and Hutchison Bay each measure approximately 100 km² in area. These shallow bays provide moulting waterfowl with protection from terrestrial predators, shelter from wind and rough seas, and, in the case of diving ducks, abundant food at an accessible depth. Nearby tundra lowlands provide abundant food in the form of grasses and sedges for moulting geese.

Biological value: The area is used by waterfowl at all times during the spring and summer but is especially important to moulting or pre-moulting diving ducks. Hutchison Bay annually supports over 15 000 moulting or pre-moulting diving ducks (mainly Long-tailed Ducks and Surf and White-winged scoters, with lesser numbers of Red-breasted Mergansers, Common Mergansers, and scaup) in late summer (Barry and Barry 1982; Sirois and Dickson 1989; Cornish and Dickson 1994). Similar quantitative surveys have not been carried out at Kukjutkuk Bay, but reconnaissance surveys suggest that moulting waterfowl are probably as numerous there as at Hutchison Bay. Thus, a conservative estimate of the number of diving ducks using the overall key terrestrial habitat site in late summer is 30 000 birds. Given the high proportion of Long-tailed Ducks and scoters among all diving ducks counted during surveys in the area (Cornish and Dickson 1994), it is probable that well over 1% of the western Arctic populations of these species occurred within this key site.

During summer, several hundred moulting Greater White-fronted Geese, 100–200 moulting Pacific Brant, several hundred Tundra Swans, and a few hundred loons (mostly Red-throated and Pacific) are found in this area as well (Alexander et al. 1988a,b; Cornish and Dickson 1994; J.E. Hines, unpubl. data).

More than 70 species of birds (including 42 confirmed or suspected breeders) are known to occur within this key site (Sirois and Dickson 1989). Several of the most frequently encountered nesting species (Red-throated Loons, Long-tailed Ducks, Greater White-fronted Geese, Northern Pintail, Pacific Brant, and Tundra Swan) are species of particular concern to resource management agencies.

Sensitivities: Lowland habitats are susceptible to terrain disturbance. Geese and seabirds are sensitive to disturbance during the nesting, brood-rearing, and moulting periods.



Potential conflicts: The general region has been subject to extensive seismic and exploratory drilling activity. The development of gas processing plants and a pipeline network is likely in the near future.

Status: This key site has been identified as Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Tuktoyaktuk Community Conservation Plan (WMAC 2001).

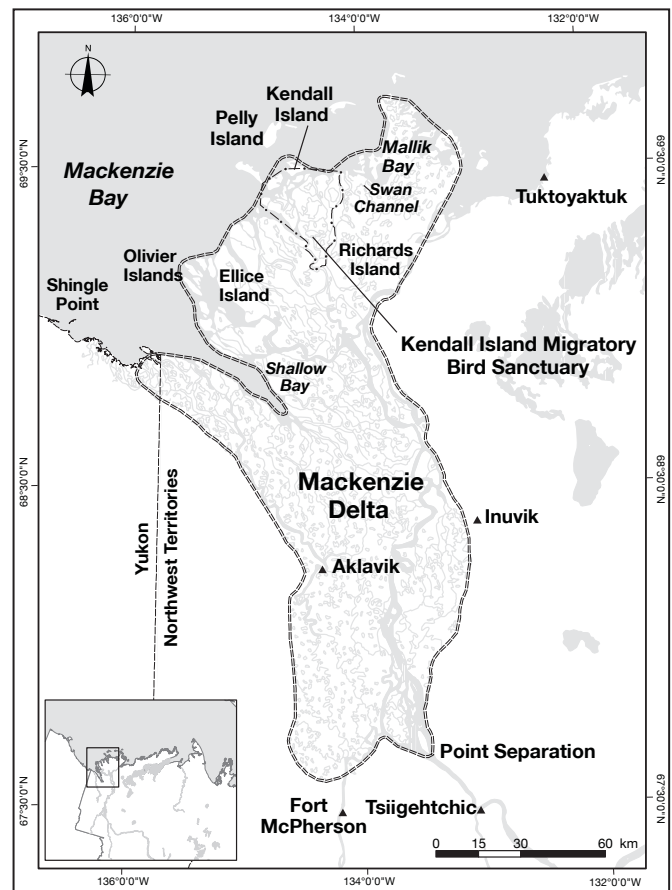
Location: 69°20'N, 135°30'W

Size: 14 248 km²

Description: This key site, which formerly included only the outer delta (Alexander et al. 1991), now includes the entire Mackenzie Delta from Point Separation in the south to the Northwest Territories–Yukon border in the west and Richards Island in the northeast. Some islands in the outer delta are remnants of the preglacial Mackenzie Delta. Much of the outer delta is covered by fluvial deposits of silt and sand. These islands of the active outer delta are generally marshy and vegetated by sedges, grasses, and horsetail; shrubs predominate on higher areas. Levees have formed along the shores of islands as a result of spring flooding. The lowlands of Richards Island are dotted with numerous lakes and ponds. The inner delta is a maze of channels and oxbow lakes. Many of the lakes and other quiet waters of the inner delta are rich in aquatic plants. Tall shrubs such as willows and alders prevail on the occasionally flooded islands and levees of the inner delta, whereas white spruce occurs on higher ground. The community of Aklavik is situated within the key site, while Inuvik and Fort McPherson lie immediately adjacent to it.

Biological value: The islands of the outer delta are important staging grounds from late August to late September for geese. Large numbers of Lesser Snow Geese congregate in this area for short periods prior to southward migration (Koski and Gollop 1974; Koski 1975, 1977a,b). Estimates in 1973, 1974, and 1976 averaged 15 000 adults and 10 000 young and were around 1% of the Canadian breeding population at that time. However, in years when the Yukon and Alaskan North Slope was snow covered, up to 10% of the Canadian breeding population may have staged for extended periods in the delta (in 1975, 152 350 adults and 170 650 young used this area). Counts in early to mid-September 1990–1993 averaged 38 600, but as many as 95 000 birds were present during one survey (J.E. Hines, unpubl. data). The fall migration route of Lesser Snow Geese leads from Banks Island to the mainland and across the Mackenzie Delta to the North Slope of Yukon and Alaska. In mid-September, the geese return eastwards towards the Mackenzie Delta before heading south. Given the “turnover” of migrating geese moving through the area, it is probable that most of the Western Arctic Population of Lesser Snow Geese uses the key site at one time or another (>10% of the Canadian population of Lesser Snow Geese). The most important areas used by fall staging geese are near Shallow Bay and northern Olivier and Ellice islands.

Between 1973 and 1976, peak numbers of staging Greater White-fronted Geese ranged from 12 500 to 23 700 birds (possibly as much as 5% of the Mid-continent Population at that time) (Koski and Gollop 1974; Koski 1975, 1977a,b). In 1990–1993, peak numbers of Greater White-fronted Geese ranged from 10 500 to 21 147 (>1% of the Mid-continent Population). The primary area used by Greater White-fronted and other dark geese was in the Ellice Island to Shingle Point area.



In 1990–1993, peak fall counts of Canada and Cackling geese ranged from 1645 to 8527 birds. Peak numbers would have exceeded 5% of the Short-grass Prairie Population during some years (J.E. Hines, unpubl. data).

It is likely that a large proportion of the Canadian Pacific Brant population migrates west through the outer Mackenzie Delta in fall, but it appears that stopovers are short in duration. From 1973 to 1976, the largest number of Brant seen during one survey was 6112, and during 1990–1993, the highest count was 3533. The peak counts would have made up as much as 20% of the Canadian population of this subspecies.

From 1973 to 1976, peak fall numbers of Tundra Swans ranged from 1900 to 3100 adults and young. In 1990–1993, peak numbers ranged from 6046 to 9714. The latter number represented about 10% of the Eastern Population of Tundra Swans. Swans concentrate around Mallick Bay, Swan Channel, and the outer section of the Kendall Island Migratory Bird Sanctuary, as well as near Shallow Bay. The Swan Channel area supports the densest concentration of nesting swans in the delta. Up to 200 nesting pairs and 1100 non-breeding adults occur there annually.

A diverse assemblage of ducks showing Arctic, boreal, and more southerly affinities occurs in the Mackenzie Delta each summer. Annual surveys carried out by the U.S. Fish and Wildlife Service, although imprecise, indicate that during the 1990s, there was an average of over 270 000 ducks present in the Mackenzie Delta during June. During

that period, an average of over 1% of the continental population of at least five species occurred in the delta (American Wigeon, Lesser Scaup, Canvasback, White-winged Scoter, and Long-tailed Duck). In addition, over 1% of the continental population of seven other species of duck occurred in the key site in some years.

Small islands south of Kendall Island support a breeding colony of Lesser Snow Geese. Since the 1950s, the number of birds nesting there has ranged from close to zero to 8300 (Barry and Barry 1982; Kerbes et al. 1999; Hines and Wiebe, 2006), the actual numbers nesting being highly dependent on spring weather conditions, flooding, and the presence of grizzly bears (which destroy many nests), as well as the actual size of the overall population. From 1995 to 2001, the number of nesting geese averaged 1120 birds, and the total number of geese associated with the colony (including non-breeders) averaged 2470 (Kerbes et al. 1999; Hines and Wiebe Robertson 2006).

Up to 40 pairs each of Brant, Tundra Swans, Glaucous Gulls, and Arctic Terns nest on Pelly Island. As many as 500 swans may also moult on the island (Barry and Barry 1982; Alexander et al. 1988a,b).

Densities of shorebirds nesting in part of the outer delta averaged over 30 birds/km² (Gratto-Trevor 1994, 1995). Local breeding numbers would have exceeded 1% of the Canadian population for several species, including Hudsonian Godwit, Whimbrel, Stilt Sandpiper, Red-necked Phalarope, Common Snipe, and American Golden-Plover. Significant numbers of shorebirds migrate through the delta in fall (Gratto-Trevor 1994, 1995), but the exact extent of use is not known (Alexander et al. 1988a,b).

Aerial surveys conducted in 1991–1993 suggest that >1% of the Canadian populations of several other species of aquatic birds (Sandhill Cranes, Glaucous Gulls, Red-throated Loons, and Pacific Loons) occur within the key site (J.E. Hines, unpubl. data).

The Mackenzie estuary is an important calving area for beluga whales, with over 16000 belugas occurring in the estuary and nearby bays in summer (Harwood et al. 1996). Barren-ground grizzly bears are frequently sighted in the outer Mackenzie Delta.

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.

Potential conflicts: The region has been subject to extensive seismic and exploratory drilling activity. The development of a pipeline network, compressor stations, and related facilities is likely in the near future. The cumulative effects that gas and oil activities, related industrial growth, climate change, generally increased human use of the area, and other environmental stressors will have on the wildlife of the region need to be addressed.

Status: Part of this key site is in the Kendall Island Migratory Bird Sanctuary, established in 1961 to protect the breeding colony of Lesser Snow Geese. The Mackenzie Delta is an Important Bird Area in Canada (NT016; IBA

Canada 2004) and two International Biological Programme Sites (Sites 8 and 42; Beckel 1975). It has also been identified as both Class C (“lands and waters where cultural or renewable resources are of particular significance and sensitivity during specific times of the year”) and Class D (“lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year”) in the Aklavik, Inuvik, and Tuktoyaktuk Community Conservation Plans (WMAC 2001).

Location: 66°15'N, 130°00'W

Size: 4660 km²

Description: The Ramparts River wetlands are located along the lower Ramparts and upper Ontaratue rivers. The eastern edge of this key site lies 35 km west of Fort Good Hope. The wetlands are a low-lying postglacial lakebed consisting of open black spruce bog, ericaceous shrublands, floating bogs, and sedge wetlands surrounding many of the innumerable ponds and small lakes. Stands of old-growth, riparian white spruce occur along the Ramparts River.

Biological value: Thousands of nesting and staging waterfowl are known to use the Ramparts River wetlands annually. Salter (1974) found that for the Mackenzie Valley, these wetlands were in the top three in terms of the numbers of waterfowl observed. Greater and Lesser scaup and Surf and White-winged scoters were the most abundant species. Surveys in the late 1990s (D. Kay, unpubl. data) reported 20 000 Greater and Lesser scaup and 6000 Surf and White-winged scoters in wetlands adjacent to the Ramparts River during the nesting period. Accounting for missed birds, these surveys indicate that 1% of the estimated Canadian populations of both scaup and scoters were nesting in that area. In addition, the wetlands immediately north and northwest contained lower densities of scaup and scoters, but their extensive nature would account for considerably more of them in the entire key site area. The Ramparts River wetlands also provide staging habitat for additional, and likely large, numbers of scaup and scoters migrating to areas farther north. Salter (1974) recorded approximately five times the number of scaup and scoters on the wetlands during the early June migration period compared with July.

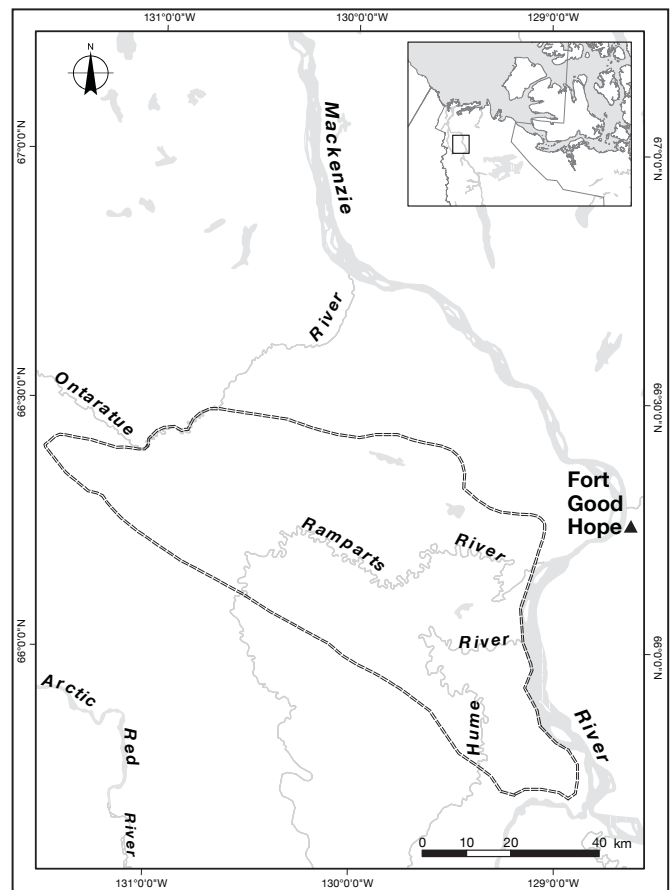
Salter (1974) and D. Kay (unpubl. data) also observed relatively high densities of Pacific Loons (3692 loons) in the wetlands adjacent to the Ramparts River as well as in the wetlands to the northwest and north (D. Kay, pers. commun.). This number is thought to represent >1% of the Canadian population of this species.

The Ramparts River wetlands also provide locally important habitat for a range of mammals, such as moose and furbearers.

Sensitivities: Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods. Low-lying habitats are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost.

Potential conflicts: The area has moderate to high oil and gas potential. Extensive seismic exploration has occurred within the key site as well as surrounding areas, and several wells have been drilled. Large oil and gas leases occur immediately northwest of the key site.

Status: None. The community of Fort Good Hope is currently exploring the possibility of creating a legislated protected area that would include all, or a large portion, of



this key site. This key site was identified in the draft Sahtu Land Use Plan as a “Conservation Area” (Sahtu Land Use Planning Board 2003) and by the Sahtu Heritage Places and Sites Joint Working Group as an area that should be legally protected (Joint Working Group 2000).

NT Site 14 – Lower Mackenzie River Islands

Location: 67°00'N, 130°10'W

Size: 992 km²

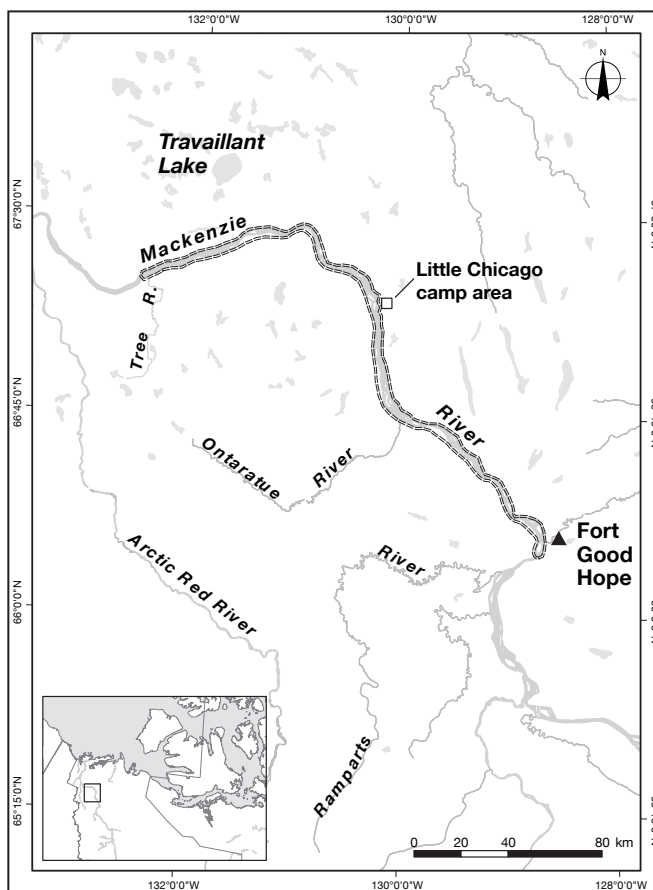
Description: This area includes the islands along 270 km of the Mackenzie River between Fort Good Hope and Tree River. Numerous alluvial deposits, ranging from exposed sandbars to forested islands, occur along the Mackenzie River. The islands and adjacent floodplains are composed of sediments overlying Devonian-aged bedrock. The lower parts of many of these low-lying islands are flooded each spring. As a result, higher central areas support mature stands of white spruce and balsam poplar, whereas willows predominate in wetter peripheral areas. Broad muddy or sandy shorelines border parts of many of the islands.

Biological value: The Mackenzie River is a major spring migration corridor for waterfowl, particularly Lesser Snow Geese. It is probable that the entire Western Arctic Population of Lesser Snow Geese (approximately 570 000 breeding birds and >10% of the Canadian breeding population in recent years; Kerbes et al. 1999; F.D. Caswell and K.M. Meeres, unpubl. data) migrates down the Mackenzie Valley. The islands between Tulita (formerly Fort Norman) and Tree River, particularly around Little Chicago and Norman Wells, are traditional spring stopover points (Barry 1967; Campbell and Shepard 1973; Salter et al. 1974). When the geese arrive in early or mid-May, they congregate on islands in the river where open water and accompanying exposed shorelines provide the only habitat for feeding during migration (Barry 1967; Boothroyd 1985, 1986). The duration of stay at the islands is generally short and is dependent on weather and snow conditions farther north.

In 1973, 13 800 Snow Geese were seen in the Little Chicago area during an aerial survey on 14 May (Salter et al. 1974). In 1972, 61 413 Snow Geese were observed on 20 May, and 63 916 were noted on 25 May in the same area (Campbell and Shepard 1973). In general, the number of Snow Geese varies from year to year (Boothroyd 1985, 1986).

On 14 May 1973, 1061 Tundra Swans were observed between Norman Wells and Tree River (Salter et al. 1974). In 1972, 3255 swans were noted on 20 May, and 1936 were recorded on 25 May (Campbell and Shepard 1973). The 1973 season was earlier than the 1972 season, and apparently fewer swans and geese staged in this area prior to dispersing to breeding areas. The number of Tundra Swans using the key site would have exceeded 1% of the Eastern Population in the 1970s.

Many thousands of other waterfowl also migrate down the Mackenzie River during spring. In 1972, there was a peak of 112 836 waterfowl along the river on 25 May, but this had decreased to 10 000 by 29 May (Campbell and Shepard 1973). Use of the islands is apparently intensive but of short duration. During 1973 aerial surveys between Ten Mile Island and Tree River, Salter et al. (1974) counted 26 027 waterfowl on 14 May but only 1348 one week later. These islands may also be used in the fall by geese forced south prematurely by poor weather (Barry 1967).



The lower Mackenzie River islands are used heavily by moose in the winter. The combination of poplar stands for cover and abundant willow for browse provides ideal winter habitat (Ruttan 1974).

Sensitivities: Staging waterfowl are sensitive to both aircraft and ground-based disturbance. Pollution of the river and major fluctuations in water levels could also have detrimental effects on the waterfowl and their habitats. Lowland habitats and permafrost environments are susceptible to terrain disturbance and degradation.

Potential conflicts: A Mackenzie Valley pipeline and related facilities and activities could have a major impact on migratory birds. The Mackenzie River is also heavily used by barge traffic.

Status: This key site is an Important Bird Area in Canada (NT080; IBA Canada 2004).

Location: 65°15'N, 125°10'W

Size: 1069 km²

Description: The Brackett Lake area is located immediately north of the confluence of the Great Bear and Brackett rivers and is 5 km northeast of the community of Tulita (formerly Fort Norman). The wetlands and lakes surrounding Brackett Lake are on a low-lying, postglacial lakebed. Black spruce bogs, ericaceous shrubs, and extensive raised peatlands are the dominant vegetation features. The shores of lakes and ponds are bordered by sedge meadows.

Biological value: A relatively high density of ducks breeds in the Brackett Lake area (31 birds/km² in 1972, Davis 1974; 21 pairs of ducks/km² in the mid-1990s, Ducks Unlimited, unpubl. data). Some of the abundant species of waterfowl and other waterbirds reported for the area include scaup, Mallard, American Wigeon, Surf Scoter, Northern Pintail, Bufflehead, and Green-winged Teal (MacDonald et al. 2001; Dufour et al. 2002).

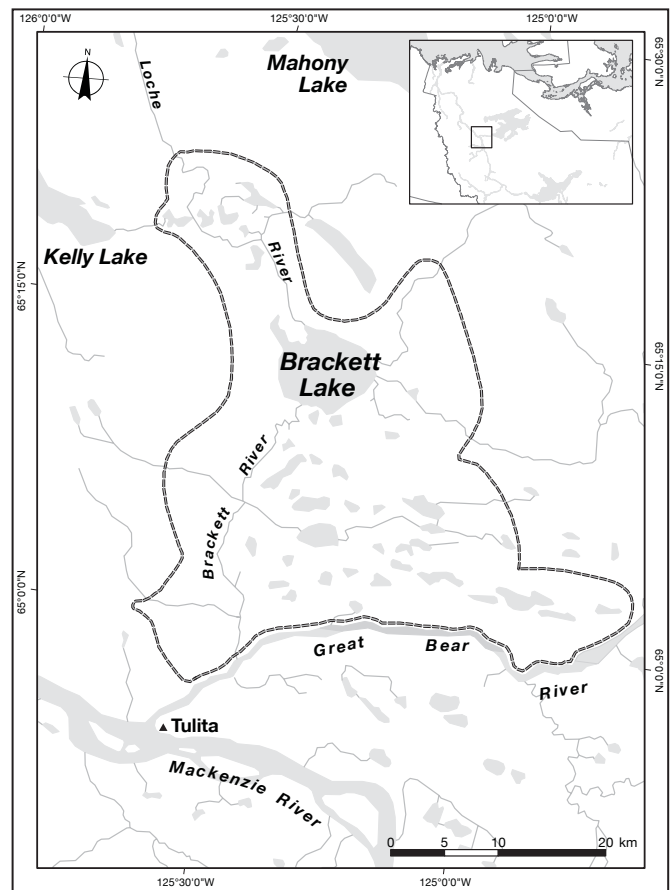
Brackett Lake is heavily utilized by spring and fall staging waterfowl. More than 6100 Lesser Snow Geese were observed at the site in May 1984 (Boothroyd 1985); presumably, equally high numbers are present in other years as well. This would have made up more than 1% of the Western Arctic Population of Lesser Snow Geese in 1984. Over 5000 Greater White-fronted Geese (probably well over 1% of the Canadian population at the time) and an estimated 12 000 ducks have been recorded on the north and east shores of the lake and at the mouth of the Loche River in early September (Barry 1958). Flocks of up to 500 Greater White-fronted Geese and 1500 Tundra Swans (>1.5% of the current Eastern Population) were observed during fall migration in 1972 (Salter 1974), and surveys in 2000 and 2001 indicate that as many as 2500 Tundra Swans were present in fall (MacDonald et al. 2001; Dufour et al. 2002). The preceding data are from counts taken on 1 day — undoubtedly, much larger numbers of individuals occur in the area over the fall migration period.

Shorebirds (such as Long-billed Dowitchers, Pectoral Sandpipers, and Lesser Yellowlegs) stage at Brackett Lake during autumn migration (Salter 1974), but the actual numbers using the site have not been determined.

Moose, black bear, muskrat, and beaver are common in this area. River otters also inhabit the Loche and Brackett river area.

Sensitivities: Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods. Low-lying habitats are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost.

Potential conflicts: Seismic exploration has occurred in the key site and surrounding area. This area is considered to be of at least moderate petroleum potential. An expired petroleum exploration lease covered part of the site and more recently leases have been let nearby.



Status: This key site is an Important Bird Area in Canada (NT082; IBA Canada 2004).

NT Site 16 – Middle Mackenzie River Islands

Location: 64°53'N, 125°35'W

Size: 1091 km²

Description: This area includes the islands along 250 km of the Mackenzie River from Redstone River to Patricia Island. The communities of Tulita (formerly Fort Norman) and Norman Wells are located along this segment of the river.

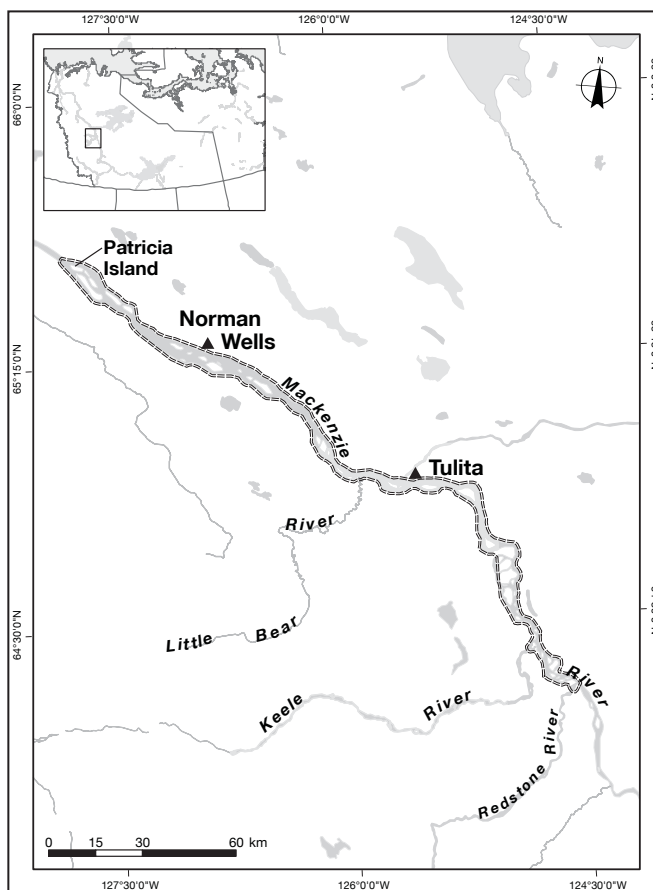
The Mackenzie River is bordered on the east by the Franklin Mountains and on the west by the Mackenzie Mountains. The river has numerous islands, including some that are quite large and non-alluvial. Near Norman Wells, the Mackenzie River has a broad, shallow riverbed; recent fine-grained alluvium borders many of the low-lying alluvial islands and point bars (Geddes and McCourt 1982).

White spruce and balsam poplar predominate on alluvial flats, with white birch on upper terraces and levees. Willow and horsetail are common on the low-lying alluvial flats and along island margins. Pondweed and emergents such as horsetail and sedges are found in the shallow ponds and along old channels (Geddes and McCourt 1982).

Biological value: The Mackenzie River is a major migration corridor for waterfowl. Virtually the entire Western Arctic Population of Lesser Snow Geese (approximately 570 000 breeding birds, >10% of the Canadian population; Kerbes et al. 1999; F.D. Caswell and K.M. Meeres, unpubl. data) may migrate down the Mackenzie River valley. The islands from Tulita to Tree River, particularly around Little Chicago and Norman Wells, are traditional spring stopover points (Barry 1967; Campbell and Shepard 1973; Salter et al. 1974). The geese arrive in early or mid-May and congregate on river islands where open water and exposed shorelines provide the only habitat for feeding during migration (Barry 1967; Boothroyd 1985, 1986). Their duration of stay is generally short but is dependent on weather and snow conditions farther north.

In 1972, an estimated 95 000 Lesser Snow Geese used the Mackenzie River. The maximum daily count around Norman Wells was approximately 28 600 geese on 25 May (Campbell and Shepard 1973). In 1973, the peak goose migration past Norman Wells occurred on 9 May (estimated 14 590 geese; Salter et al. 1974). In 1980, RWESL (1980) counted 25 975 Snow Geese on islands south of Norman Wells on 9 May and 21 635 north of Norman Wells on 15 May. Fewer geese used the area in 1981 and 1982 (RWESL 1983). Numbers of all geese declined once the river ice cleared and the islands became flooded (RWESL 1980).

Greater White-fronted Geese, Canada Geese, Tundra Swans, and a variety of ducks also use the open water around the islands during spring migration. Dabbling ducks are the first to arrive, followed by dark geese, Snow Geese, swans, and, lastly, diving ducks. The birds feed extensively on horsetail and willow catkins. Dabbling ducks also use the islands for courtship on their way to breeding areas farther north (Campbell and Shepard 1973; RWESL 1980).



The islands provide prime winter moose habitat. Moose usually move to the islands in December and return to the mainland in March and April (Ruttan 1974).

Sensitivities: Staging waterfowl are sensitive to both aircraft and ground-based disturbance. Pollution of riverine areas and major fluctuations in water levels could also have detrimental effects on the waterfowl and their habitats. Lowland habitats and permafrost environments are susceptible to terrain disturbance and degradation.

Potential conflicts: A Mackenzie Valley pipeline and related facilities and activities could have a major impact on migratory birds. The Mackenzie River is also heavily used by barges.

Status: This key site is an Important Bird Area in Canada (NT081; IBA Canada 2004).

Location: 61°40'N, 123°30'W

Size: 5515 km²

Description: This area contains wetland complexes associated with the Liard River, South Nahanni River, Ram River, Carlson Creek, Root River, Tetcela River, and Fishtrap Creek. The latter two areas feature the most extensive wetlands in all the southeastern Mackenzie Mountains. There are also well-developed wetlands around Yohin Lake, Carlson Lake, and Mid Lake. All wetlands are characterized by extensive emergent vegetation. Typical species include cattail, bogrush, horsetail, and waterlily. In addition, the floodplains that occur between the Nahanni and Camsell ranges along the east edge of the Mackenzie Mountains provide considerable wetland habitat. Coniferous forests are the predominant vegetation; alpine tundra is common at the higher altitudes.

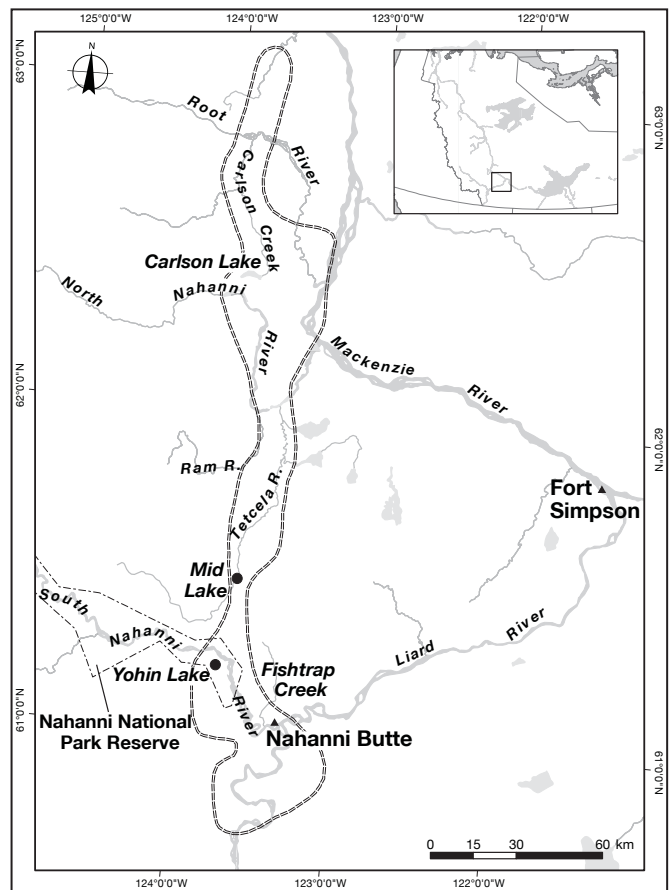
Biological value: Approximately 8% of the Canadian breeding population of Trumpeter Swans nests in the wetlands adjacent to the rivers, creeks, and lakes of this area. The number of adults steadily increased in the 1980s and early 1990s. More recent surveys indicated a continuation of this trend, with the number of adults increasing between 1995 (161) and 2000 (196) (Caithamer 1996, 2001; Hawkings et al. 2002) and 2005 (400) (Beyersbergen 2006). The Trumpeter Swan was formerly listed as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but was delisted around 1995 because of the increasing populations across North America. However, this species is still of management concern to wildlife agencies in Canada and the United States.

Dall's sheep are found in some of the alpine tundra areas. Woodland caribou frequent both alpine and forested areas, while moose are found along river valleys. Grizzly and black bears also inhabit the area (Cairns et al. 1978).

Sensitivities: Breeding swans are vulnerable to disturbance, and their lowland habitat is sensitive to terrain disturbance.

Potential conflicts: Mineral exploration and extraction in the area could be a source of disturbance and terrain degradation. Seismic exploration has occurred in nearby areas, and the area has moderate to high oil and gas potential.

Status: Some of this site receives a high level of protection due to its occurrence within the Nahanni National Park Reserve.



NT Site 18 – Mills Lake

Location: 61°25'N, 118°15'W

Size: 381 km²

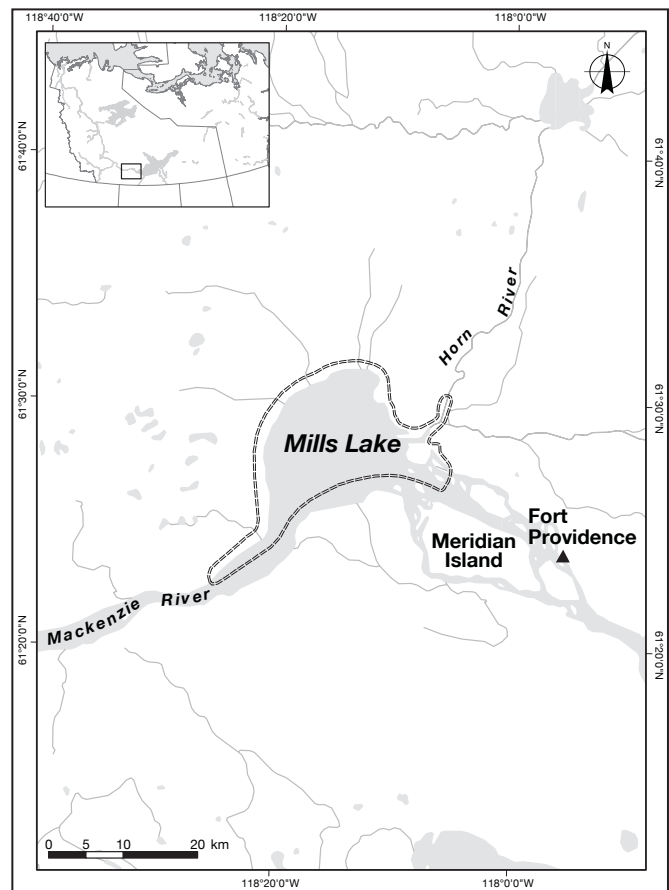
Description: Mills Lake is a large widening of the Mackenzie River at the mouth of the Horn River and 15 km downstream from Fort Providence. Upper Devonian shales and limestone underlie surficial glacial deposits. Soils in this area, predominantly luvisols, are the result of poorly drained till and glaciolacustrine deposits. Well-developed emergent and submergent vegetation communities and floating sedge mats ring much of the shoreline of the lake (Trottier and Kemper 1974). During periods of low water in the Mackenzie River, sandbars and mudflats occur mainly along the western shore of the lake.

Biological value: Thousands of waterfowl stage at Mills Lake during migration. The emergent sedge zone on the northern and eastern shores, the marsh around the mouth of the Horn River, the shallows near Meridian Island, and the shallow beds of aquatic vegetation around the juncture between the lake and the Mackenzie River are most frequently used as resting and feeding sites. Peak numbers per day between 14 and 26 September 1972 included 9860 Greater White-fronted Geese, 2190 Tundra Swans, nearly 4000 Lesser Snow Geese, 1390 Canada and Cackling geese, and approximately 27 000 ducks (mostly American Wigeon, Northern Pintail, Mallard, and Canvasback) (Salter 1974).

Latour (2003) reported peak spring numbers of 10 700 Greater White-fronted Geese, 47 450 Lesser Snow Geese, and 10 000 Tundra Swans and peak fall numbers of 10 722 Greater White-fronted Geese, 7400 Lesser Snow Geese, and 10 070 Tundra Swans in surveys during 1994–1997, indicating that Mills Lake retains its importance as a spring and fall staging wetland. Peak numbers of birds observed during all surveys represent as much as 14% of the Western Mid-continent Greater White-fronted Geese, 10% of the Western Arctic Lesser Snow Geese, and 12% of the Eastern Population of Tundra Swans. These data do not take into account any turnover of birds; therefore, the actual number of birds staging at Mills Lake is considerably higher than that observed during surveys. Most geese are present from early to late September; ducks and swans may remain in the area until mid-October.

In some years, several thousand American Coots feed among the pond weeds (*Potamogeton* spp.) on Mills Lake (S. Alexander, pers. obs.). As well, the lake supports thousands of moult migrant diving ducks such as scoters and scaup in late July and August, and it is probably at the extreme northern limit of the breeding range of the Ruddy Duck (Brua 2001; P. Latour, pers. obs.). A large Black Tern colony is located at Mills Lake.

Wood bison, a species listed as threatened by COSEWIC, frequent the wetlands around Mills Lake (EBA and CWS, 2006).



Sensitivities: Staging waterfowl are sensitive to disturbance. Pollution of the lake water or alteration of its levels could result in degradation of aquatic and shoreline habitat.

Potential conflicts: Dredging of the river channel for improved barge transportation could be a source of disturbance if conducted during migration periods. Any activity that alters water levels in the Mackenzie River in turn affects water levels in Mills Lake and its attractiveness each spring and fall to migrating waterfowl (Latour 2003).

Status: Mills Lake is an Important Bird Area in Canada (NT083; IBA Canada 2004) and an International Biological Programme Site (Site 49A; Bekel 1975). Mills Lake is currently part of a larger area being considered through the Northwest Territories Protected Areas Strategy for designation as a protected area under the *Canada Wildlife Act*.

Location: 61°07'N, 117°08'W

Size: 445 km²

Description: Beaver Lake is a widening of the Mackenzie River at the outlet of Great Slave Lake. It is approximately 15 km upriver from the community of Fort Providence. The surrounding low-lying region is part of the Great Slave Lake Plain Ecoregion and is underlain by Upper Devonian shales and limestone (Douglas 1959).

The north shores of both channels around Big Island are low with extensive sedge–grass marsh along alluvial flats. The south shores have a narrower margin of marsh before the transition to spruce–poplar forest. The islands at the outlet of the North Channel are low and marshy, whereas those in the South Channel are higher and more forested.

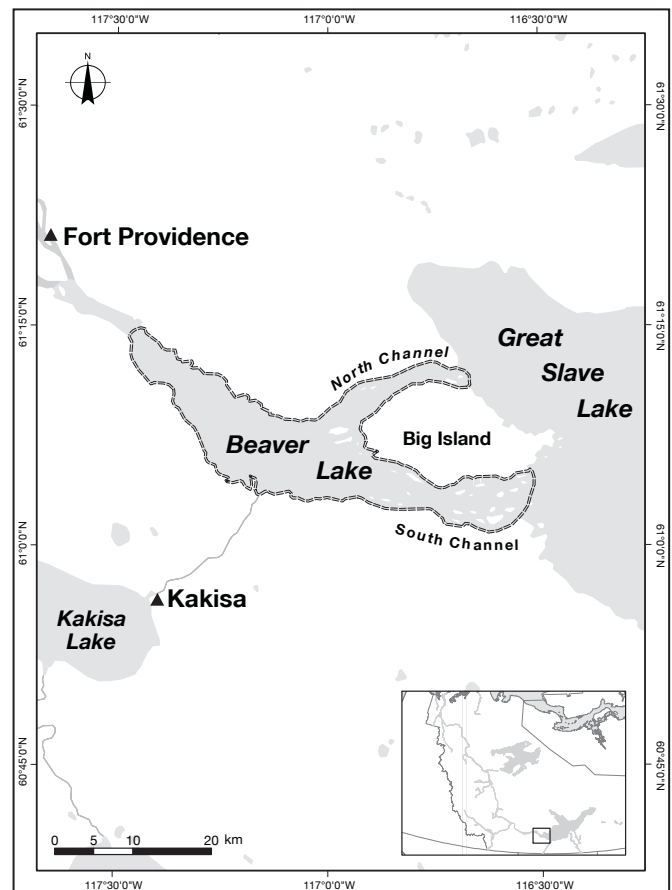
Biological value: The South Channel islands and the North Channel are favoured resting and feeding sites for migrant Tundra Swans and ducks during spring and fall. In the spring of 1973, peak numbers of 1175 swans and over 5000 ducks were recorded on a 17 May survey (Salter et al. 1974). Over 10 000 ducks (mostly American Wigeon, scaup, and Mallards) and 4470 Tundra Swans, 3% of the Canadian population, were recorded on 22 September 1972 (Salter 1974). Up to 8000 Canvasbacks have been observed in the North Channel (T. Barry, pers. commun.). Waterfowl pass through the area in May and again in September and October.

Wood bison, a species listed as threatened by COSEWIC, frequent the wetlands along the northern shore of Beaver Lake. Moose frequent the wooded areas adjacent to Beaver Lake, especially around Big Island.

Sensitivities: Staging waterfowl are sensitive to disturbance. Pollution of the lake water or alteration of its levels could result in degradation of aquatic and shoreline habitat.

Potential conflicts: Dredging of the river channel for improved barge transportation could be a source of disturbance if conducted during migration. Any activity that alters water levels in the Mackenzie River in turn affects water levels in Beaver Lake and its attractiveness each spring and fall to migrating waterfowl.

Status: This key site is an Important Bird Area in Canada (NT084; IBA Canada 2004).



NT Site 20 – North Arm, Great Slave Lake

Location: 62°19'N, 114°23'W

Size: 1486 km²

Description: This site comprises the myriad of islands, numerous shallow bays, and extensive wetlands along the northeastern shore of the North Arm of Great Slave Lake, between Frank Channel and François Bay. It includes the Beaulieu River north to Watta Lake. Yellowknife is located 15 km north of the centre of the key site.

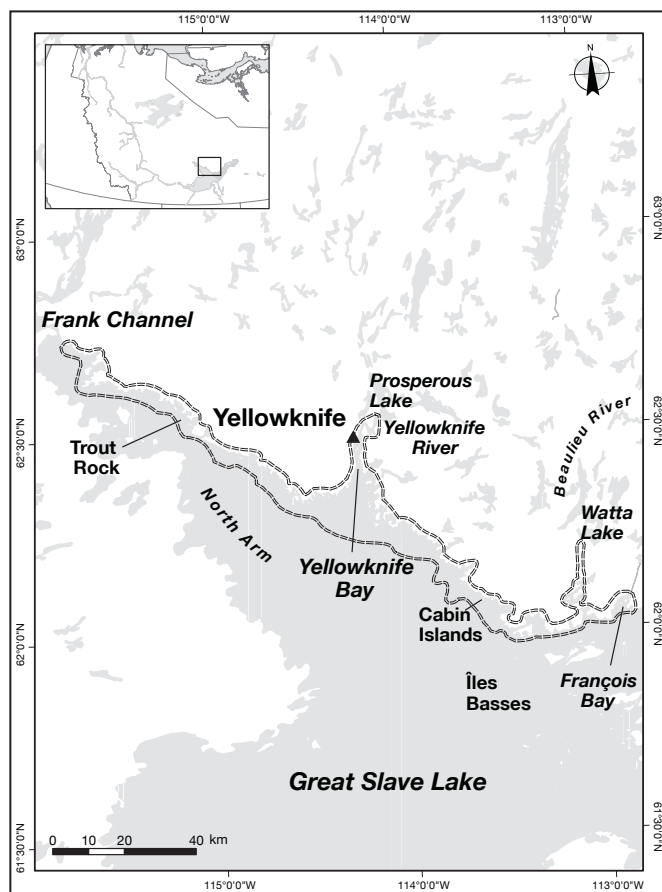
The North Arm occurs at the interface of the Canadian Shield and the Interior Plains (Bostock 1970). The area is part of the Precambrian Edge: a narrow strip extending along the western edge of the Canadian Shield from Great Bear Lake to Lake Athabasca. The Precambrian Edge provides good northern boreal forest waterfowl habitat and has substantially greater densities of breeding ducks than either the open forest of the Canadian Shield to the northeast or the closed forest of the Mackenzie Lowlands (Interior Plains) to the southwest (Murdy 1964).

Biological value: The North Arm is a key site for both Tundra Swans and Canada and Cackling geese during spring migration. Aerial surveys in May between Yellowknife Bay and François Bay recorded peak numbers of 584 swans in 1986, 1382 in 1987, and 1653 in 1988. The latter value represented approximately 2% of the Eastern Population of this species. Turnover of birds has not been taken into account in the surveys; therefore, the number of swans using the area is likely higher than indicated. The main concentrations of swans in all three years were at the Beaulieu River and open-water areas of Great Slave Lake from the Cabin Islands to François Bay (Sirois 1987; Sirois and McCormick 1987; Sirois and Cameron 1989). In addition, similar open-water habitat northwest of Yellowknife Bay is suspected to support similar numbers of migrating swans (Sirois and Cameron 1989). More than 35 000 Canada Geese (about 10% of the midwinter population index of Short-grass Prairie Canada and Cackling geese) staged on the North Arm in 1990 (Sirois 1993).

The islands of the North Arm provide habitat for 1% of the Canadian and 27% of the Northwest Territories breeding population of Caspian Terns. In 1986 and 1987, 77 pairs were found between Frank Channel and Îles Basses, 49 of which nested at one colony near Trout Rock (McCormick and Sirois 1988; Sirois et al. 1989, 1995).

A large number and variety of other waterfowl and waterbirds, primarily ducks, also regularly use the site. In May 1988, at least 19 000 birds (uncorrected for visibility bias) from about 30 species staged between Yellowknife and François Bay (Sirois and Cameron 1989). Irregular visits suggest that similar numbers of migrating waterbirds stage between Yellowknife and Frank Channel.

Approximately 1300 pairs of gulls (Herring, California, Ring-billed, Mew, and Bonaparte's) and 700 pairs of terns (Arctic and Common) were recorded on the site in 1986 and 1987 (McCormick and Sirois 1988; Sirois et al. 1989, 1995). In June 1989, three Black Tern nests were found by a small lake near Trout Rock, the first breeding record north of



Great Slave Lake. Several other probable breeding sites have also been reported (Sirois et al. 1995). Numerous waterfowl nest on the islands of the North Arm (M. Fournier and J.E. Hines, unpubl. data), and large flocks of flightless Common Mergansers and Lesser Scaup use the area during late summer.

The North Arm of Great Slave Lake is an important fall staging area for waterfowl (M. Fournier and J.E. Hines, unpubl. data). At least 10 000 ducks are present in the western half of the key site during the peak of fall migration. More than 1000 Tundra Swans (>1% of the Eastern Population) stage in the area in fall as well.

Sensitivities: Staging, nesting, moulting, and brood-rearing waterfowl and larids are sensitive to disturbance and pollution.

Potential conflicts: Growth of the city of Yellowknife, increased recreational activity on Great Slave Lake, and human-induced increases in populations of egg and brood predators such as Common Ravens and Herring Gulls could have negative impacts on other species of birds. Use of the southwestern portion of the site by recreational boaters may cause disturbance to nesting larids. Litter, such as plastics and abandoned fishing lines and nets, could prove hazardous to waterbirds.

Status: This key site is an Important Bird Area in Canada (NT086; IBA Canada 2004).

Location: 61°43'N, 115°30'W

Size: 1 km²

Description: This site is a small, exposed islet 2 km south of Northwest Point on the west shore of Great Slave Lake, approximately 100 km southwest of Yellowknife. The island rises 2–3 m above water level and is composed of boulders, rock rubble, and gravel. It has thin soil and sparse vegetation.

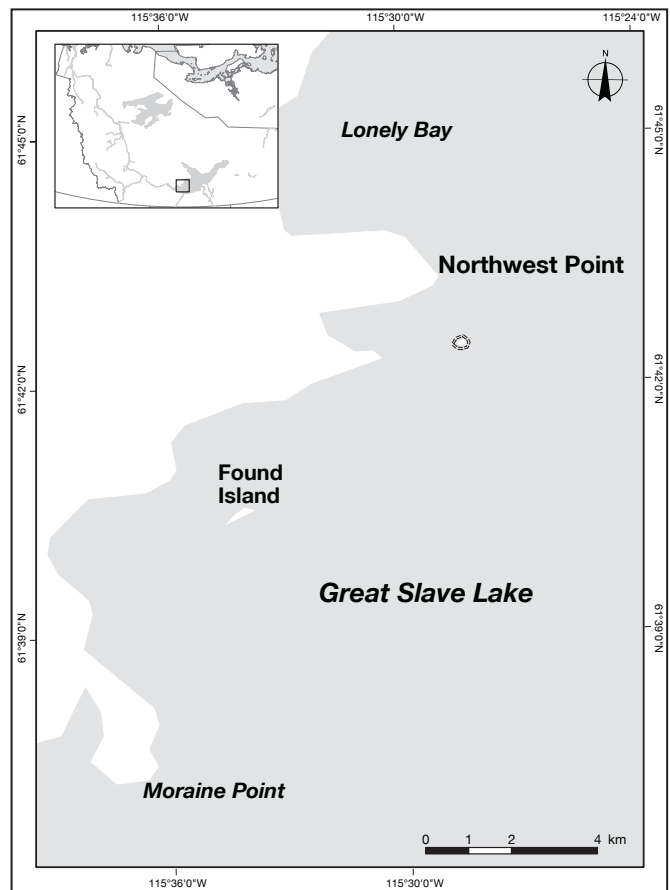
Biological value: This islet is the location of the largest known colony of Caspian Terns in the Northwest Territories, comprising 110 tightly packed pairs of nesting birds in 1989 (Sirois et al. 1995). This total represents over 1% of the Canadian population (Martin 1978) and nearly 40% of the known Northwest Territories breeding population. Caspian Terns arrive on Great Slave Lake in May and begin incubating eggs in early June. Eggs hatch in early July, and the young birds fledge in mid- to late August.

Also nesting on the islet in 1989 were 12 pairs of Herring Gulls and 35 pairs of California Gulls. At nearby Found Island, there is a colony of 299 pairs of California Gulls and 70 pairs of Herring Gulls. Found Island is one of the largest gulleries on Great Slave Lake. Small numbers of Greater Scaup, Red-breasted Mergansers, Mew Gulls, Ring-billed Gulls, and Common Terns also nest on these islands (Sirois et al. 1995).

Sensitivities: Caspian Terns and other colonial birds are very sensitive to disturbance during the nesting season. The presence of so many gulls on or near the island renders the eggs and young of Caspian Terns highly vulnerable to predation if the adults are disturbed and flush from their nests. Pollution in Great Slave Lake could be hazardous to terns.

Potential conflicts: The islet is very small, remote, and seldom visited by people. Occasional visits are made to the Found Island gullery. A similar rate of visitation would probably be detrimental to the colony of terns near Northwest Point.

Status: None.



NT Site 22 – Slave River Delta

Location: 61°15'N, 113°40'W

Size: 554 km²

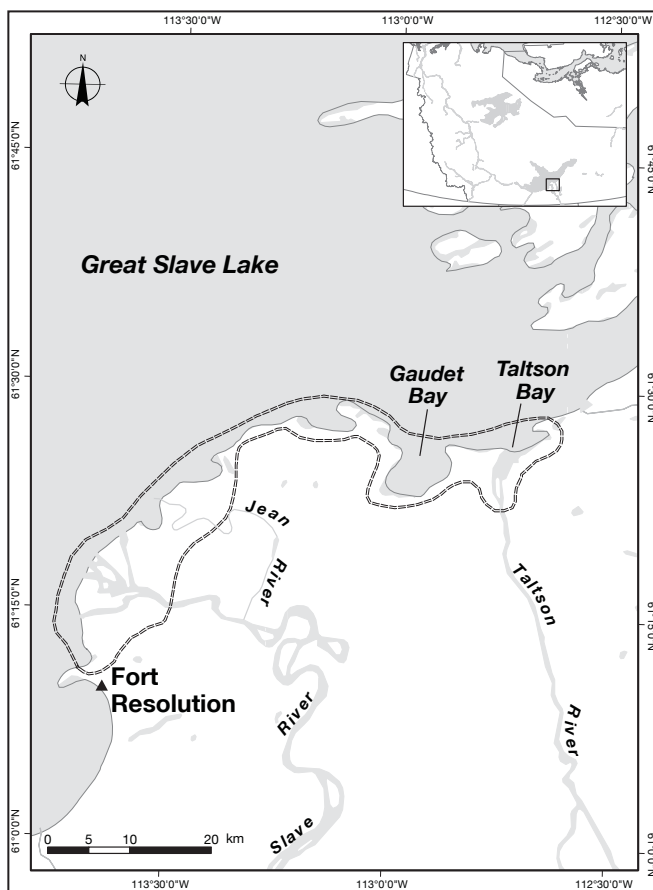
Description: This area includes the south shore of Great Slave Lake from the Slave River delta to the Taltson River. The area is characterized by extensive alluvial deposits and channels bordered by high levees. There are several shallow bays between the Slave and Taltson rivers. Much of the vegetation in the outer Slave River delta is early successional, consisting of horsetails and sedges, and is maintained by natural flooding and sedimentation. On less frequently flooded areas, willows predominate, whereas balsam poplar and spruce grow on drier ground. The community of Fort Resolution is adjacent to the extreme west end of the key site.

Biological value: Shoreline wetlands from the Slave River to the Taltson River provide habitat for thousands of staging waterbirds in spring and fall. Spring migration data are available from 1979 and 1983 (entire key site: Thompson et al. 1979; Dickson et al. 2002) and 1984 (Slave River delta: EMA 1984). Migration occurs from early May to early June, depending on weather and ice breakup. On 25 May 1979, 21 000 waterfowl were seen: 5400 Tundra Swans, 10 260 geese, and 5320 ducks (uncorrected for visibility bias). On 25 May 1983, approximately 80 000 waterfowl were seen, including 5000 Tundra Swans, 40 000 dark geese (assumed by Alexander et al. [1991] to be mainly Canada Geese), 20 000 white geese (presumably Lesser Snow Geese), and >13 000 ducks (Dickson et al. 2002). At the time, these values represented >5% of the Eastern Population of Tundra Swans, >20% of the Short-grass Prairie Population of Canada and Cackling geese, and >5% of the Western Arctic Population of Lesser Snow Geese.

Fall migration data are available from 1979 (entire key site: Thompson et al. 1979) and from 1980, 1983, and 1984 (Slave River delta: MML 1982; EMA 1985). Migration occurs from early August to mid-October. On 16 September 1979, 17 080 waterfowl were seen (55% were east of the Slave River delta): 7700 Tundra Swans (80% east of the delta), 4370 dark geese (mostly Canada Geese), 350 Snow Geese, and 4660 ducks. Similar numbers were seen for the Slave River delta in 1980, but fewer birds were seen in 1983 and 1984. These values represented about 10% of the Eastern Population of Tundra Swans and >2% of the Short-grass Prairie Population of Canada Geese. Shorebirds are among the earliest but least known migrants (EMA 1985); in 1979, over 3000 were seen in the Slave River delta on 11 September, but surveys were not conducted in early August, when numbers may have been higher.

The Slave River delta wetlands are also important to nesting birds. In 1978, about 5200 pairs of ducks (mostly Lesser Scaup, Mallard, American Wigeon, Bufflehead, Blue-winged Teal) bred on the Slave River delta, a low year according to people from Fort Resolution (Thompson et al. 1979). In years of prairie drought, the delta and vicinity likely harbour many more pairs of breeding ducks.

Moose, muskrat, and beaver are common in this area.



Sensitivities: Waterfowl are sensitive to disturbance and pollution. Delta habitats are susceptible to degradation through alteration of the water regime; deltas are dependent on an influx of sediments, and the maintenance of early-succession plant species and suspended ponds is dependent on spring flooding.

Potential conflicts: Dams on the Peace River in British Columbia have reduced annual fluctuations in water level in Great Slave Lake (Environment Canada, unpubl. data), but the effect on habitat near the Slave River is not known. The Slave River has been identified as a possible site for hydro development in the past (MML 1982). Such development could further alter flooding in the delta, which could cause the drying of productive marshes and ponds, replacing waterfowl food plants with unpalatable shrubs, and generally reduce the quality of bird habitat in the area (HAL 1982). Effluent from pulp mills on the Peace and Athabasca rivers could affect the health of the entire delta.

Status: This key site is an Important Bird Area in Canada (NT087; IBA Canada 2004).

Location: 60°20'N, 113°15'W

Size: 17 614 km²

Description: The eastern boundary of this site lies approximately 90 km west of the community of Fort Smith and includes the entire drainages of the Nyarling, Sass, and Little Buffalo rivers. Approximately 85% of the site lies within Wood Buffalo National Park.

The area is a complex of marshes, shallow ponds, streams, lakes, and bogs occurring near the northern extent of the boreal forest and west of the Canadian Shield. Grass-sedge meadows, black spruce – tamarack woods, and small areas of muskeg are common. A shallow overburden of till covers limestone bedrock. Part of the site lies within the Salt River alkali flats. The flats are sparsely vegetated, and plants with saline affinities are found on deposits of salt left by outwash from brine springs. Sinkholes and other features of karst topography are common.

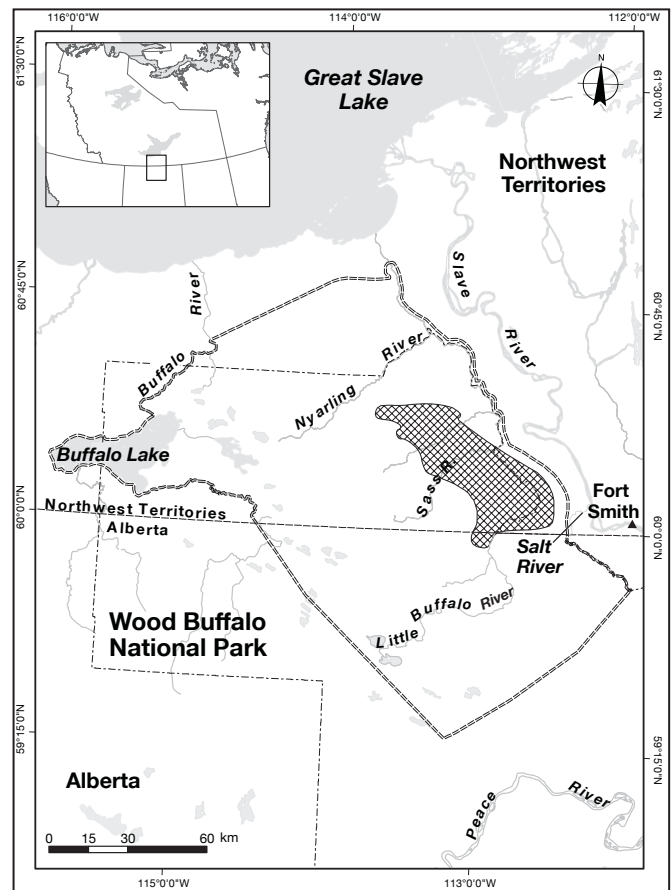
Biological value: The Whooping Crane is considered a species at risk in Canada and is listed as “endangered” by COSEWIC. This site is the only known breeding locality of the Whooping Crane in the wild, although an introduced population breeds in Florida. In 1954, a total of 21 Whooping Cranes existed in the world and occupied this area. In 2003, the spring flight consisted of 183 birds, and 61 pairs nested in the area (B. Johns, pers. commun.). Preferred nesting habitat is on shallow ponds and lakes, where the dominant emergent vegetation is bulrush, sedge, and cattail (Kuyt 1981). Whooping Cranes arrive at their breeding grounds around the last week of April and leave towards the end of September.

Waterfowl use lakes in the area as fall staging sites. Over 2400 Canada and Cackling geese and lesser numbers of Tundra Swans and Greater White-fronted Geese were observed on a partial survey of Buffalo Lake on 16 September 1972 (Salter 1974).

The threatened wood bison (COSEWIC) occurs throughout much of the site. The salt flats are a preferred winter range, with the upland prairies being utilized in the summer (Reynolds and Hawley 1987).

Sensitivities: Disruption or alteration of drainage patterns in the nesting area could cause the drying of shallow nesting ponds. Drought associated with global climate change is a serious concern for the long-term security of the nesting habitat. Increased ground traffic and low-flying aircraft would also disturb the nesting birds. (Park regulations restrict ground access to nesting sites in the nesting area between 15 April and 31 October.)

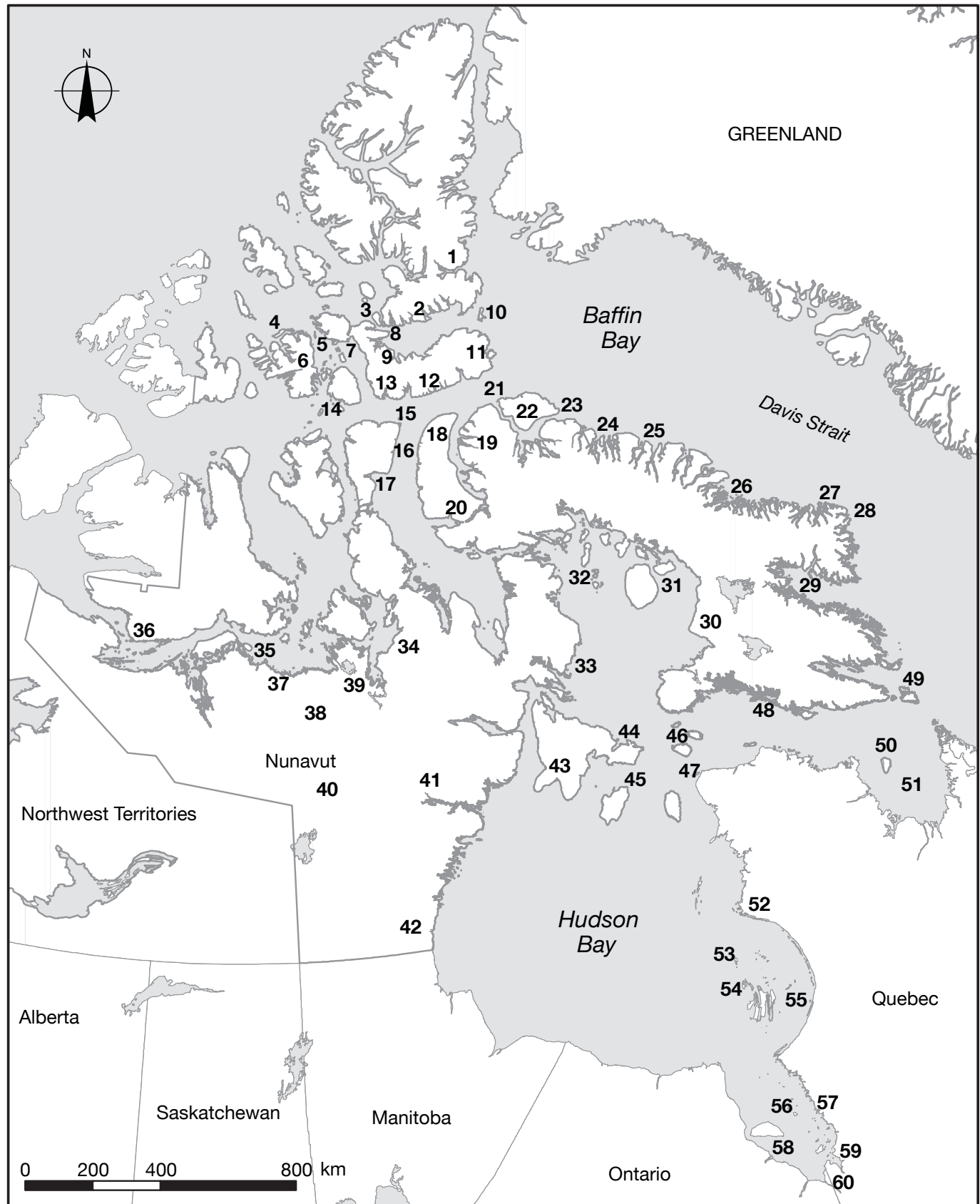
Potential conflicts: Any increase in industrial activities could augment existing hazards. Potential threats include the development of transmission corridors (with power lines and transmission towers), increased traffic along the highway that runs through the nesting site, and lowered water levels in nesting ponds.



Status: Most of this site is legally protected due to its occurrence within Wood Buffalo National Park. Much of this site is also a Ramsar site (Wetland of International Importance) (Ramsar 2005), a UNESCO World Heritage Site (UNESCO 2005), an Important Bird Area in Canada (NT002; IBA Canada 2004), and an International Biological Programme Site (Site 13; Beckel 1975).

6.0 Key migratory bird terrestrial habitat sites in Nunavut

Figure 2
Map of site locations in Nunavut



Map legend: Site locations in Nunavut

- NU Site 1 – Inglefield Mountains
- NU Site 2 – Sydkap Ice Field
- NU Site 3 – North Kent Island
- NU Site 4 – Seymour Island
- NU Site 5 – Cheyne Islands
- NU Site 6 – Polar Bear Pass
- NU Site 7 – Baillie-Hamilton Island
- NU Site 8 – Cape Vera
- NU Site 9 – Skruis Point
- NU Site 10 – Nirjutiqavvik (Coburg Island)
- NU Site 11 – Eastern Devon Island
- NU Site 12 – Hobhouse Inlet
- NU Site 13 – Cape Liddon
- NU Site 14 – Browne Island
- NU Site 15 – Prince Leopold Island
- NU Site 16 – Batty Bay
- NU Site 17 – Creswell Bay
- NU Site 18 – Northwestern Brodeur Peninsula
- NU Site 19 – Baillarge Bay
- NU Site 20 – Berlinguet Inlet
- NU Site 21 – Cape Hay
- NU Site 22 – South Bylot Island
- NU Site 23 – Cape Graham Moore
- NU Site 24 – Buchan Gulf
- NU Site 25 – Scott Inlet
- NU Site 26 – Abbajalik and Ijutuk Islands
- NU Site 27 – Qaulluit (Cape Searle)
- NU Site 28 – Akpait (Reid Bay)
- NU Site 29 – Western Cumberland Sound Archipelago
- NU Site 30 – Great Plain of the Koukdjuak
- NU Site 31 – Foxe Basin Islands
- NU Site 32 – North Spicer Island
- NU Site 33 – Turton Island
- NU Site 34 – Rasmussen Lowlands
- NU Site 35 – Jenny Lind Island
- NU Site 36 – Southwestern Victoria Island
- NU Site 37 – Queen Maud Gulf
- NU Site 38 – Middle Back River
- NU Site 39 – Lower Back River
- NU Site 40 – Thelon River
- NU Site 41 – Middle Quoich River
- NU Site 42 – McConnell River
- NU Site 43 – Boas River
- NU Site 44 – East Bay
- NU Site 45 – Coats Island
- NU Site 46 – Fraser Island
- NU Site 47 – Digges Sound
- NU Site 48 – Markham Bay
- NU Site 49 – Hantzsch Island
- NU Site 50 – Akpatok Island
- NU Site 51 – Ungava Bay Archipelagoes
- NU Site 52 – Kaktac River Archipelago
- NU Site 53 – Sleeper Islands
- NU Site 54 – North Belcher Islands
- NU Site 55 – Salikuit Islands
- NU Site 56 – Twin Islands
- NU Site 57 – Northeast James Bay
- NU Site 58 – Akimiski Island
- NU Site 59 – Boatswain Bay
- NU Site 60 – Hannah Bay

NU Site 1 – Inglefield Mountains

Location: 77°20'N, 79°15'W

Size: 14 km²

Description: The Inglefield Mountains are located north and south of Makinson Inlet on southeastern Ellesmere Island, 130 km east of Grise Fiord. Much of the area is covered by upland ice fields and has a maximum elevation of 1500 m. Rock outcrops (nunataks) are found among the ice fields, and rock cliffs border the coastal areas. Most of this area is underlain by metamorphic and granitic rocks of the Canadian Shield (Frisch and Morgan 1979; de Kemp 1999).

The nearshore marine region is ice covered much of the year, but the North Water Polynya is located off the east coast of Ellesmere Island and provides open water through most of the winter (Smith and Rigby 1981).

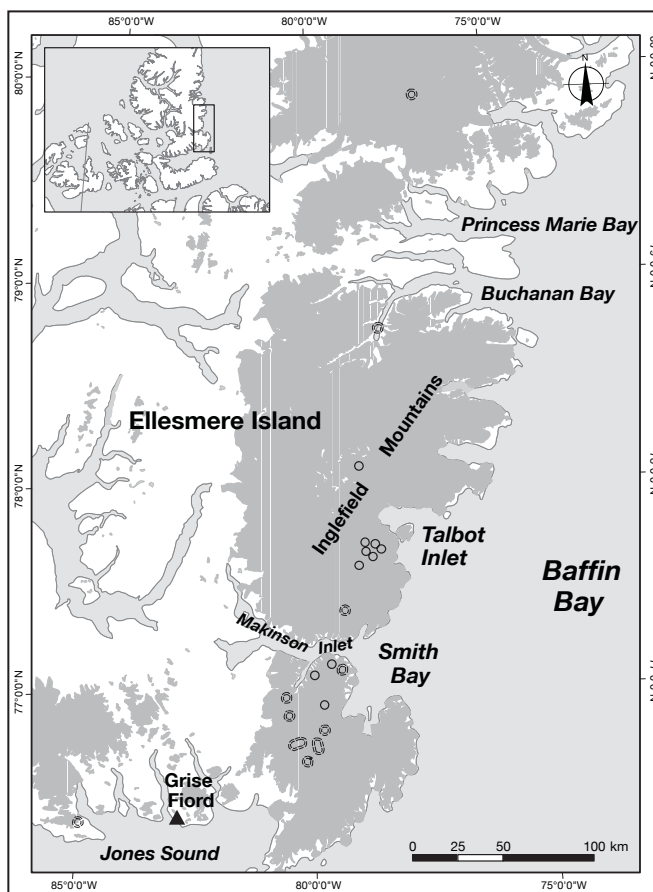
Biological value: The nunataks of this area supported 730–830 adult Ivory Gulls in the 1980s, up to 35% of the national breeding population (Thomas and MacDonald 1987). The colonies known at that time ranged in size from 12 to 300 birds. All colonies were located inland among the highest reaches of the nunataks and are usually associated with granitic gneiss and migmatitic, undifferentiated plutonic, and volcanic rocks (Thomas and MacDonald 1987). Surveys of these colonies in 2002–2005 discovered some new, small colonies in the region (generally <6 birds), but documented a dramatic overall decline in colony occupation, with fewer than 200 birds at 13 sites (some sites contained more than one colony) in any of these years; the largest colony supported 120 adults (Gilchrist and Mallory 2005).

The Ivory Gull is a rare bird in Canada (Alvo and MacDonald 1996). In July 2005, the Birds Subcommittee of COSEWIC reviewed the most recent data and agreed that the designation of the Ivory Gull should be upgraded from Special Concern to Endangered.

Sensitivities: Ivory Gull colonies may be susceptible to disturbance during the breeding season. Aircraft or human interferences could seriously jeopardize their breeding success. Pollution in the waters off eastern Ellesmere Island in the North Water Polynya, where the birds likely feed, could have serious negative impacts.

Potential conflicts: Hydrocarbon exploration has been proposed for western Baffin Bay (DIAND 1982). If conducted, exploratory drilling could subject feeding areas used by the Ivory Gulls to disturbance and pollution.

Status: None.



Location: 76°23'N, 85°06'W

Size: 1 km²

Description: This site, located on southern Ellesmere Island approximately 50 km west of Grise Fiord, is at the southern edge of the Sydkap ice field. All of the surrounding area is ice cap, except for a narrow tongue of exposed land that starts at the site and extends to the south (Thomas and MacDonald 1987). The site lies in a band of Cambrian and Ordovician sandstone, limestone, and dolomite (de Kemp 1999). The shore of South Cape Fiord is 5 km to the northeast.

Landfast ice along this coast may persist well into July (M.L. Mallory, pers. obs.), and the open water may be distant in many years, available between August and October.

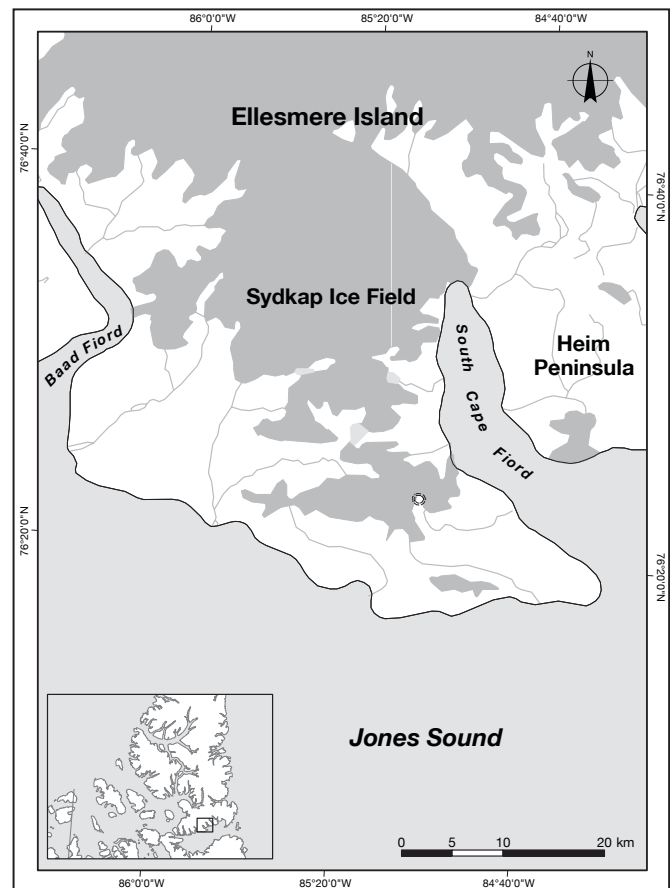
Biological value: About 300 Ivory Gulls have bred on the small, limestone plateau that comprises this site (Thomas and MacDonald 1987). This represented nearly 12% of the known Canadian breeding population at that time. However, surveys in 2002 and 2003 have yielded no observations of gulls and no evidence of recent nesting (Gilchrist and Mallory 2005). Ivory Gulls may occupy certain colonies intermittently (Volkov and de Korte 1996), particularly those on flat plateaus. Ivory Gull numbers have declined in Canada since the 1980s, and further surveys are required to determine whether this colony has been completely extirpated or whether occupation is variable, perhaps at lower numbers than in the past.

The Ivory Gull is a rare bird in Canada (Alvo and MacDonald 1996). In July 2005, the Birds Subcommittee of COSEWIC reviewed the most recent data and agreed that the designation of the Ivory Gull should be upgraded from Special Concern to Endangered.

Sensitivities: Ivory Gull colonies may be susceptible to disturbance during the breeding season. Aircraft or human interferences could seriously jeopardize their breeding success. Pollution in the polynyas around southern Ellesmere Island, where the birds likely feed, could have serious negative impacts.

Potential conflicts: None.

Status: None.



NU Site 3 – North Kent Island

Location: 76°30'N, 89°40'W

Size: 25 km²

Description: This site includes North Kent Island and Calf Island. North Kent Island lies between the Colin Archer Peninsula on northwest Devon Island and the Simmons Peninsula on southwest Ellesmere Island. This island is flat-topped with a small ice cap, with cliffs surrounding the island (except in the north) and rising steeply to 600 m above sea level. Calf Island is a much smaller flat-topped island surrounded by cliffs and located 5 km southeast of North Kent Island. Both islands are made up of Paleozoic sandstone, limestone, and dolomite (de Kemp 1999).

The strong currents moving from Norwegian Bay to Jones Sound create the nearby Hell Gate – Cardigan Strait polynya, providing open water year-round (Smith and Rigby 1981). The marine area is described in Mallory and Fontaine (2004).

Biological value: Surveys have yielded substantially different estimates of local Black Guillemot populations in the area. Nettleship (1974, 1980) provided provisional estimates of approximately 8000 pairs distributed across North Kent and Calf islands. However, a survey in the early 1980s indicated roughly 1100 birds across these same sites (Alexander et al. 1991). In 2003, only 39 guillemots were observed at Calf Island (M.L. Mallory, unpubl. data). Hence, estimated populations of guillemots in this area represent between 0.5 and 8% of the Canadian population; clearly, refinement of population assessment methods is required. Black Guillemots are most abundant in the area between May and September, and some overwinter at the Hell Gate – Cardigan Strait polynya (Renaud and Bradstreet 1980). Sverdrup (1904) observed “myriads” of these birds in March.

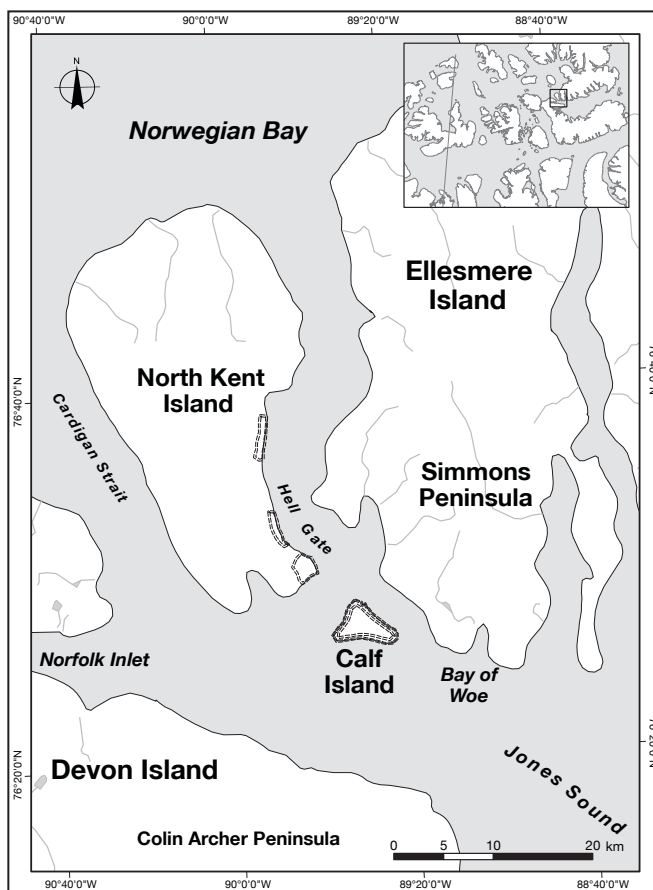
Approximately 160 pairs of northern Common Eiders (*S. m. borealis*) were thought to nest on Calf Island in the early 1980s (Prach et al. 1986); 225 birds were observed in 2003 (M.L. Mallory, unpubl. data). Glaucous Gulls, Thayer’s Gulls, and Arctic Terns also nest at these sites.

The area, particularly the polynya, supports many other marine species, including ringed seal, bearded seal, narwhal, beluga, polar bear, and walrus (Stirling and Cleator 1981; Riewe 1992).

Sensitivities: Seabirds are heavily dependent upon ice edge habitats for feeding and resting. Accordingly, they are sensitive to disturbance or pollution of these sites.

Potential conflicts: None.

Status: North Kent Island and Calf Island are an International Biological Programme Site (Site 2-10; Nettleship 1980), an Important Bird Area in Canada (NU053; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 3; Mallory and Fontaine 2004).



Location: 76°48'N, 101°16'W

Size: 54 km²

Description: Seymour Island is located approximately 30 km north of Bathurst Island, in the Berkeley group of islands. It is less than 3 km long and rises only 28 m above sea level. Raised beaches occur over much of the island, and several freshwater ponds are present. The sparse vegetation cover consists primarily of mosses and lichens.

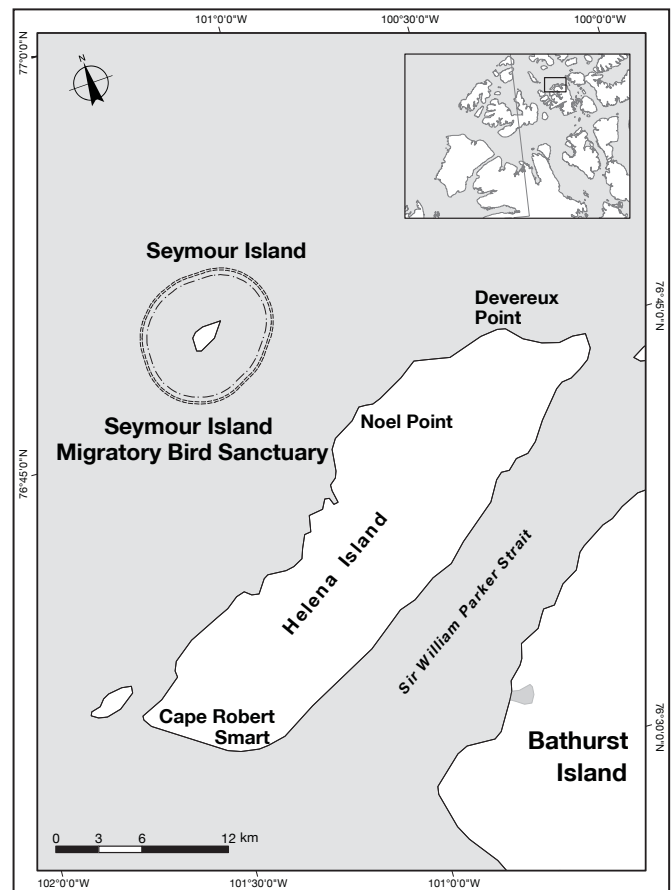
Polynyas form in nearby Penny Strait (Smith and Rigby 1981), providing open water access to wildlife breeding at Seymour Island. However, the island remains ice locked for much of the year; in mid-July 2002 and 2003, ice was solid from Helena Island to Seymour Island and beyond, with no leads formed within view (M.L. Mallory, pers. obs.).

Biological value: Seymour Island is Canada's largest known breeding colony of Ivory Gulls, which are rare birds in Canada (Alvo and MacDonald 1996). This site has supported more than 300 adult Ivory Gulls, with typically 100–125 pairs each year (Haney and MacDonald 1995), about 10% of the known Canadian population. However, recent surveys have suggested that Ivory Gull numbers on the island may be lower than in earlier years (Mallory and Gilchrist 2003). The Seymour Island birds may represent 40% of the surviving Canadian population of this rare species (Gilchrist and Mallory 2005). Ivory Gulls occupy this site from the end of May to September (Thomas and MacDonald 1987). In July 2005, the Birds Subcommittee of COSEWIC reviewed the most recent data and agreed that the designation of the Ivory Gull should be upgraded from Special Concern to Endangered.

Sensitivities: Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: The Sverdrup Basin has been explored for hydrocarbons and maintains potential as a future area of drilling. Oil spills associated with drilling or disturbance associated with exploration (ships or aircraft) could endanger seabirds and pollute their feeding areas.

Status: This key site is within the Seymour Island Migratory Bird Sanctuary that was established in 1975 and includes waters 3.2 km out from the high water line. Seymour Island is an International Biological Programme Site (Site 1-7; Nettleship 1980), an Important Bird Area in Canada (NU045; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 2; Mallory and Fontaine 2004).



NU Site 5 – Cheyne Islands

Location: 76°18'N, 97°30'W

Size: 7 km²

Description: The Cheyne Islands are three small alluvial islands located in Penny Strait about 5 km off the eastern coast of Reindeer Bay, Bathurst Island. None of the islands exceeds 3 m above sea level.

Middle Cheyne Island is covered in vegetation (mostly mosses) and supports several small freshwater ponds, while North Cheyne Island is nearly devoid of vegetation, and South Cheyne Island has well-developed mosses around the central freshwater pond.

Several small polynyas develop in May or June along the eastern side of Penny Strait (Smith and Rigby 1981). The marine region of Penny Strait and Queens Channel is described in Mallory and Fontaine (2004).

Biological value: The Cheyne Islands supported the largest known nesting population of Ross's Gull in the Canadian Arctic. Ross's Gull is listed as threatened by COSEWIC. In 1976, three pairs nested on the islands, and in 1978, six pairs were noted among approximately 20 birds that were present (Macey 1981). The latter count represents approximately 60% of the Canadian population (although very few nests have been found in Canada). However, no birds were observed in July 2002 or 2003 (Mallory and Gilchrist 2003), suggesting that annual use of the site varies, perhaps in relation to annual ice conditions. In 2005, five pairs of Ross's Gull were found nesting on an island about 80 km south of the Cheyne Islands, indicating that the species still nests in this area (M.L. Mallory, unpubl. data). Approximately 900 Arctic Terns were also observed on the three islands (Mallory and Gilchrist 2003).

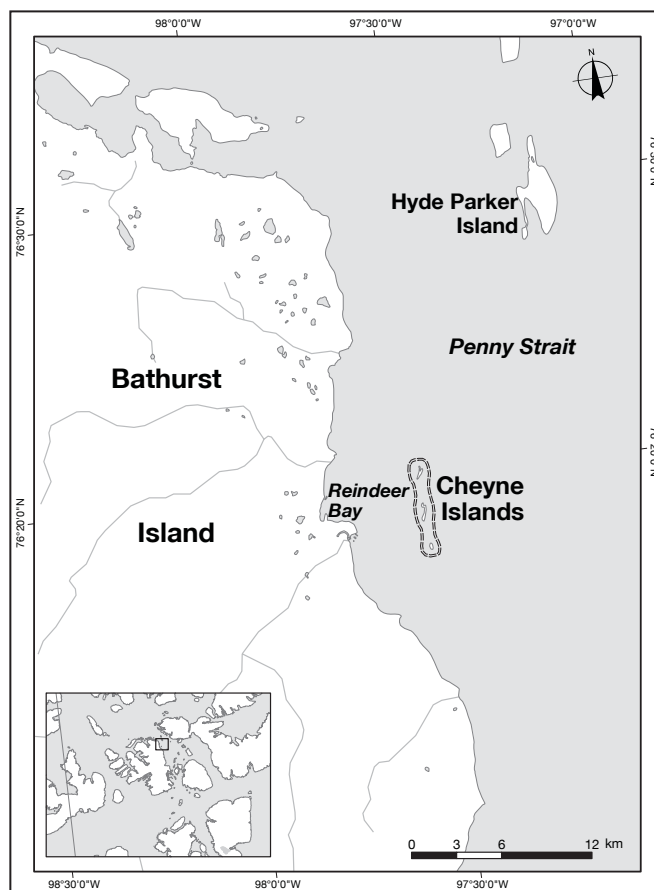
Northern Common Eiders (*S. m. borealis*) nest on the Cheyne Islands; 164 nests were found in 2002, with lower numbers in 2003 during a heavier ice year (Mallory and Gilchrist 2003).

Queens Channel is also an important region for walrus, bearded seal, ringed seal, and polar bear. All of these species may overwinter near the polynyas (Riewe 1992).

Sensitivities: Concentrations of marine birds are sensitive to disturbances and the degradation of their marine habitats.

Potential conflicts: None.

Status: The Cheyne Islands are an Important Bird Area in Canada (NU051; IBA Canada 2004) and a Key Marine Habitat Site in Nunavut (Site 4; Mallory and Fontaine 2004). However, their future status as a key site will depend on surveys to determine whether Ross's Gulls return to these islands, as other birds breeding here represent <1% of their respective Canadian populations.



Location: 75°43'N, 98°40'W

Size: 2664 km²

Description: Polar Bear Pass bisects central Bathurst Island, between Bracebridge and Goodsir inlets. It is a well-vegetated lowland surrounded by polar desert of the high Arctic. Vegetation consists of lichens interspersed with mosses, grasses, sedges, and flowering plants. Frost mounds and low- and high-centred polygons are widespread. Vegetated stream valleys, tundra ponds, and lakes are numerous. The hills north of Polar Bear Pass are of Ordovician to Devonian origin and consist mainly of limestone and shales (Blake 1964). Higher elevations are almost devoid of vegetation.

Several archeological sites of the Thule culture are found within the site. The Canadian Museum of Nature operated an ecological research station from the 1960s through the 1980s.

Biological value: Polar Bear Pass is a relatively large and isolated wetland surrounded by sparsely vegetated, rolling uplands. It is an area of exceptional biodiversity, considering its high Arctic location. Fifty-four species of birds have been recorded at the site, 30 of which are known to breed (S.D. MacDonald, pers. commun.). Representative species include King Eider, Greater Snow Goose, Thayer's Gull, Parasitic, Long-tailed, and Pomarine jaegers, Red Phalarope, White-rumped Sandpiper, Sanderling, and Black-bellied Plover. The abundance of all birds is highly variable between years (Mayfield 1983).

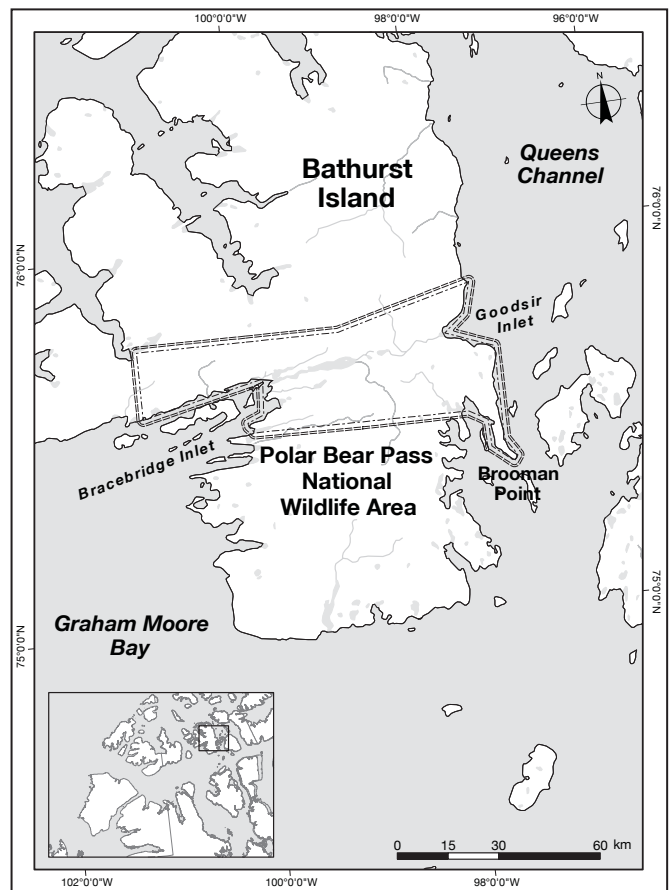
There are no population estimates for the birds of Polar Bear Pass. Density estimates, now nearly 30 years old, indicate that sedge/moss meadows held 8.0 White-rumped Sandpipers/km², 7.0 Red Phalaropes/km², and 1.25 Black-bellied Plovers/km² (Mayfield 1983).

Lemmings, arctic fox, muskoxen, and Peary caribou are the most abundant of eight mammal species found on the site (Nettleship and Smith 1975). In spring and summer, polar bears regularly pass through the area en route between Goodsir Inlet and Graham Moore Bay, which is an important feeding area (Stirling et al. 1979). Ringed seals and walrus occur in offshore waters (Finley et al. 1974), and the latter haul out at Brooman Point.

Sensitivities: The wetland area is susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost. Wildlife in the area is sensitive to disturbance. Pollution of offshore waters would result in the degradation of marine habitats.

Potential conflicts: An area immediately to the northeast on Bathurst Island has high mineral potential.

Status: This key site lies entirely within the Polar Bear Pass National Wildlife Area, created in 1986. Polar Bear Pass is also a Ramsar site (Wetland of International Importance) (Ramsar 2005) and an International Biological Programme



Site (Site 1-2; Nettleship and Smith 1975). There is a proposal to create a National Park immediately north of this key site.

NU Site 7 – Baillie-Hamilton Island

Location: 75°45'N, 94°17'W

Size: 2.5 km²

Description: Baillie-Hamilton Island is located 15 km north of Cornwallis Island, in the middle of Queens Channel. The island is flat-topped, and the cliffs reach 215 m above sea level on the southeastern corner at Washington Point. The entire island consists of Cambrian, Silurian, and Devonian sandstone, limestone, and dolomite (Thorsteinsson 1973; de Kemp 1999).

Water flows south from Penny Strait through Queens Channel and Wellington Channel to Lancaster Sound. A series of recurrent polynyas form in the Penny Strait/Queens Channel area (Smith and Rigby 1981). The marine environment of Queens Channel is described in Mallory and Fontaine (2004).

Biological value: Approximately 3000 pairs of Black-legged Kittiwakes, representing nearly 1.5% of the Canadian population, nest on the cliffs of southeastern Baillie-Hamilton Island at Washington Point (Nettleship 1980). A survey of the site in 2003 yielded an estimate of approximately 2500 birds (M.L. Mallory, unpubl. data). This is one of Canada's northernmost kittiwake colonies (Nettleship 1980). Kittiwakes arrive at the nesting cliffs about mid-May and leave by early October.

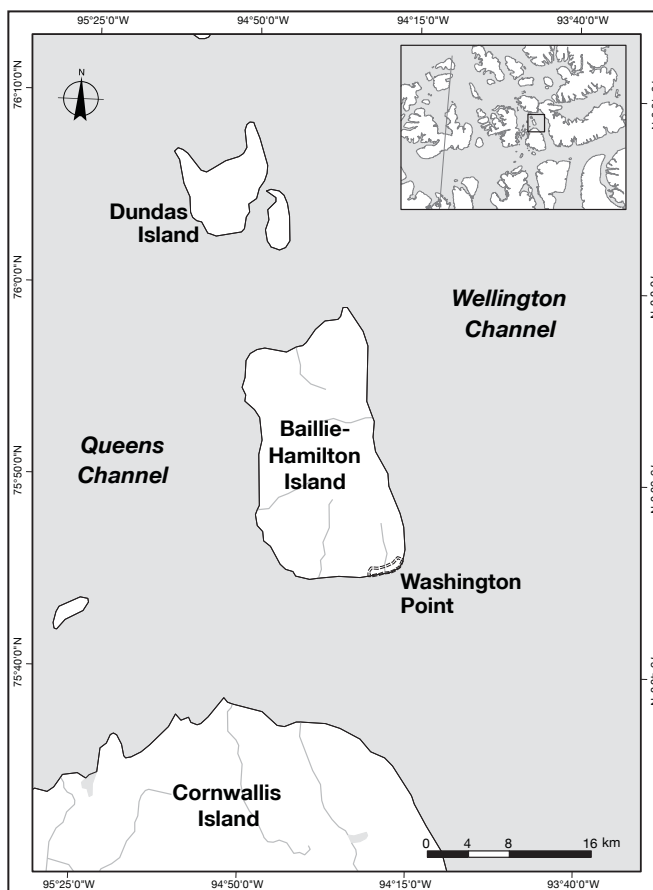
Substantial numbers of northern Common Eiders (*S. m. borealis*) and King Eiders use the polynyas near the island during migration (Davis et al. 1974). Glaucous Gulls breed here, and a few Black Guillemots may overwinter in the polynyas and nest at the site; 15 were seen north of Dundas Island in April 1977 (Renaud and Bradstreet 1980).

Queens Channel is also an important region for walrus, bearded seal, ringed seal, and polar bear. All of these species may overwinter near the polynyas (Riewe 1992).

Sensitivities: Concentrations of marine birds are sensitive to disturbances and the degradation of their marine habitats.

Potential conflicts: None.

Status: Washington Point is an International Biological Programme Site (Site 1-10; Nettleship 1980), an Important Bird Area in Canada (NU049; IBA Canada 2004), and part of Key Marine Habitat Site 4 in Nunavut (Mallory and Fontaine 2004).



Location: 76°15'N, 89°15'W

Size: 8 km²

Description: Cape Vera is located in western Jones Sound, on the eastern tip of the Colin Archer Peninsula, northwest Devon Island, and at the southern part of the Hell Gate–Cardigan Strait polynya. The cliffs of the Cape are separated by a scree beach coast up to 1 km in width. These cliffs are up to 300 m high and composed of Paleozoic sandstone, limestone, and dolomite (de Kemp 1999).

The strong currents moving from Norwegian Bay to Jones Sound create the nearby Hell Gate–Cardigan Strait polynya, providing open water year-round (Smith and Rigby 1981). The marine area is described in Mallory and Fontaine (2004).

Archeological sites are located on the beach below the cliffs, as well as on nearby St. Helena Island (Sverdrup 1904).

Biological value: Recent observations (2004) suggest approximately 11 000 occupied Northern Fulmar nest sites at Cape Vera, representing 6% of the Canadian population (Gaston et al. 2006). An earlier estimate was 7500 pairs of Northern Fulmars, about 3% of the Canadian population, nesting along 8 km of Cape Vera (Nettleship 1980), which was reassessed as 50 000 individuals by Hatch and Nettleship (1998). The differences in counts may be due to differences in census methodologies.

Fulmars arrive by early May, and numbers peak by about 10 May. The numbers decline until the end of May, and the colony is reoccupied by the first week of June. While in the area, fulmars concentrate at fast ice edges and later at glacier discharge sites. The young fledge in September, and the birds depart by late October.

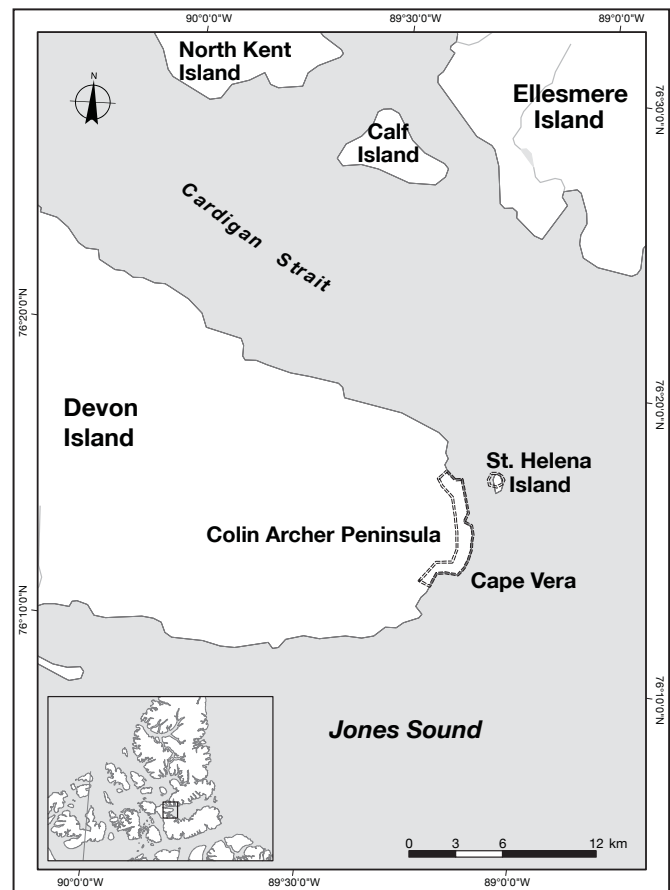
Approximately 300 pairs of Common Eiders (*S. m. borealis*) nest at St. Helena Island (Prach et al. 1986). Glaucous Gulls, Thayer's Gulls, and Arctic Terns also nest at these sites. In 2002 and 2003, approximately 600 Atlantic Brant were observed on the beach below Cape Vera (Mallory and Gilchrist 2005).

The area, particularly the polynya, supports many other marine species, including ringed seal, bearded seal, narwhal, beluga, polar bear, and walrus (Stirling and Cleator 1981; Riewe 1992).

Sensitivities: Seabirds are heavily dependent upon ice edge habitats for feeding and resting. Accordingly, they are sensitive to disturbance or pollution of these sites.

Potential conflicts: None.

Status: Cape Vera is an International Biological Programme Site (Site 2-11; Nettleship 1980), an Important Bird Area in Canada (NU052; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 3; Mallory and Fontaine 2004).



NU Site 9 – Skruis Point

Location: 75°40'N, 88°43'W

Size: 25 km²

Description: Skruis Point lies midway along the north coast of Devon Island, on the southern part of Jones Sound, and is southeast of the Hell Gate–Cardigan Strait polynya. The sedimentary rock of this part of Devon Island is Paleozoic sandstone, limestone, and dolomite (de Kemp 1999). The key site lies on either side of Thomas Lee Inlet, where cliffs range up to 150 m in height.

Although the polynya to the north is open most of the year, ice usually remains in southern Jones Sound for longer, although some leads may appear in May (Smith and Rigby 1981).

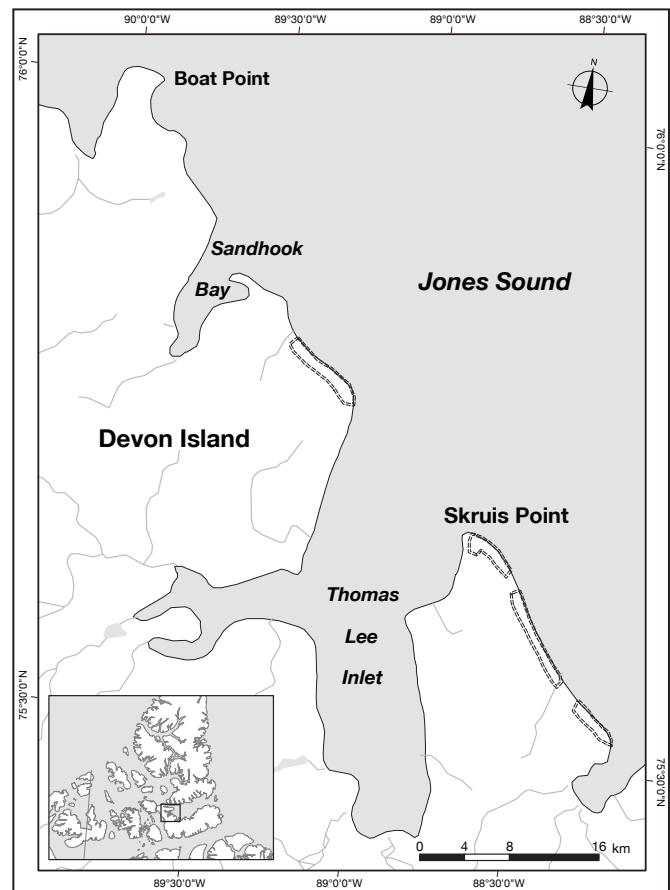
Biological value: Skruis Point was reported to have Canada's largest colony of Black Guillemots, estimated at up to 10 000 pairs based on a 1973 survey (Nettleship 1974), or approximately 10% of the Canadian population. In the early 1900s, Sverdrup (1904) had reported "thousands upon thousands" of guillemots nesting near Boat Point, northwest of Skruis Point. Surveys in the mid-1980s found 1585 and 700 birds in two different years, representing at best 1% of the Canadian population (Alexander et al. 1991). Prach and Smith (1992) interpreted these differences (and the distribution of guillemots in this part of Jones Sound) as representing the influence of annual ice conditions. The typical number of birds breeding along the Skruis Point / Boat Point region clearly requires further survey work to provide a reliable estimate.

The area, and particularly the polynya, supports many other marine species, including ringed seal, bearded seal, narwhal, beluga, polar bear, and walrus (Stirling and Cleator 1981; Riewe 1992).

Sensitivities: Seabirds are heavily dependent upon ice edge habitats for feeding and resting. Accordingly, they are sensitive to disturbance or the pollution of these sites.

Potential conflicts: None.

Status: Skruis Point is an International Biological Programme Site (Site 2-17; Nettleship 1980), an Important Bird Area in Canada (NU054; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 5; Mallory and Fontaine 2004).



Location: 75°50'N, 79°25'W

Size: 1642 km²

Description: Formerly known as Coburg Island key terrestrial habitat site (Alexander et al. 1991), Nirjutiqavvik is situated in eastern Jones Sound, midway between Devon and Ellesmere islands. It includes Coburg Island and waters 10 km offshore. The island is rugged, consisting of Precambrian granitic gneiss (Douglas and MacLean 1963) and granulite-facies sedimentary and volcanic rocks (de Kemp 1999), with an ice cap pierced by peaks rising over 800 m above sea level. The coastline is heavily glaciated, and there are many prominent cliffs, especially towards the south end. Temperature differences between the ice cap and nearby open waters create the conditions for frequent and very strong winds.

Along the southern edge of the island near Cambridge Point, cliffs rise 150–300 m. Princess Charlotte Monument, a cone-shaped islet with precipitous cliffs, is located 1 km off southeast Coburg Island. An archeological site occurs north of Cape Spencer on the southwest coast.

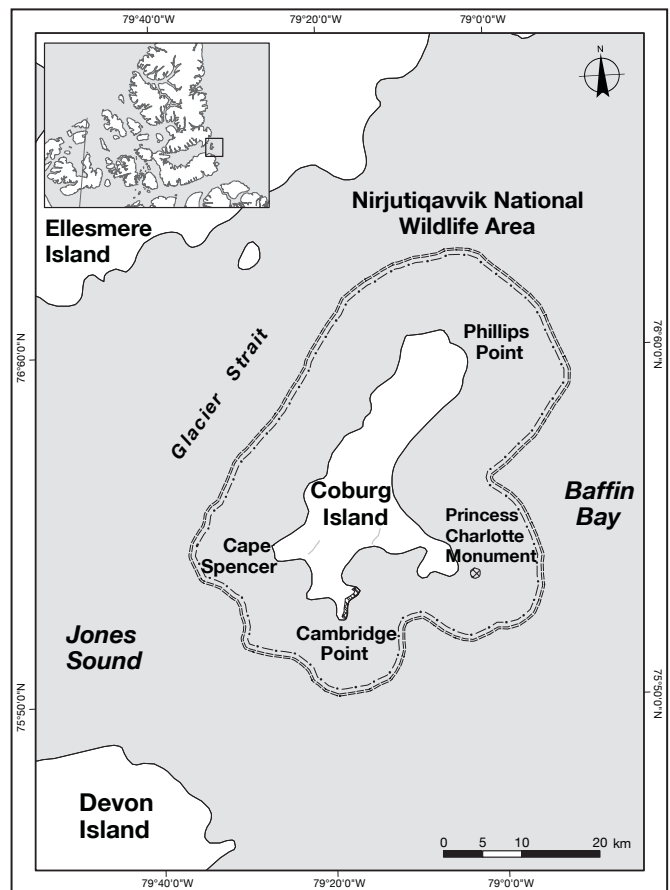
A recurrent area of open water occurs in the vicinity of Coburg Island and joins the North Water Polynya through ice breakup each year (Smith and Rigby 1981). The marine environment of eastern Jones Sound is summarized in Mallory and Fontaine (2004).

Biological value: Approximately 30 000 pairs of Black-legged Kittiwakes, representing 16% of the Canadian population, nest at Cambridge Point, Coburg Island. This is the largest colony of this species in the Canadian Arctic (Nettleship 1980). These cliffs also support 12% (160 000 pairs) of the Thick-billed Murres in Canada, the third largest Canadian colony and the largest in the high Arctic (Gaston and Hipfner 2000). An estimated 300 pairs of Northern Fulmars breed on Princess Charlotte Monument (Gaston et al. 2006).

Black Guillemots (175 pairs) and Glaucous Gulls (60–80 pairs) nest in the area (Robards et al. 2000). Bays at the south end of Coburg Island are used by moulting Common Eiders (*S. m. borealis*) and Long-tailed Ducks, and a few Common Eiders breed in the area (Robards et al. 2000). This is one of the few known breeding sites for Atlantic Puffins in the Arctic, with a colony recently estimated at 14 pairs (Robards et al. 2000).

Outside the breeding season, the ice edges around Coburg Island support thousands of seabirds, depending on the annual patterns of ice breakup and the distribution of prey (McLaren and Renaud 1979, 1982). Seabirds occupy this area in high numbers from April through October, but some birds may overwinter.

Eastern Jones Sound is an important maternity denning and hunting area for polar bears and a summering area for most species of arctic seals, narwhal, and walrus (Stirling and Cleator 1981; Riewe 1992).



Sensitivities: Seabirds are sensitive to disturbances at their breeding cliffs and to pollution of their staging and foraging areas.

Potential conflicts: This area is of increasing importance as a tourist destination for cruise ships and small aircraft (Hall and Johnston 1995; Wakelyn 2001).

Status: This key site lies entirely within the Nirjutiqavvik National Wildlife Area, established in 1995. It is an International Biological Programme Site (Site 2-12; Nettleship 1980), an Important Bird Area in Canada (NU010; IBA Canada 2004), and part of a Key Marine Habitat Site in Nunavut (Site 6; Mallory and Fontaine 2004).

NU Site 11 – Eastern Devon Island

Location: 75°05'N, 80°50'W

Size: 4 km²

Description: Most of the landmass in this area is covered by the Devon ice cap, which reaches a maximum elevation of 2000 m above sea level. Bedrock protrusions (nunataks), primarily cliff faces, occur within the ice cap at elevations up to 1500 m. In general, the area is underlain by metamorphic and granitic rocks of the Canadian Shield (Frisch 1983; de Kemp 1999). On Devon Island, nunataks are concentrated along major glaciers flowing out to the northern coast and in the southeastern corner of the ice cap (Frisch 1983).

Grise Fiord, the nearest community, is located on southern Ellesmere Island about 140 km northwest of this site.

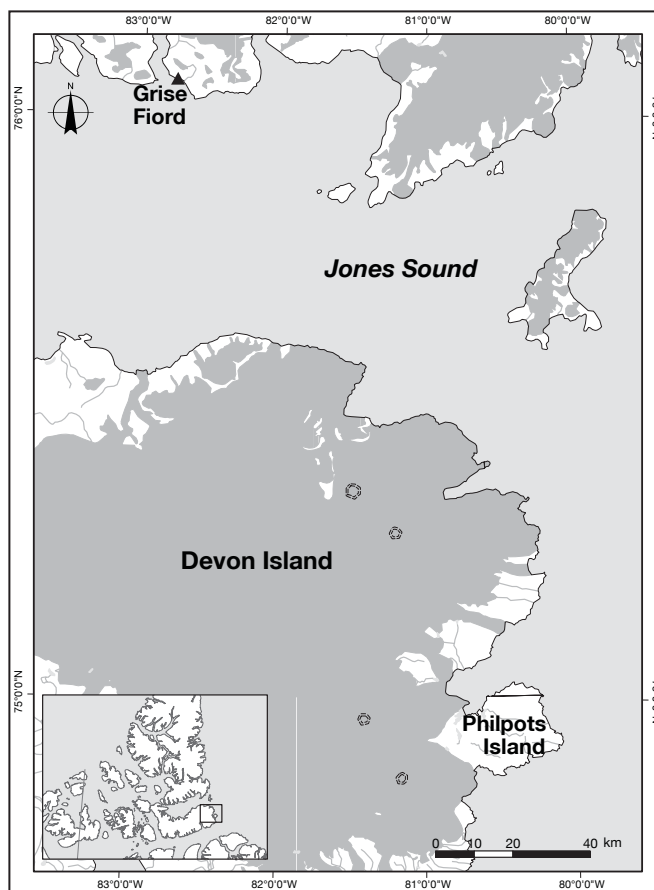
Biological value: Four colonies of Ivory Gulls previously occurred within this area, three of which each comprised 1% of the known Canadian breeding population. In 1982, the four colonies supported an estimated 91 birds (Frisch 1983), although breeding was not confirmed. Surveys of all but the southernmost site yielded only six gulls in 2002 and none in 2003, and no new colonies were discovered in this region (Gilchrist and Mallory 2005). One of the colonies (previously supporting 30 birds) appears to have been colonized by Iceland and Glaucous gulls, with no Ivory Gulls now.

The Ivory Gull is a rare bird in Canada (Alvo and MacDonald 1996). In July 2005, the Birds Subcommittee of COSEWIC reviewed the most recent data and agreed that the designation of the Ivory Gull should be upgraded from Special Concern to Endangered.

Sensitivities: Ivory Gull colonies may be susceptible to disturbance during the breeding season. Aircraft or human interferences could seriously jeopardize their breeding success. Pollution in the waters of eastern Devon Island or the North Water Polynya, where the birds likely feed, could have serious negative impacts.

Potential conflicts: Hydrocarbon exploration has been proposed for western Baffin Bay (DIAND 1982). If conducted, exploratory drilling could subject feeding areas used by the Ivory Gulls to disturbance and pollution.

Status: None.



Location: 74°28'N, 86°50'W

Size: 6 km²

Description: Hobhouse Inlet is located along the southern coast of Devon Island in central Lancaster Sound. This shoreline is penetrated by numerous long fiords. The area is underlain by Precambrian anorthosite and gneiss (de Kemp 1999). Silurian limestone cliffs rise to 460 m above Lancaster Sound between Hobhouse and Stratton inlets.

There are usually 16 weeks of open water along southern Devon Island, from mid-June to mid-October (Dickins et al. 1990). The marine region of Lancaster Sound is described in Mallory and Fontaine (2004).

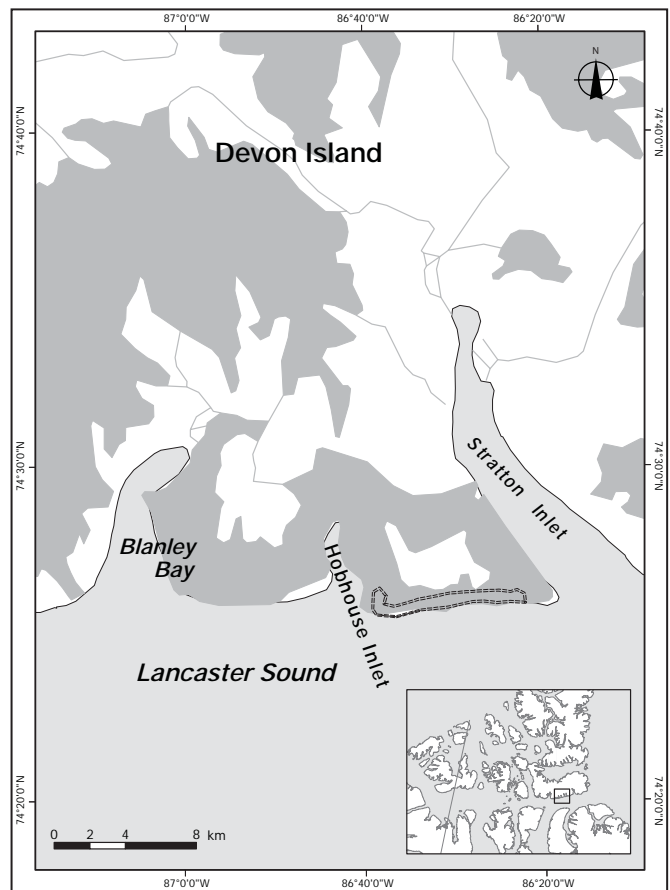
Biological value: Hobhouse Inlet supports one of Canada's largest Northern Fulmar colonies, variously estimated at 10 000–75 000 pairs (Nettleship 1974, 1980) or 25 000 pairs (Hatch and Nettleship 1998). There were an estimated 21 000 occupied breeding sites in 2001 (Gaston et al. 2006), corresponding to 11% of the Canadian population. Smaller numbers of Glaucous Gulls and Black Guillemots also occur here (Nettleship 1980). This marine region is occupied by seabirds generally from early May to the end of September.

The marine area around Hobhouse Inlet is also important for certain mammals, especially beluga and polar bear (Schweinsburg et al. 1982; Dickins et al. 1990). Some walrus haul-outs occur nearby, and hunters from Resolute Bay (Qausuittuq) may use this area to hunt polar bears along the landfast ice edge (Riewe 1992; Fisheries and Oceans Canada 1999).

Sensitivities: The waters along southern Devon Island are ranked as being of “high sensitivity” to effects of oil spills from early May through late October (Dickins et al. 1990). Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). This area is also of increasing importance as a tourist destination for cruise ships (Hall and Johnston 1995; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Hobhouse Inlet is an International Biological Programme Site (Site 2-16; Nettleship 1980), an Important Bird Area in Canada (NU060; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 9; Mallory and Fontaine 2004).



NU Site 13 – Cape Liddon

Location: 74°37'N, 91°10'W

Size: 3.5 km²

Description: Cape Liddon is a 300-m cliff consisting of Silurian limestone (de Kemp 1999) that juts into Barrow Strait on the west side of the mouth of Radstock Bay, southwest Devon Island, 110 km east of Resolute Bay.

This part of Lancaster Sound is usually ice covered by early October, and normal ice breakup around Cape Liddon occurs in late July (Dickins et al. 1990). Ice cover may remain in Radstock Bay in August (Gaston and Nettleship 1981). The marine area is described in Mallory and Fontaine (2004).

Biological value: Cape Liddon supports up to 10 000 pairs of Northern Fulmars, about 4% of the Canadian population (Hatch and Nettleship 1998), but the estimates have varied between 1000 and 10 000 pairs. Gaston et al. (2006) estimated that 9000 breeding sites were occupied in 2002 (5% of the Canadian population). Fulmars use Cape Liddon between April and early October. About 100 pairs of Black Guillemots nest around Cape Liddon.

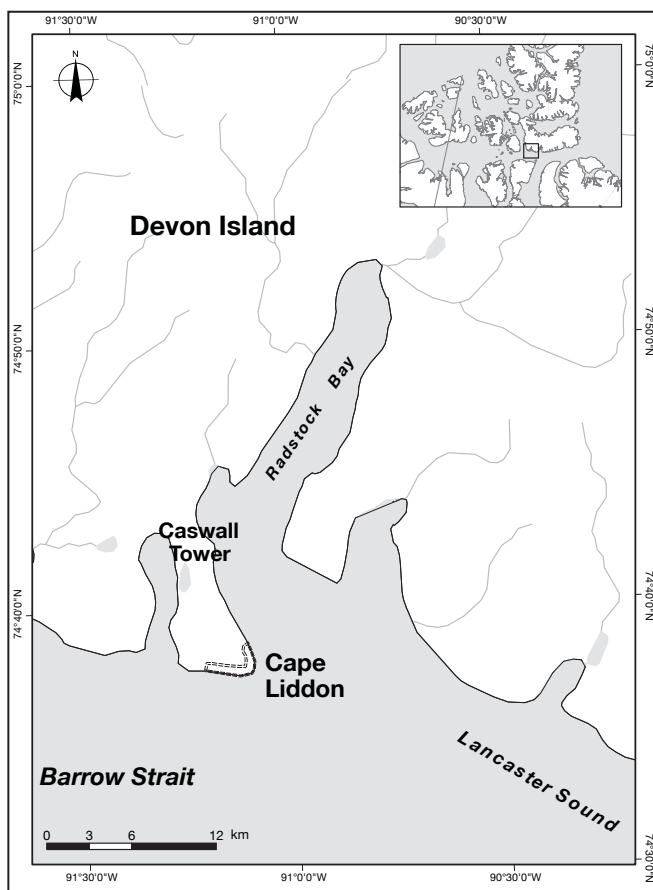
Radstock Bay is an important feeding area where Northern Fulmars, Black-legged Kittiwakes, Thick-billed Murres, and Black Guillemots from elsewhere in Lancaster Sound (e.g., Prince Leopold Island) congregate between August and October (Bradstreet 1979; Gaston and Nettleship 1981; Fisheries and Oceans Canada 1999).

The waters around Cape Liddon are also important for marine mammals, notably beluga and polar bear (Schweinsburg et al. 1982; Dickins et al. 1990; Riewe 1992; Fisheries and Oceans Canada 1999). There are walrus haul-outs, and this is an important hunting area for the community of Resolute Bay (Qausuittuq), particularly for polar bears (Fisheries and Oceans Canada 1999). The southern shore of Devon Island (within 400 m of the tide line) is an important beluga migration route.

Sensitivities: The waters around Cape Liddon are considered to be of “moderate sensitivity” for oil spills, and Radstock Bay is of “high sensitivity” for oil spills (Dickins et al. 1990).

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). This area is also of increasing importance as a tourist destination for cruise ships (Hall and Johnston 1995; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Cape Liddon is an International Biological Programme Site (Site 2-15; Nettleship 1980), an Important Bird Area in Canada (NU059; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 8; Mallory and Fontaine 2004).



Location: 74°49'N, 96°21'W

Size: 1 km²

Description: Browne Island is located in western Barrow Strait about 12 km southwest of Cornwallis Island and is less than 50 km away from Resolute Bay (Qausuittuq). The southeastern coast has a narrow, gravel beach that lies below steep cliffs that are 200 m high. The plateau slopes to the north, and raised beaches of sand and gravel abound. Browne Island is often ice locked until August (Dickins et al. 1990), with open water available for only 5 weeks on average (Mallory and Fontaine 2004).

Biological value: In 1974, Browne Island supported a colony of approximately 2000 pairs of Black-legged Kittiwakes, or approximately 1% of the Canadian population. In 2003, 1692 birds were observed on nests (M.L. Mallory, unpubl. data). However, in 1975, only 500 pairs were present, perhaps related to a late ice year (Alliston et al. 1976). Further studies are needed to assess the effects of ice on annual patterns of colony occupation.

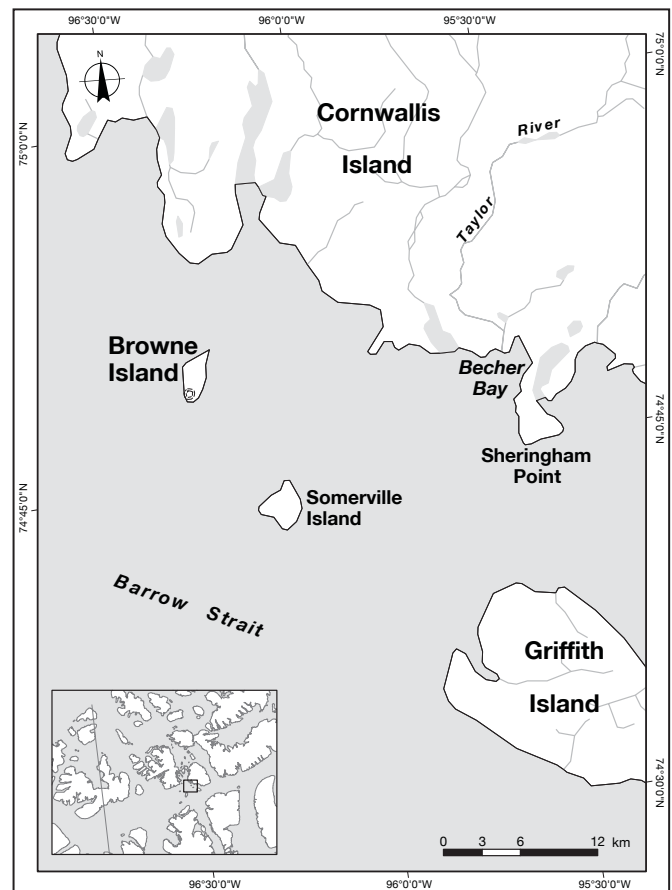
Thayer’s Gulls and Glaucous Gulls nest on the island in small numbers (Alliston et al. 1976); seven Glaucous Gull nests were occupied in a small colony on the northeast part of the island in 2003 (M.L. Mallory, unpubl. data). Kittiwakes use the area between mid-May and late September.

The most abundant marine mammals in the area are ringed seals and polar bears (Dickins et al. 1990; Riewe 1992).

Sensitivities: The waters around Browne Island are considered to be “moderately sensitive” to risk of oil spills from May through early October (Dickins et al. 1990). Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: None.

Status: Browne Island is a Key Marine Habitat Site in Nunavut (Site 7; Mallory and Fontaine 2004).



NU Site 15 – Prince Leopold Island

Location: 74°02'N, 90°00'W

Size: 324 km²

Description: Prince Leopold Island is situated in western Lancaster Sound at the junction of Prince Regent Inlet and Barrow Strait, approximately 13 km north of Cape Clarence, Somerset Island. The island is surrounded by imposing vertical cliffs composed of Silurian sandstone and limestone, up to 265 m above sea level (de Kemp 1999). Extensive scree slopes are located below the north and south cliffs, and 1-km-long gravel spits extend from the northeast and southeast corners of the island (Gaston and Nettleship 1981). Sparse vegetation occurs around the island (Woo and Zoltai 1977). Unlike some of the other sedimentary rock of high Arctic seabird colonies, the rock at Prince Leopold Island fractures in flat slabs, creating numerous nesting sites. The ice-free period around Prince Leopold Island lasts about 11 weeks in the east and eight weeks in the west, but varies annually (Dickins et al. 1990). The rich marine environment around this site is described in Mallory and Fontaine (2004).

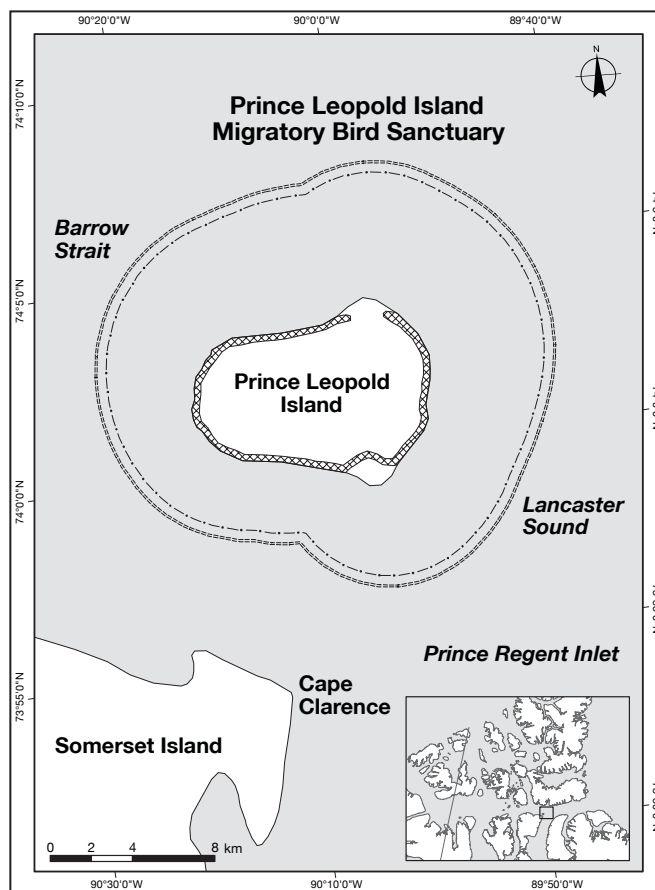
Biological value: Prince Leopold Island may be the most important multispecies seabird breeding site in the Canadian Arctic. The cliffs on the island support breeding Thick-billed Murres (86 000 pairs, Gaston and Hipfner 2000; estimated 100 000 pairs in 2003, A.J. Gaston, unpubl. data), Black-legged Kittiwakes (29 000 pairs), Northern Fulmars (62 000 pairs, Hatch and Nettleship 1998), and Black Guillemots (4000 pairs). These numbers represent 6%, 16%, 26%, and 5% of the Canadian populations of these species, respectively. Gaston et al. (2006) recently revised the fulmar estimate to 22 000 occupied breeding sites, or 11% of the Canadian population. Nesting occurs almost everywhere around the island, with murres concentrated on the east and northeast, fulmars around most of the island, kittiwakes on the north, and guillemots along the western stretches.

The island also supports 200 pairs of Glaucous Gulls (Nettleship 1980), although a more recent estimate (2002) puts the number of gull pairs at 75 (A.J. Gaston, pers. commun.). Nearby Cape Clarence also supports another 20 pairs of Glaucous Gulls and 200 pairs of Black Guillemots. This marine region is occupied by seabirds generally from early May to the end of September.

Prince Leopold Island has been an important site for seabird research (Gaston and Nettleship 1981; Hatch and Nettleship 1998; Gaston and Hipfner 2000; Gaston et al. 2005) and is an important site for ongoing seabird monitoring.

In addition to various seabirds, the Prince Leopold Island vicinity is also important for marine mammals, including beluga, bowhead whale, narwhal, walrus, ringed seal, bearded seal, and polar bear (Dickins et al. 1990; Riewe 1992; Fisheries and Oceans Canada 1999). The area is used by hunters from Resolute Bay (Qausuittuq).

Sensitivities: The waters to the east of Prince Leopold Island are considered to be “highly sensitive” to oil spills, whereas those to the west of the island are of “moderate sensitivity”



with regard to oil spills (Dickins et al. 1990). Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982) and are of increasing importance as tourist destinations for cruise ships and small aircraft (Hall and Johnston 1995; Wakelyn 2001). Changes in ship traffic may affect ice breakup patterns (Fisheries and Oceans Canada 1999). Prince Leopold Island is one of the most disturbed seabird colonies in Arctic Canada (Chardine and Mendenhall 1998). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: This key site lies within the Prince Leopold Island Migratory Bird Sanctuary, designated in 1995, and includes waters 5 km offshore from the high tide line. It is an International Biological Programme Site (Site 1-5; Nettleship 1980), an Important Bird Area in Canada (NU006; IBA Canada 2004), a UNESCO World Heritage Site (UNESCO 2005), and a Key Marine Habitat Site in Nunavut (Site 11; Mallory and Fontaine 2004).

Location: 73°14'N, 91°25'W

Size: 5.5 km²

Description: Batty Bay is a 10-km-long inlet on the eastern side of Somerset Island, which drains into Prince Regent Inlet. It is 5 km wide at its mouth, with tidal flats on the north and south coasts. The Silurian limestone cliffs (de Kemp 1999) around Batty Bay rise to 305 m, with extensive scree slopes.

Ice movement results in a major lead along the western side of Prince Regent Inlet as early as January and persisting into May (Smith and Rigby 1981), meaning that open water is available close to Batty Bay quite early in the year. The marine area around Batty Bay is described in Mallory and Fontaine (2004).

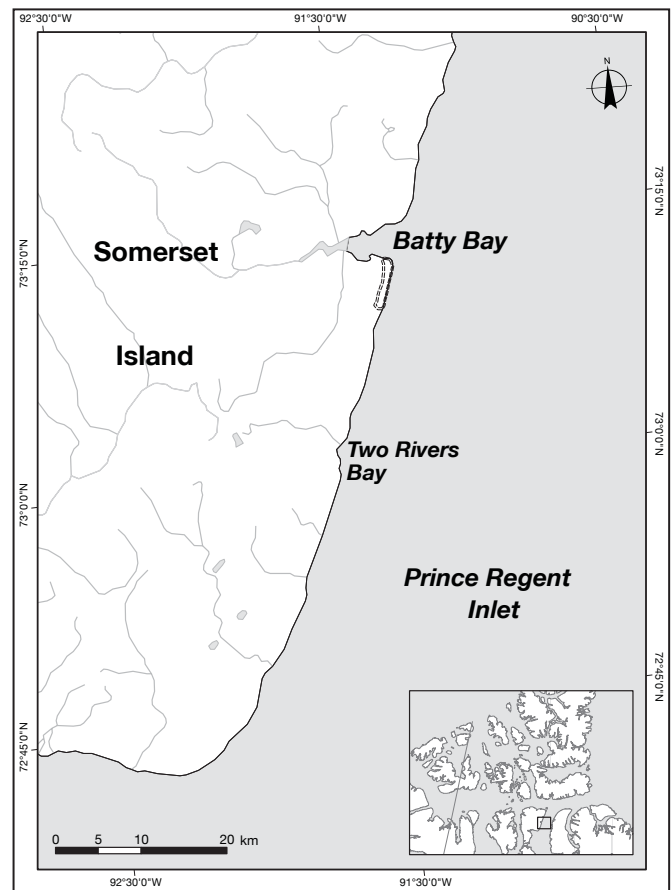
Biological value: In 1975, 2000 pairs of Black-legged Kittiwakes, or about 1% of the Canadian population, nested at Batty Bay. However, in 1974, only 350 pairs were present. Attendance at the colony is probably influenced by ice conditions in Prince Regent Inlet (Alliston et al. 1976). The size and consistency of use for this colony need to be reassessed to determine if the colony usually supports 1% of the Canadian population of kittiwakes.

Migrating King Eiders and Common Eiders (*S. m. borealis*) may stage along the east coast of Somerset Island in significant numbers (McLaren and Alliston 1985). This marine region is an important migratory corridor for beluga and is also used by walrus and polar bear (Sergeant and Hay 1979; Riewe 1992).

Sensitivities: Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Batty Bay is a Key Marine Habitat Site in Nunavut (Site 14; Mallory and Fontaine 2004).



NU Site 17 – Creswell Bay

Location: 72°45'N, 93°40'W

Size: 3.5 km²

Description: Creswell Bay is midway along the east side of Somerset Island and opens into Prince Regent Inlet. A barren limestone plateau comprises much of Somerset Island, but lowlands extend around Creswell Bay and Stanwell-Fletcher Lake. Extensive tidal flats occur on the bay's north shore, with low limestone hills and ridges on the south shore. The Union River drains Stanwell-Fletcher Lake through a low, rocky area. There are well-vegetated (sedge-dominated) thermokarst areas immediately north of Creswell River and north of Stanwell-Fletcher Lake.

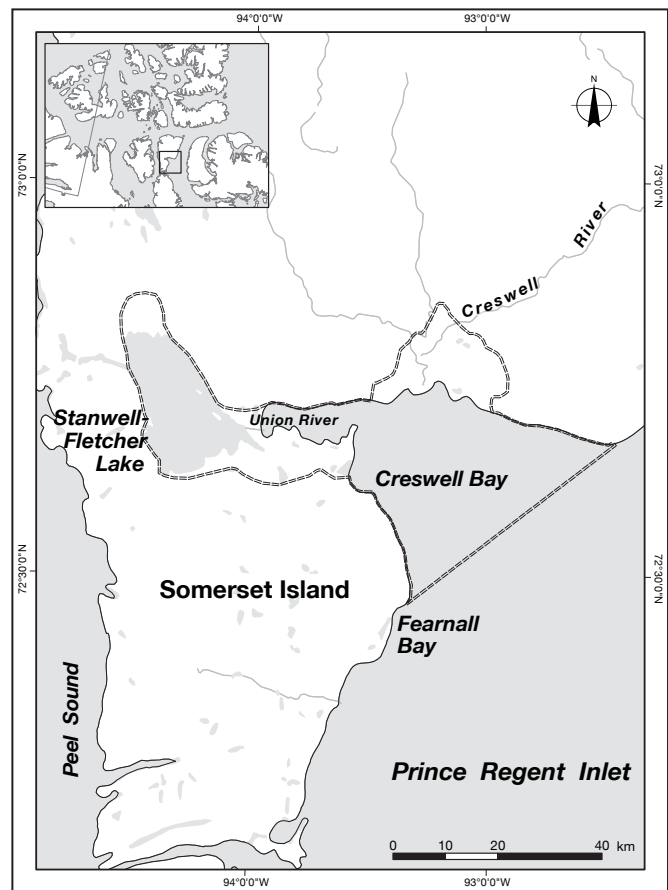
Archeological relics are abundant at Creswell Bay, attesting to the area's productivity and biological diversity.

Biological value: The lowlands around Creswell Bay and Stanwell-Fletcher Lake support a higher abundance and diversity of shorebirds than any other site north of 70°N (Alliston et al. 1976; Latour et al. 2005). Thirteen species have been observed in the area, and 11 are known to breed. Surveys conducted in 1995 and 1997 estimated a density of 35 shorebirds/km² for the area's most productive lowlands (Latour et al. 2005). In these areas alone (440 km²), there were an estimated 6700 White-rumped Sandpipers (2% of Canada's population), 3600 Red Phalaropes (0.4%), and 900 Buff-breasted Sandpipers (6% of the Canadian population) (Latour et al. 2005). Buff-breasted Sandpipers are listed by CWS as a species of high concern (Donaldson et al. 2000). Other breeding shorebird species include Black-bellied Plover, American Golden-Plover, Ruddy Turnstone, Baird's Sandpiper, Pectoral Sandpiper, Semipalmated Sandpiper, Sanderling, and Red Knot. Later in the summer, local birds and shorebirds from elsewhere gather to feed on benthic amphipods in the mudflats along the north shore of the bay. Maximum daily counts were 12 000 shorebirds during aircraft surveys (Alliston et al. 1976) and 6400 White-rumped Sandpipers and 1400 Sanderlings during ground surveys (Latour et al. 2005). These numbers, however, do not take into account the turnover of birds during the migration period and the value of this site to a larger number of individuals.

Large numbers of Greater Snow Geese are present in late summer. In 1974, 2700 moulting geese were counted, representing 2% of the Canadian population at that time. Since then, the Greater Snow Goose population has grown considerably, but the number of geese that currently use Creswell Bay is unknown.

King Eiders nest in the area (50–90 pairs in 1975). Over 7000 eiders staged along the coast in 1975 (>2% of the Canadian population). The thermokarst area along the Creswell River was used by 450–700 pairs of nesting Long-tailed Ducks, and 4800 moulted in Creswell Bay later in the season (Alliston et al. 1976).

Large numbers of Northern Fulmars and Black-legged Kittiwakes forage in Creswell Bay, and Peregrine Falcons nest in the area (Alliston et al. 1976; P.B. Latour, pers. obs.).



Muskoxen routinely use the lowlands north of Creswell Bay (Russell et al. 1979). Beluga whales calve in Creswell Bay, and small numbers of narwhals and bowhead whales are present during the summer. Creswell Bay is a summer retreat and a possible denning area for polar bears (Stirling et al. 1979).

Sensitivities: Disruption of natural drainage patterns and the melting of permafrost could alter the thermokarst lowland habitats. Nesting and moulting birds are sensitive to disturbance. Shorebirds, seaducks, and seabirds are sensitive to pollution in Creswell Bay.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential as marine shipping routes (DIAND 1982). Mineral exploration has occurred in the area. Creswell Bay is a popular destination for tourists wishing to view wildlife and fish at the Union River. Increased and unregulated tourism may lead to disturbance to nesting and staging birds, as well as damage to sensitive habitat.

Status: This key site is an Important Bird Area in Canada (NU062; IBA Canada 2004).

Location: 73°37'N, 87°45'W

Size: 12 km²

Description: This site consists of a large portion of the plateau on the northwestern Brodeur Peninsula, northern Baffin Island, about 150 km northwest of Arctic Bay. The peninsula is an area of limestone-rubble plateaus that are extensively intersected by ravines (Thomas and MacDonald 1987) and is composed of Silurian sandstone, limestone, and dolomite (de Kemp 1999). Most of the area is devoid of vegetation.

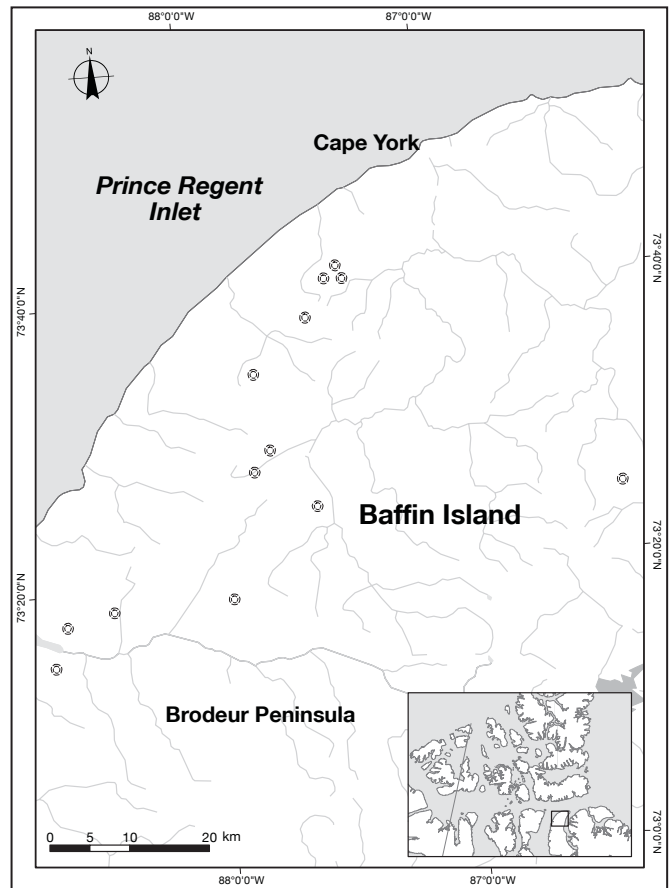
Biological value: The Brodeur Peninsula is a nesting area for the Ivory Gull, a rare bird in Canada (Thomas and MacDonald 1987; Alvo and MacDonald 1996). These colonies were found by Inuit many generations ago, and some were rediscovered in the early 1980s (Reed and Dupuis 1983). In the 1980s, between 560 and 580 adults were distributed among 10 colonies, which ranged in size from 12 to 180 birds. Hence, this area provided habitat for 23–24% of the known national Ivory Gull breeding population. Local Inuit knowledge suggested that declines had occurred in the number of Ivory Gulls near Arctic Bay (Mallory et al. 2003). In 2001–2003, helicopter surveys over these 10 former colonies found no breeding birds, but three new colonies were located farther inland, supporting about 90 birds (Gilchrist and Mallory 2005). It is not known whether these represent birds that moved inland from the former colonies or were colonies that existed previously, but outside of the former survey range (Thomas and MacDonald 1987). The number of breeding pairs likely fluctuates between years. These colonies represent about 20% of the estimated number of Ivory Gulls still breeding in Canada.

In July 2005, the Birds Subcommittee of COSEWIC reviewed the most recent data and agreed that the designation of the Ivory Gull should be upgraded from Special Concern to Endangered.

Sensitivities: Ivory Gull colonies may be susceptible to disturbance during the breeding season. Aircraft or human interferences could seriously jeopardize their breeding success. Pollution in the waters of Lancaster Sound and Admiralty Inlet, where the birds likely feed, could have serious negative impacts.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). Drilling activities and an increase in air or marine traffic could subject feeding and nesting areas to disturbance and pollution. As of 2003, two areas of diamond exploration were located within 5 km of extirpated or active Ivory Gull colonies.

Status: None.



NU Site 19 – Baillarge Bay

Location: 73°25'N, 84°30'W

Size: 7.5 km²

Description: Baillarge Bay is situated at the northeastern tip of Admiralty Inlet on northern Baffin Island, approximately 40 km north of the community of Arctic Bay. This part of the northern Baffin Island coastline is dominated by steep cliffs up to 610 m high, between Baillarge Bay and Elwin Inlet. Rocks of these cliffs are dominated by Cambrian and Ordovician sandstone, limestone, and dolomite (de Kemp 1999). The Baillarge Bay site is part of a large dissected plateau encompassing most of the northwestern Baffin Island (Lemon and Blackadar 1963). The nearby marine regions of Admiralty Inlet and Lancaster Sound are described in Mallory and Fontaine (2004).

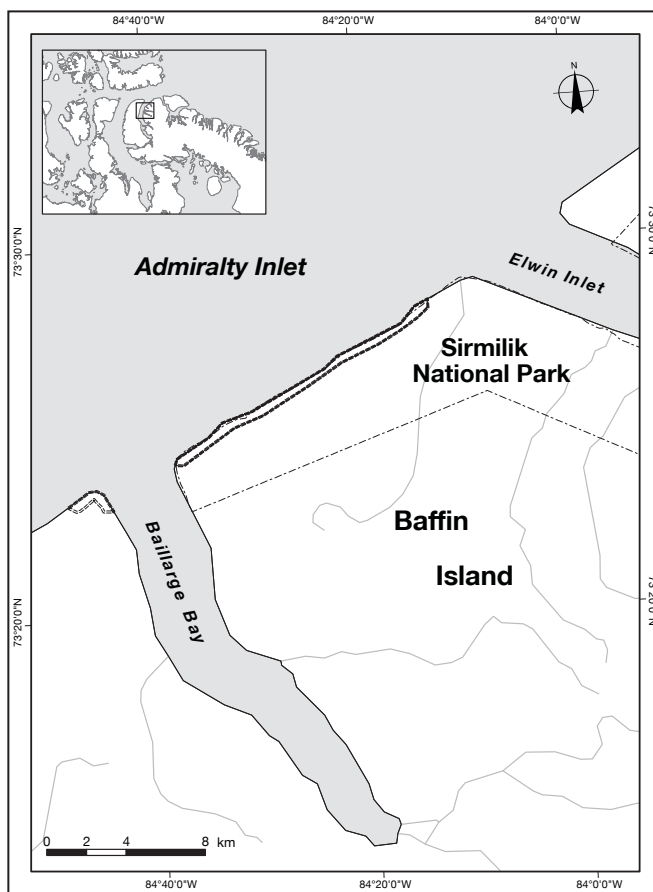
Biological value: A major Northern Fulmar colony, estimated at 30 000 pairs, breeds along 16 km of coast between Baillarge Bay and Elwin Inlet (Hatch and Nettleship 1998). This colony represents about 13% of the Canadian population of this species (Hatch and Nettleship 1998). However, the estimate is provisional and could be between 10 000 and 100 000 pairs (Nettleship 1980). Estimates from surveys in 2002 put the colony size at more than 23 000 occupied breeding sites (Gaston et al. 2006).

There are also about 50 pairs of Glaucous Gulls breeding at Baillarge Bay (A.J. Gaston, unpubl. data). Northern Fulmars use Baillarge Bay between April and early October. Northern Fulmars and Black Guillemots congregate at the floe edge along Admiralty Inlet and may congregate off the colony when fast ice disperses. Traditional Inuit knowledge indicates that many seabirds feed in Admiralty Inlet off Baillarge Bay (Riewe 1992).

The waters around Baillarge Bay are important for marine mammals, notably narwhal (Sergeant and Hay 1979), ringed seal, harp seal, and beluga (Dickins et al. 1990). Polar bears use the area as a summer retreat, concentrating in deep bays where the ice persists (Stirling et al. 1979).

Sensitivities: The waters around Baillarge Bay are considered to be of “moderate” offshore sensitivity to damage from oil spills through most of the year (Dickins et al. 1990). Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). This area is also of increasing importance as a tourist destination for cruise ships (Hall and Johnston 1995; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas. The lead/zinc mine at Nanisivik (40 km away) closed in 2003, so any further threats from mine tailings were reduced at that time.



Status: Baillarge Bay is an International Biological Programme Site (Site 7-7; Nettleship 1980), an Important Bird Area in Canada (NU067; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 13; Mallory and Fontaine 2004). The terrestrial portion of the majority of the colony (between Baillarge Bay and Elwin Inlet) is part of Sirmilik National Park, established in 2001.

Location: 71°15'N, 85°50'W

Size: 10 323 km²

Description: This site encompasses the coastal zone and surrounding lowlands of Bernier Bay, Berlinguet Inlet, and southern Admiralty Inlet on northwestern Baffin Island.

The shores of the bays and inlets are generally low, but hills rising to elevations of 150–300 m occur near the coast in some areas. Numerous small lakes are found in the coastal areas south of Admiralty Inlet and in the Moffet Inlet region. The area is predominantly a gently rolling, coastal plain of very low relief. Lowland vegetation complexes of sedge–grass and tundra polygons occur in the river valleys.

Biological value: After Bylot Island, this area, including Jungersen Bay, is probably the second most important breeding area for Greater Snow Geese (A. Reed, pers. commun., in Giroux et al. 1984). Heyland and Boyd (1970) reported that a major portion of the Canadian breeding population utilizes the area. A partial survey of the site in July 1969 revealed 6700 Greater Snow Geese. In July 1979, Reed et al. (1980) recorded over 2000 Snow Geese in one section of the site. A more complete survey in August 1983 disclosed 14 700 Greater Snow Geese, which was 7% of the North American population at that time (Reed and Dupuis 1980).

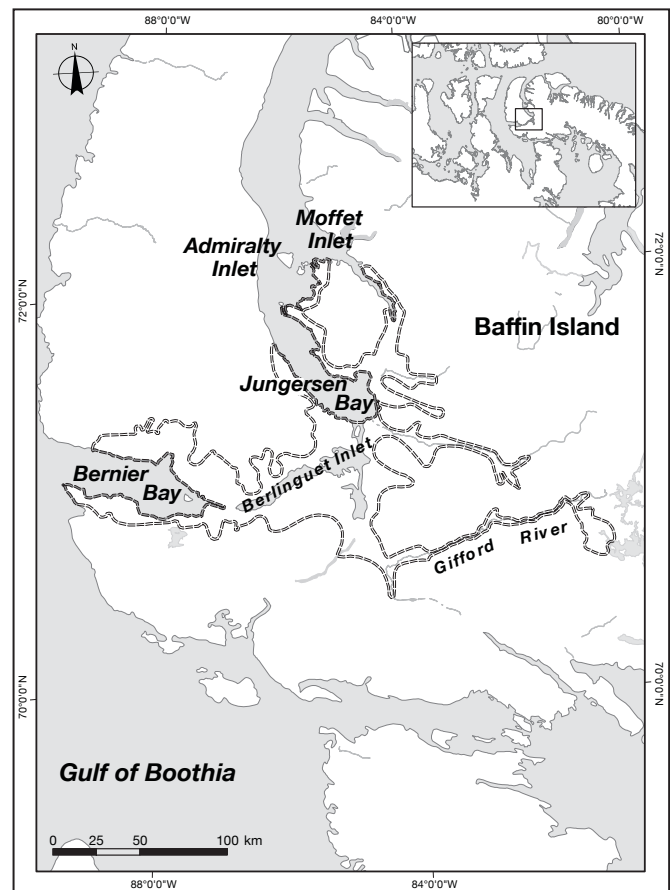
Broods of Canada Geese (now Cackling Goose), which represented the most northeasterly breeding records of this species, were observed in 1980 (Reed and Dupuis 1980) and 1983 (A. Reed, pers. commun., in Giroux et al. 1984). Terns, gulls, fulmars, seaducks, and Peregrine Falcons nest and feed within the area (Kemper 1976; Reed and Dupuis 1980).

The waters of the area are used by ringed seal, bearded seal, and polar bear. The islands of Admiralty Inlet are important as a summer retreat for polar bears (Kemper 1976).

Sensitivities: Lowland habitats and other permafrost environments are susceptible to terrain disturbance and degradation, and marine waters are susceptible to pollution. Waterfowl and other migratory birds are sensitive to disturbance during the nesting, brood-rearing, moulting, and migration periods.

Potential conflicts: Lancaster Sound, Barrow Strait, and Prince Regent Inlet have potential to become marine shipping routes and areas of hydrocarbon exploration and development (DIAND 1982). Drilling activities and an increase in air or marine traffic could subject feeding and nesting areas to disturbance and pollution.

Status: This key site is an Important Bird Area in Canada (NU066; IBA Canada 2004).



NU Site 21 – Cape Hay

Location: 73°45'N, 80°22'W

Size: 3.5 km²

Description: Cape Hay is located near the northwestern tip of Bylot Island at the eastern entrance to Lancaster Sound. The Cape is approximately 140 km northwest of the community of Pond Inlet (Mittimatalik). The area around Cape Hay consists of Precambrian dolomite (Jackson and Davidson 1975) and is adjacent to the Byam Martin Mountains, which reach up to 1900 m above sea level and are largely covered by glaciers. At Cape Hay, vertical cliffs rise 60–460 m above sea level.

Open water is typically present for 17 weeks off Cape Hay, but this varies annually (Dickins et al. 1990). The marine environment of Cape Hay is summarized in Mallory and Fontaine (2004).

Biological value: Approximately 140 000 pairs of Thick-billed Murres (Gaston and Hipfner 2000) and 20 000 pairs of Black-legged Kittiwakes, each representing more than 10% of the Canadian population, nest at Cape Hay. These counts are lower than the original estimates (Tuck and Lemieux 1959; Tuck 1961), and it is unclear whether a population decline has occurred. Nonetheless, Cape Hay is one of the five largest Thick-billed Murre colonies in Canada (Gaston and Hipfner 2000). Johnson et al. (1976) found that most murres from Cape Hay foraged within 30 km of the colony, although some were up to 60 km away.

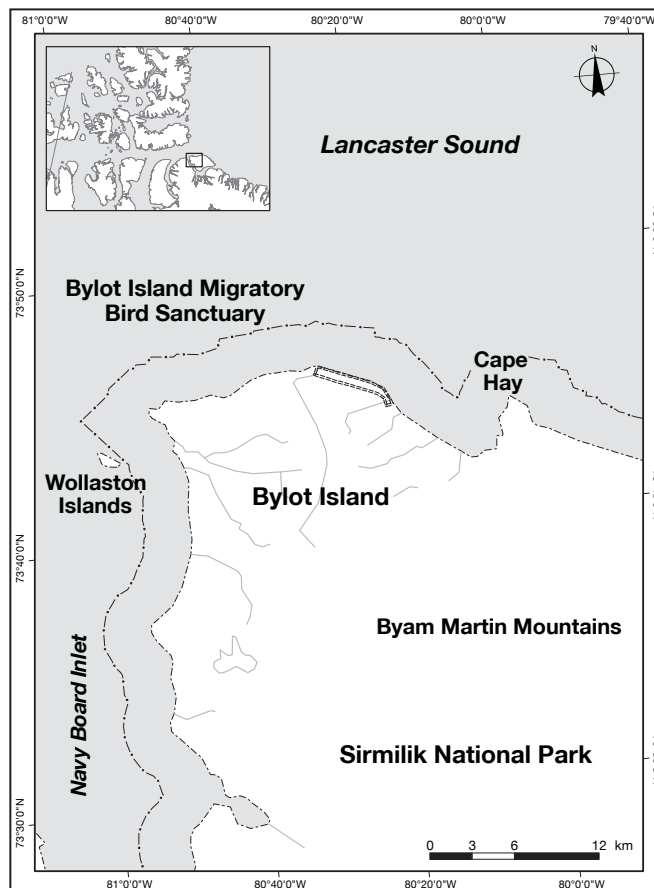
The ice edge around the Cape is also a critical staging and feeding area for murres and kittiwakes migrating to colonies farther west in Lancaster Sound (McLaren 1982). Although they do not nest at Cape Hay, thousands of Northern Fulmars use ice edges around Cape Hay for feeding during migration (McLaren 1982). Hundreds of Black Guillemots also feed and stage off Cape Hay in May and June (McLaren 1982). This marine region is occupied by seabirds from mid-April through October.

The marine area around Cape Hay is also important for many mammals, especially narwhal, harp seal, and beluga (Dickins et al. 1990). Bowhead whales move past this cape during migration (Riewe 1992; Fisheries and Oceans Canada 1999). Polar bears are numerous in the Lancaster Sound area and use the northern coast of Bylot Island for maternity denning and as a summer retreat (Schweinsburg et al. 1982).

Inuit from Pond Inlet hunt marine mammals along the northern shore of Bylot Island (Fisheries and Oceans Canada 1999).

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas. The shoreline area around Cape Hay is listed as being of “high sensitivity” from May to October for impact of oil spills. The offshore area is listed as being of “moderate sensitivity” from September through April, but of “high sensitivity” from May through August (Dickins et al. 1990).

Potential conflicts: Lancaster Sound, western Baffin



Bay, and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979; DIAND 1982). There is also increasing activity with cruise ships or outfitters in boats in the eastern Arctic (Marshall Macklin Monaghan Ltd. 1982; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Cape Hay is an International Biological Programme Site (Site No. 7-5; Nettleship 1980), an Important Bird Area in Canada (NU004; IBA Canada 2004), and a Key Marine Habitat Site (Site 12; Mallory and Fontaine 2004). The Cape is part of Bylot Island Migratory Bird Sanctuary, established in 1965, and part of Sirmilik National Park, established in 2001.

Location: 72°55'N, 79°30'W

Size: 1670 km²

Description: Bylot Island is situated northeast of Baffin Island at the entrance to Lancaster Sound and 15 km north of Pond Inlet (Mittimatalik). Most of the island consists of the Precambrian metamorphic rock of the Byam Martin Mountains, which reach a maximum height of 1900 m above sea level. Numerous glaciers radiate towards the sea from this central mountain chain.

In the southwest corner of the island, a rolling outwash plain cut by glacial rivers rises 60 m above the water and slopes gradually upward to the mountains. Dominant vegetation types are low shrub–herb tundra and shrub–sedge tundra (Zoltai et al. 1983). Heath, willow, and flowering plants are common along ravines and river valleys.

Biological value: This lowland is a major breeding ground for Greater Snow Geese. Nesting colonies of 25–300 pairs are scattered throughout the area. The population size has increased over the years. Estimated numbers were 15 000 geese in 1957 (Lemieux 1959), but numbers increased to 25 500 adults and 26 500 young in 1983, 31 700 adults and 41 400 young in 1988, and 69 500 adults and 86 500 young in 1993 (Reed 1983; Reed et al. 1992; A. Reed, pers. commun.). Numbers subsequently declined to 60 700 adults plus 59 100 young in 1998 and 47 700 adults and 58 000 young in 2003. Adults returning to Bylot Island each year have constituted, on average, 10% of the spring population of Greater Snow Geese.

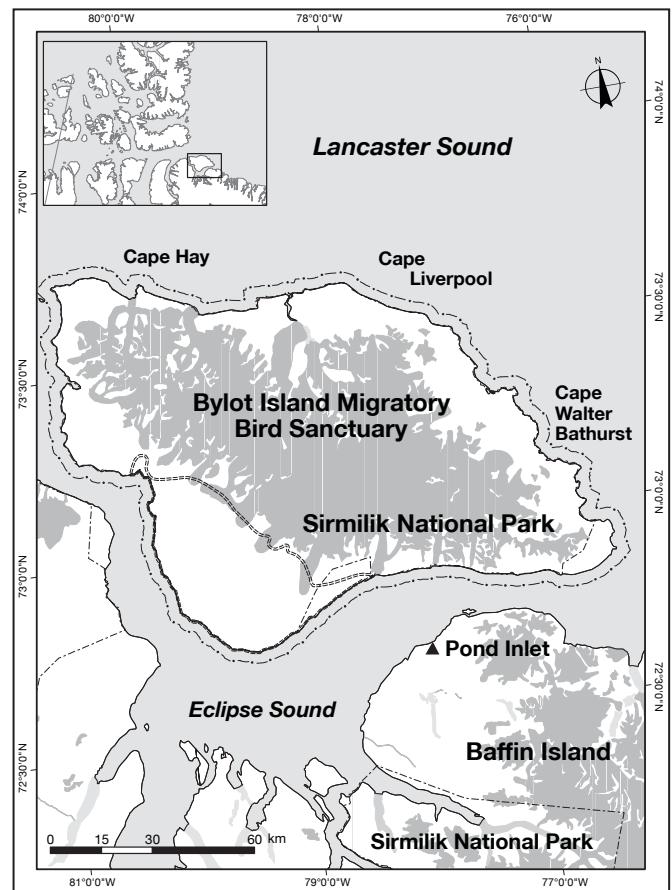
Red-throated Loons, Long-tailed Ducks, King Eiders, and shorebirds also breed in this area, but their numbers have not been assessed.

Bylot Island is a major summer retreat for polar bears in the Lancaster Sound area (Schweinsburg et al. 1982).

Sensitivities: Greater Snow Geese are sensitive to disturbance and to pollution of nearshore waters. Increased numbers of Greater Snow Geese could impact the lowland habitats on Bylot Island.

Potential conflicts: Increased tourist-related activities could be a source of disturbance (Marshall Macklin Monaghan Ltd. 1982).

Status: This site occurs within Bylot Island Migratory Bird Sanctuary and Sirmilik National Park. It is an Important Bird Area in Canada (NU013; IBA Canada 2004) and an International Biological Programme Site (Site 7-4; Beckel 1975).



NU Site 23 – Cape Graham Moore

Location: 72°55'N, 76°05'W

Size: 2.5 km²

Description: Cape Graham Moore is situated on the southeastern tip of Bylot Island at the eastern entrance to Lancaster Sound. The Cape is approximately 70 km northeast of the community of Pond Inlet (Mittimatalik). The southeastern portion of Bylot Island consists of Precambrian metamorphic, sedimentary, and volcanic rock (de Kemp 1999), including the Byam Martin Mountains, which reach up to 1900 m above sea level. Most of Bylot Island is covered in glaciers. At Cape Graham Moore, the steep cliffs rise 150 m from the sea (Jackson et al. 1975).

Recurring offshore leads form in sea ice off Cape Graham Moore (Smith and Rigby 1981), with a relatively narrow landfast ice band (although this may vary greatly between years; McLaren 1982), so that the floe edge is usually not far from shore (Dickins et al. 1990). The marine region is described in Mallory and Fontaine (2004).

Biological value: Approximately 30 000 pairs of Thick-billed Murres (Gaston and Hipfner 2000) and 3000 pairs of Black-legged Kittiwakes, representing 2.1% and 1.5% of the Canadian populations, respectively, nest about 7 km north of Cape Graham Moore. However, the colonies have not been visited for many years, and recent surveys are needed to update these data.

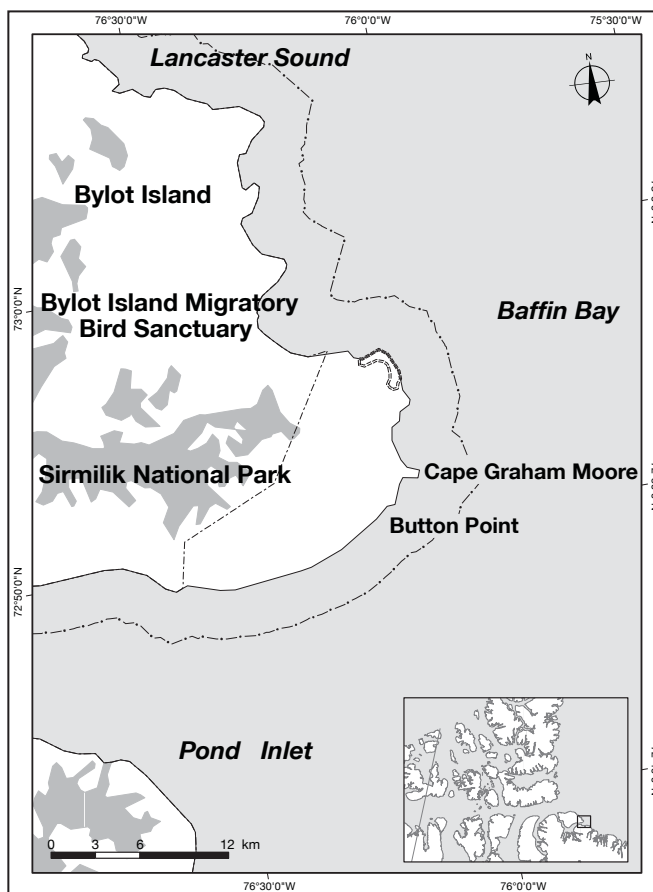
The ice edge near Cape Graham Moore supports numerous seabirds during migration (summarized in Mallory and Fontaine 2004), with as many as 18 species using this site (Bradstreet 1982). This marine region is occupied by seabirds from mid-April through October (Riewe 1992).

The marine area around Cape Graham Moore is also important for many marine mammals, especially narwhal, ringed seal, harp seal, beluga, and polar bear (Bradstreet 1982). Bowhead whales move past this cape during migration (Riewe 1992; Fisheries and Oceans Canada 1999).

A traditional seasonal hunting camp is located at Button Point, a few kilometres southwest of Cape Graham Moore (Riewe 1992). From this site, Inuit hunt bears and seals at the nearby floe edge (Fisheries and Oceans Canada 1999) and also collect murre eggs.

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas. The shoreline area around the Cape is listed as being of “extreme sensitivity” from May to October for impact of oil spills. The offshore area is listed as being of “moderate sensitivity” from September through April, but of “high sensitivity” from May through August (Dickins et al. 1990).

Potential conflicts: Lancaster Sound, western Baffin Bay, and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979; DIAND 1982). There is also increasing activity by cruise ships and local outfitters in the eastern Arctic



(Marshall Macklin Monaghan Ltd. 1982; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Cape Graham Moore is an International Biological Programme Site (Site 7-5; Nettleship 1980), an Important Bird Area in Canada (NU068; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 15; Mallory and Fontaine 2004). The Cape is part of the Bylot Island Migratory Bird Sanctuary, established in 1965, and is located just south of the boundary of Sirmilik National Park, established in 2001.

Location: 71°50'N, 74°30'W

Size: 8 km²

Description: Buchan Gulf is situated on the eastern coast of north Baffin Island, about 200 km southeast of Pond Inlet (Mittimatalik). The northern coast of the Gulf is notable for two promontories, The Bastions and The Mitres. The region is part of the Davis Highlands, a glacier-covered mountain belt of the Canadian Shield, penetrated by long fiords. The area is underlain by Precambrian gneiss (Jackson et al. 1975; de Kemp 1999).

Shoreleads form in sea ice near the Gulf as early as February, but ice breakup may not occur until July, and freeze-up begins in late October. A description of the marine zone around Buchan Gulf is in Mallory and Fontaine (2004).

Biological value: Buchan Gulf supported approximately 25 000 pairs of Northern Fulmars, about 12% of the Canadian population of this species, along the 22 km of cliffs in the 1970s (Nettleship 1980). New surveys are needed to confirm these estimates. This fulmar colony is almost totally composed of light-phase birds, anomalous among eastern Canadian Arctic fulmar colonies (Hatch and Nettleship 1998). Fulmars occupy the colony from April through September each year.

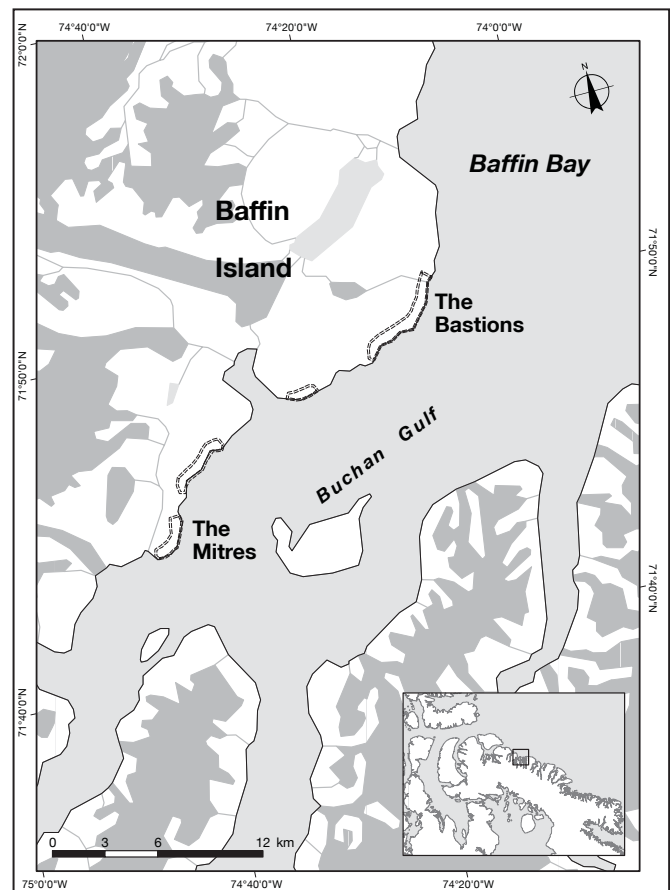
Nearby marine waters support important numbers of Black Guillemots, King Eiders, Common Eiders (*S. m. borealis*), Thick-billed Murres, and Dovekies (McLaren 1982; McLaren and McLaren 1982). The extent to which these species use regions immediately adjacent to the colony requires further study. This marine region is occupied by seabirds from mid-April through October (Riewe 1992).

The area around Buchan Gulf is also important for many marine mammals, especially narwhals, ringed seals, and polar bears, which use parts of this area for maternity denning (Riewe 1992).

Sensitivities: Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Baffin Bay and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979; DIAND 1982). This area is also of increasing importance as a tourist destination for cruise ships (Hall and Johnston 1995; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Buchan Gulf is an International Biological Programme Site (Site 7-11; Nettleship 1980), an Important Bird Area in Canada (NU069; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 17; Mallory and Fontaine 2004).



NU Site 25 – Scott Inlet

Location: 71°03'N, 71°08'W

Size: 3 km²

Description: Scott Inlet is located on the east coast of Baffin Island, about 120 km north of Clyde River (Kangiqtuqaapik). Scott Island, approximately 11 km long and towering 600 m high, is in the centre of Scott Inlet, which further subdivides into Gibbs and Clark fiords. Precipitous cliffs of primarily Precambrian gneiss rise up to 365 m along the southern coastline of Scott Island and the adjacent mainland (de Kemp 1999). Ice caps and snowfields cover much of the surrounding mainland. The marine region around Scott Inlet is dominated by ice much of the year, but shore leads do open in this area, providing open water access and migration routes for marine wildlife (Smith and Rigby 1981).

Biological value: Scott Inlet initially was thought to support approximately 25 000 pairs of Northern Fulmars on the coastal region south of Scott Island (Nettleship 1980), but this estimate was revised to 10 000 pairs from a 1986 survey (Hatch and Nettleship 1998). This represents about 5% of the Canadian population of this species. This fulmar colony is almost totally composed of light-phase birds, anomalous among eastern Canadian Arctic fulmar colonies (Hatch and Nettleship 1998).

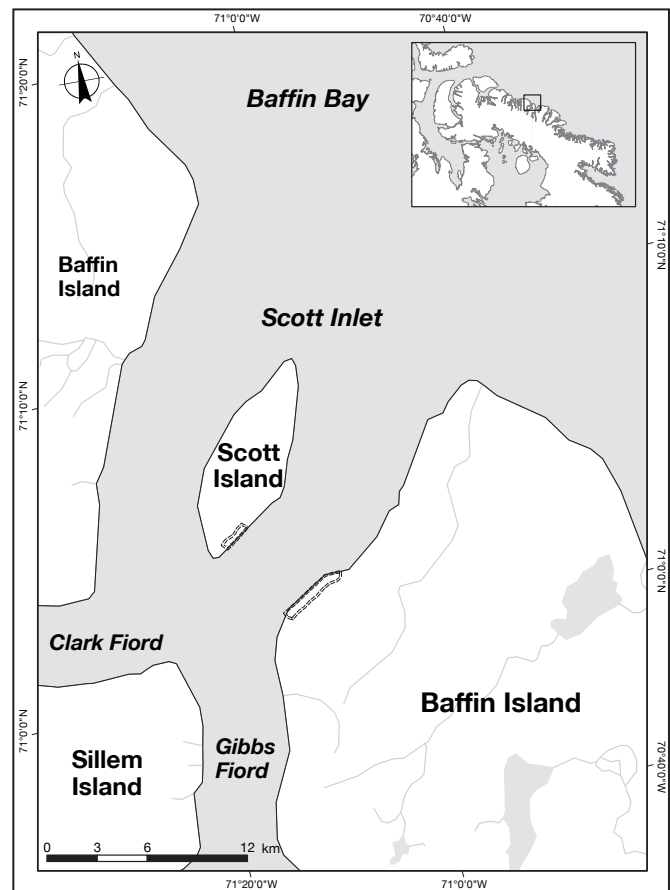
Approximately 100 pairs of Glaucous Gulls nest in two colonies on southwest Scott Island (Nettleship 1980). A few thousand Black Guillemots winter in open-water areas of northwest Baffin Bay (Renaud and Bradstreet 1980), and some of these birds may nest near Scott Inlet (McLaren 1982). This marine region is occupied by seabirds from mid-April through October (Riewe 1992).

The marine area around Scott Inlet is also important for many mammals, including narwhal, beluga, harp seal, bearded seal, ringed seal, and polar bears, which use parts of this area for maternity denning (Riewe 1992).

Sensitivities: Seabirds are sensitive to disturbance at their colonies and to the pollution of offshore waters.

Potential conflicts: Baffin Bay and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979). This area is also of increasing importance as a tourist destination for cruise ships (Hall and Johnston 1995; Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Scott Inlet is an International Biological Programme Site (Site 7-8; Nettleship 1980), an Important Bird Area in Canada (NU070; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 18; Mallory and Fontaine 2004).



Location: 69°02'N, 67°23'W

Size: 17 km²

Description: Abbajalik and Ijutuk are two small islands in Home Bay off the east coast of Baffin Island, approximately 75 km north of Auyuittuq National Park. Qikiqtarjuaq (Broughton Island), the nearest community, is located about 130 km southeast of this site.

Abbajalik Island is located close to the spring floe edge. It narrows considerably in the middle, with the east end featuring bouldery terrain (Finley and Evans 1984). The location of Ijutuk Island is tentative, and a description is not available. However, both islands lie in a region of Precambrian metasedimentary rock (de Kemp 1999).

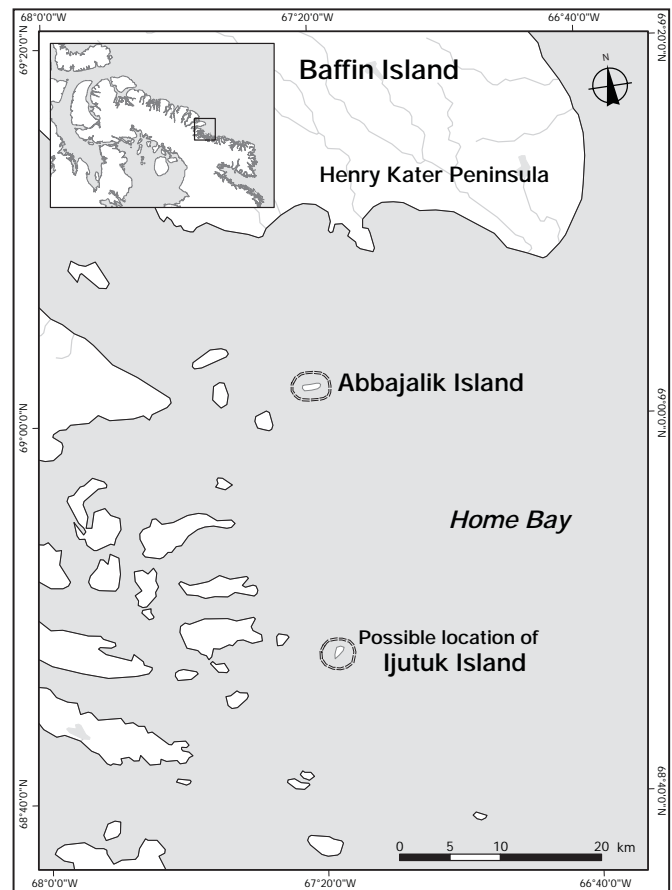
Biological value: Abbajalik Island and Ijutuk Island are the only reported breeding sites for Dovekies in Canada (Finley and Evans 1984; Nettleship and Evans 1985). Finley and Evans (1984) were informed of a colony on Abbajalik Island by A. Qaqqasiq (pers. commun., in Finley and Evans 1984); all three visited the site on 20 August 1983. Among the boulders at the east end of the island, they found two addled eggs and two chicks, one of which was near fledging. Several small flocks of adults were also seen flying about the island. The authors suspected that most chicks would have fledged by the time of their visit; peak fledging occurs in mid-August in northwest Greenland, where millions of Dovekies nest (Roby et al. 1981). Enhanced growth of vegetation and nitrophilous lichens, coupled with the authors' find of an ancient baleen Dovekie snare, attested to the past use of the colony.

Ijutuk Island was not visited by Finley and Evans (1984); however, it was indicated to them that the colony there was larger than the one at Abbajalik Island (A. Qaqqasiq, pers. commun., in Finley and Evans 1984). Only a tentative location could be given by the authors. More recent inquiries about these colonies indicated that they were quite well known to the local community, but were difficult to reach due to the pattern of ice breakup (M.L. Mallory, pers. obs.). Based on the above observations and studies in Greenland, Dovekies likely occupy the colonies from early May to late August (Finley and Evans 1984; Harris and Birkhead 1985).

Approximately 500 Arctic Terns along with some Common Eiders nest on Abbajalik Island (Finley and Evans 1984). Studies are needed to determine the size of colonies at both islands and to investigate any other potential sites in the region.

Sensitivities: Auks in general are sensitive to human, airplane, and boat disturbance at the colony. Pollution in Davis Strait may affect feeding areas.

Potential conflicts: Lancaster Sound and vicinity and western Baffin Bay and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd.



1979; DIAND 1982). Drilling activities and an increase in air or marine traffic could subject feeding and nesting areas to disturbance and pollution.

Status: None.

NU Site 27 – Qaulluit (Cape Searle)

Location: 67°14'N, 62°28'W

Size: 1 km²

Description: Qaulluit (Inuktitut for fulmars) was formerly known as the Cape Searle key terrestrial habitat site (Alexander et al., 1991). Cape Searle is located on the northeastern tip of Qaulluit Island in Merchants Bay, eastern Baffin Island, approximately 100 km southeast of Qikiqtarjuaq (Broughton Island) and just north of the Cumberland Peninsula. The rock of the island is a Precambrian cap overlying volcanic sediments (Kidd 1953; de Kemp 1999). The two rock towers of Cape Searle rise 430 m from the ocean. The sides of the towers are orange with *Caloplaca* lichen, and the flat tower surfaces are luxuriant in graminoid vegetation.

Landfast ice in Merchants Bay and between Qaulluit and Padloping islands generally forms in late October and remains through July. However, leads form close and parallel to shore in April, creating a close floe edge (Smith and Rigby 1981). The nearby marine region is described in Mallory and Fontaine (2004).

Cape Searle is close to the former community of Padloping Island (a U.S. Coast Guard Station) and the Distant Early Warning (DEW line) site on Durban Island. There are several archeological sites on Qaulluit Island.

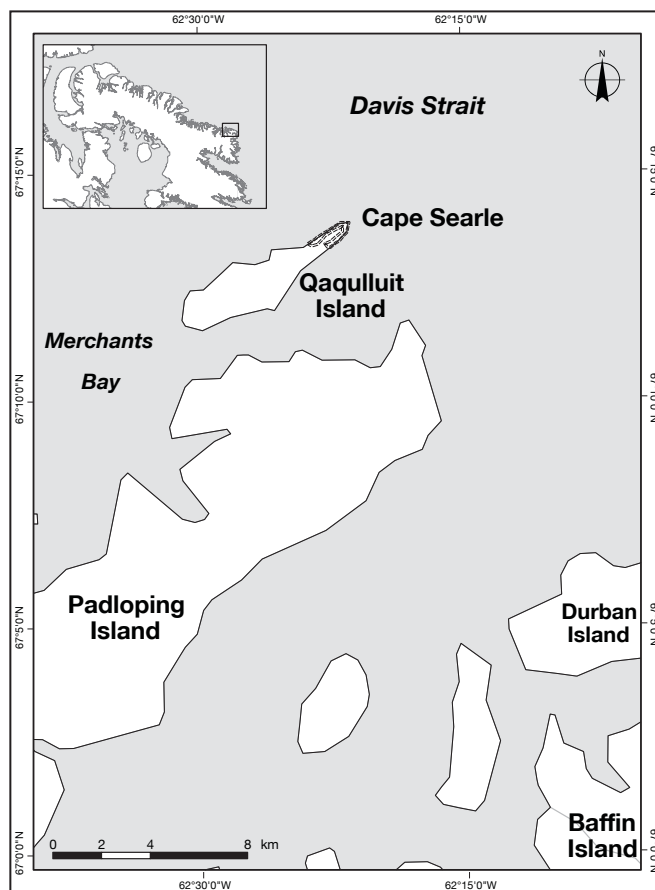
Biological value: Cape Searle (Qaulluit) was considered to be Canada's largest colony of Northern Fulmars, at approximately 100 000 pairs (Nettleship 1980). However, this estimate was based on a single survey from 1973. Wynne-Edwards (1952) had previously estimated at least 200 000 fulmars at the site. Recent survey estimates (2001) place the colony size at approximately 44 000 occupied breeding sites (Mallory and Gaston 2005; Gaston et al. 2006). If this estimate is accurate, the Qaulluit colony represents approximately 22% of the Canadian population. Glaucous Gulls, Iceland Gulls, and Black Guillemots are also numerous here (Nettleship 1980).

This marine area is also important for many marine mammals, especially walrus and ringed seal.

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas.

Potential conflicts: Western Baffin Bay and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979). There is also increasing activity by cruise ships in the eastern Arctic (Wakelyn 2001). Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Cape Searle is an International Biological Programme Site (Site 7-6; Nettleship 1980), an Important Bird Area in Canada (NU003; IBA Canada 2004), and a



Key Marine Habitat Site in Nunavut (Site 21; Mallory and Fontaine 2004). The community of Qikiqtarjuaq is working with CWS to create a National Wildlife Area for Qaulluit.

Location: 66°56'N, 61°46'W

Size: 2 km²

Description: Akpait was formerly known as the Reid Bay key terrestrial habitat site (Alexander et al. 1991). It is situated approximately 130 km southeast of Qikiqtarjuaq (Broughton Island) and 37 km northeast of Cape Dyer, on the eastern tip of the Cumberland Peninsula of Baffin Island. It is a promontory overlooking Akpait Fiord. The location of the colonies is known as “The Minarets” to seabird researchers (Gaston and Smith 1987).

The promontory is split by a small fiord, with the bird colonies on the southern side. The area is divided into steep headlands that rise dramatically to 915 m above sea level. The south headland is composed of a complex series of steep rock pinnacles and ridges bordered by a high talus slope and beach. Like Cape Searle, the rock of the island is of Precambrian sedimentary composition (de Kemp 1999). Rocks and islets protrude from the sea surface just offshore. Ice covers the fiords between October and July, but leads along the shore appear in April (Smith and Rigby 1981). The floe edge is typically close to Reid Bay (Mallory and Fontaine 2004).

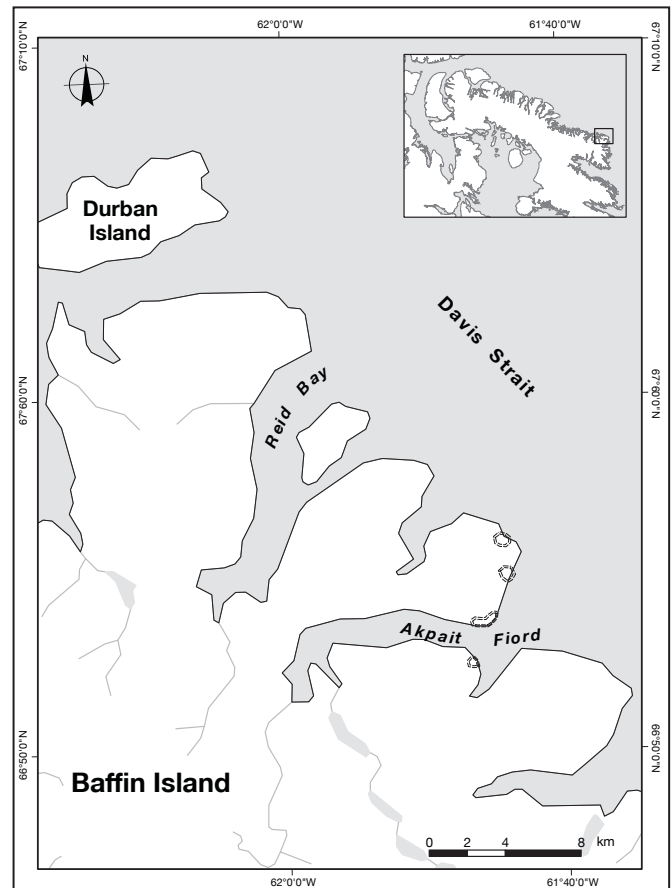
Biological value: Akpait is one of Canada’s largest Thick-billed Murre colonies, estimated at 133 000 pairs, or about 10% of the Canadian population in 1985 (Gaston and Smith 1987), somewhat smaller than the original estimate of 200 000 pairs (Nettleship 1980). Nonetheless, it is one of the five largest Thick-billed Murre colonies in Canada (Gaston and Hipfner 2000). Murres from Akpait have been observed up to 10 km offshore from the colony north to Broughton Island and are found regularly just north of Cape Searle (M.L. Mallory, unpubl. data). Northern Fulmars occupying about 20 000 breeding sites, or 10% of the Canadian population, also breed at Akpait (Gaston et al. 2006).

About 1200 pairs of Black-legged Kittiwakes nest at the site (Gaston and Smith 1987). Glaucous Gulls and Black Guillemots also breed here (Nettleship 1980). Inuit traditional knowledge suggests that Atlantic Puffins occur at Akpait (M.L. Mallory, unpubl. data), although they have not been reported in CWS surveys (Nettleship 1980; Gaston and Smith 1987). This marine region is used by seabirds from mid-April through October (Wynne-Edwards 1952).

This marine area is also important for many marine mammals, especially walrus, ringed seal, bearded seal, harp seal, and polar bear (Wynne-Edwards 1952; Stirling et al. 1980; Riewe 1992).

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas.

Potential conflicts: Western Baffin Bay and Davis Strait have potential to become marine shipping routes and areas of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979). There is also increasing activity by cruise ships in the eastern Arctic (Wakelyn 2001).



Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Reid Bay is recognized as an International Biological Programme Site (Site 7-9; Nettleship 1980), an Important Bird Area in Canada (NU072; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 21; Mallory and Fontaine 2004). The community of Qikiqtarjuaq is working with CWS to create a National Wildlife Area for Akpait.

NU Site 29 – Western Cumberland Sound Archipelago

Location: 65°30'N, 67°05'W

Size: 9327 km²

Description: Western Cumberland Sound is a rough coastline penetrated by many fiords and bays and dotted with numerous small islands. The key habitat site is composed of the many cliff faces and islands on the coast, between Clearwater Fiord and Chidliak Bay, and also in the Leybourne Islands. Pangnirtung is located 100 km to the northeast. Rocks of this region are principally Precambrian granite and gneiss (de Kemp 1999).

In western Cumberland Sound, landfast ice usually forms by late October and may persist until the following August, although leads and polynyas may form around islands during ice breakup. The marine environment near Cumberland Sound is summarized in Mallory and Fontaine (2004).

Biological value: Several thousand Common Eiders (*S. m. borealis*) concentrate along the coasts and fiords of Cumberland Sound during August and September (MacLaren Atlantic Inc. 1978b). The breeding population in Cumberland Sound is unknown, but likely represents 1% of the *borealis* population in Canada. Over 1000 Black Guillemots were surveyed in Cumberland Sound in August 1977 (MacLaren Atlantic Inc. 1978a), representing 1.3% of the Canadian population.

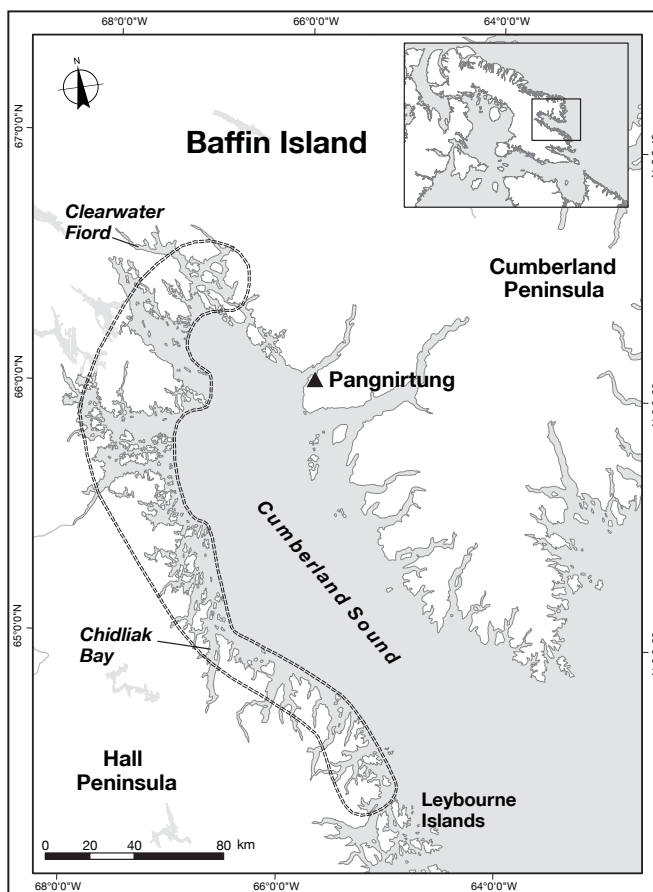
Hundreds of Iceland Gulls (*L. g. kumlieni*) are found in and around the mouth of the Sound in August. The islands of western Cumberland Sound support the largest breeding concentration of Iceland Gulls in Canada (Riewe 1992; A.J. Gaston, pers. commun.). Surveys in 1973 and 1985 documented over 200 Iceland Gull colonies, representing 12 000 pairs (10% of which were probably Glaucous Gulls; CWS, unpubl. data). Snell (2002) estimated a Canadian population of 5000 pairs (which included only an estimate of Cumberland Sound populations); thus, the Cumberland Sound colonies represent nationally and globally significant proportions of the population (Snell 2002). New surveys are needed to confirm colony sizes.

Northwestern Cumberland Sound is an important marine area for a variety of marine mammals, including beluga, various seal species, and walrus (Stirling and Cleator 1981; Riewe 1992).

Sensitivities: Seabirds are sensitive to disturbance and pollution of their staging and foraging areas.

Potential conflicts: None.

Status: None.



Location: 66°10'N, 74°00'W

Size: 13491 km²

Description: The Great Plain of the Koukdjuak is an extensive sedge lowland on Baffin Island, bordering the southeastern shores of Foxe Basin. Lack of relief on the plain and high tides in Foxe Basin combine to form a tidal zone, which extends up to 15 km inland. The wide marshy plain is dotted with shallow rounded lakes and wetlands and is drained by innumerable small sluggish streams. The underlying bedrock consists of limestone and shales of Paleozoic origin, with scattered granitic outcrops. The inland limit of the plain is marked by raised beach ridges 25–80 km from the coast.

Biological value: The largest goose colony in the world is located at this site. In the summer, probably well over 2 million geese, mainly Lesser Snow Geese, are dispersed throughout the key site. In 1973, 446 600 nesting Lesser Snow Geese were recorded at this colony (Kerbes 1975), and in 1979, 454 800 nesting Lesser Snow Geese were present (Reed et al. 1987). More recent counts (Kerbes et al. 2004) indicate a nesting population >1.7 million Lesser Snow Geese — about 38% of the Canadian population of this species in 1997–1998. Flocks of non-breeding birds are generally found inland from the coastal nesting areas. Lesser Snow Geese arrive at the colony in the last week of May. After the hatch, adults and young disperse to inland feeding sites. They begin to leave the area by early to mid-September.

Over 100 000 Cackling Geese have been present in the key site in recent years (CWS Waterfowl Committee 2003). This number would probably make up at least 35% of the overall population.

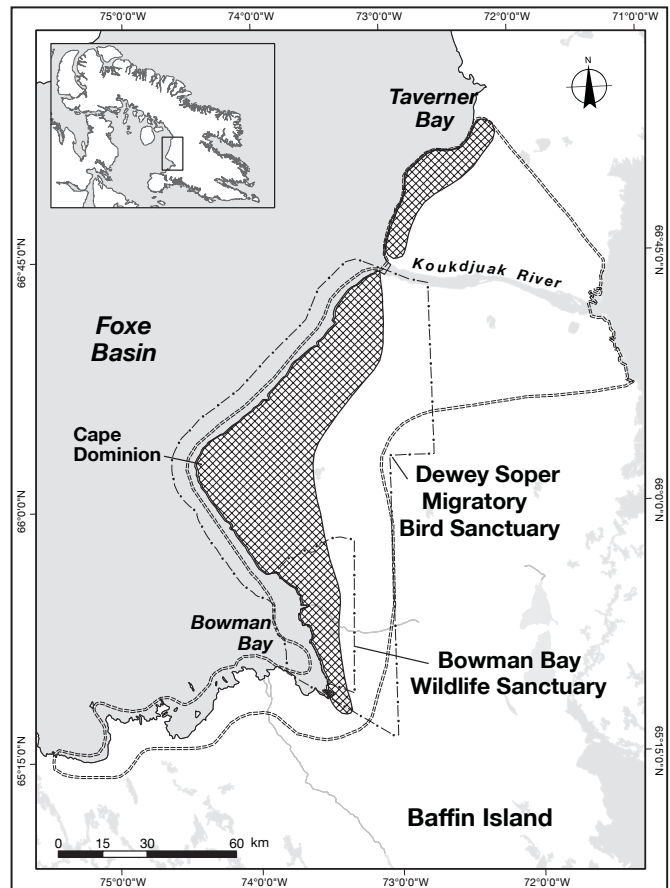
Approximately 1600 Atlantic Brant (1% of the Canadian population) were recorded in the Cape Dominion area in 1979 (Reed et al. 1980). More recent aerial surveys indicate that 2600 adult Atlantic Brant (plus additional young) and 3200 adults plus young were present along the coast of the key site in 1998 and 2001, respectively (K. Dickson, pers. commun.). Thus, about 2% of the Canadian population of Atlantic Brant would have occurred in the key site in those years. Other waterfowl species in the area include Long-tailed Ducks and King and Common eiders.

Over 1500 Sabine's Gulls nest within a few kilometres of the coast in this area (Gaston et al. 1986), and this represents 2% of the estimated Canadian population.

Red Phalaropes and other shorebirds are abundant, but there are currently no estimates of numbers for these species.

A major caribou migration route crosses the Koukdjuak River.

Sensitivities: Geese and other birds are sensitive to disturbance and the degradation of their lowland habitats. As witnessed at other sites in the Hudson Bay region, increasing numbers of Snow Geese could have negative effects on lowland habitats.



Potential conflicts: None.

Status: Part of the key site is included within the Dewey Soper Migratory Bird Sanctuary. The Bowman Bay Wildlife Sanctuary is located within the Dewey Soper Migratory Bird Sanctuary. The sanctuary is a Ramsar site (Wetland of International Importance) (Ramsar 2005), an Important Bird Area in Canada (NU078; IBA Canada 2004), and an International Biological Programme Site (Site 7-4; Beckel 1975).

NU Site 31 – Foxe Basin Islands

Location: 68°00'N, 75°05'W

Size: 12977 km²

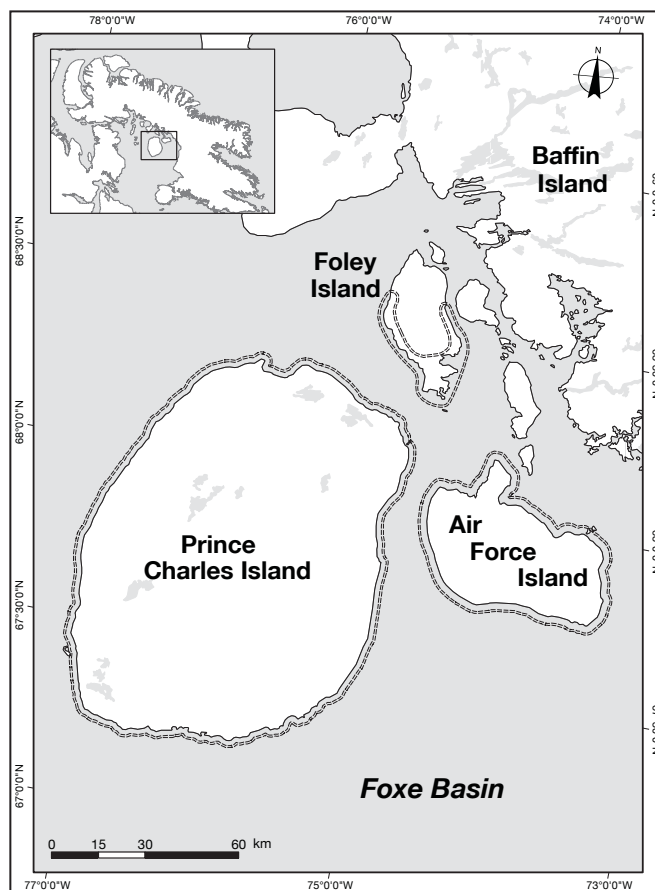
Description: This site consists of Prince Charles Island, Air Force Island, and part of Foley Island, located in east-central Foxe Basin. The coasts of these islands have extensive intertidal mudflats and gently sloping, well-vegetated shorelines. The inland areas, particularly on Prince Charles Island, have low relief and are dotted with small lakes and ponds. The islands are vegetated predominantly by a sedge–grass complex (Gaston et al. 1986; Morrison 1997).

Biological value: Over 40 species of birds have been observed in the Foxe Basin islands, and 26 are known to breed. This site supports nationally significant populations of at least 11 bird species. The Foxe Basin islands have been recognized as a significant nesting area for Atlantic Brant since the first detailed surveys in 1979. The estimated breeding population at this time was 1800 (Reed et al. 1980). Early summer surveys of Prince Charles and Air Force islands in 1996 and 1997 (Johnston and Pepper, in prep.) recorded 20000 Atlantic Brant (11% of the Canadian population), 60000 Lesser Snow Geese (1%), and 4000 Cackling Geese (3%). The principal areas for Brant are the northern and southern shores of Prince Charles Island and the southern shore of Air Force Island. Recent late-summer surveys over these islands counted in excess of 140000 Lesser Snow Geese, which represents 3% of the Canadian population of this species (K. Dickson, unpubl. data). A total of 36000 Sabine's Gulls was also observed on these two islands, and this represents at least 50% of the Canadian population. Ross's Gulls have nested at Prince Charles Island, one of four known nesting sites in Canada (Béchet et al. 2000).

Ground surveys on Prince Charles and Air Force islands also recorded an abundance of shorebirds: 202000 White-rumped Sandpipers (50% of the Canadian population; Morrison et al. 2001), 301000 Red Phalaropes (33%), 67000 Dunlins (9%), 24000 Ruddy Turnstones (10%), 14000 American Golden-Plovers (9%), 11000 Black-bellied Plovers (6%), and 2100 Purple Sandpipers (14%) (Johnston and Pepper, in prep.). Surveys by Morrison in 1989 recorded similarly high shorebird abundances on Prince Charles Island (Morrison 1997). King Eiders, Common Eiders, Long-tailed Ducks, and Herring Gulls are also common breeders. These numbers, however, do not take into account the turnover of birds moving farther north and the importance of the islands to migrating individuals.

Sensitivities: Extremely high densities of Lesser Snow Geese may affect nesting habitat for shorebirds. Nesting and moulting birds are sensitive to disturbance. Pollution of surrounding marine areas would be detrimental to local populations.

Potential conflicts: None.



Status: This key site is an Important Bird Area in Canada (NU011; IBA Canada 2004).

Location: 68°33'N, 78°45'W

Size: 326 km²

Description: North Spicer Island is situated in northern Foxe Basin approximately midway between Prince Charles Island and Melville Peninsula. The island is low lying, not exceeding 100 m in elevation. Wet sedge meadows and areas of standing water cover much of the island. Raised beaches occur on the east coast south of Skelton Bay.

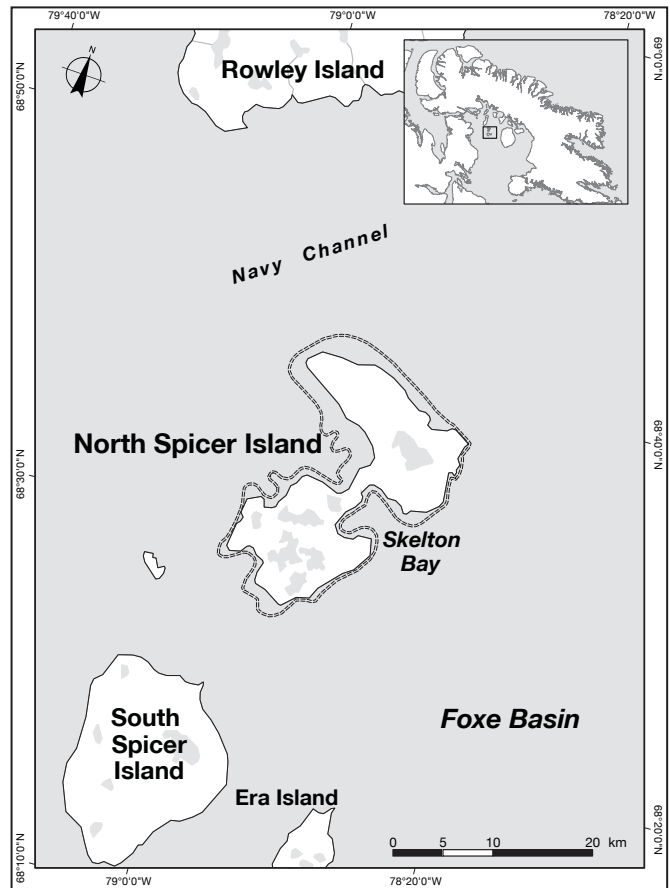
Biological value: A colony of approximately 400 Atlantic Brant nested on this island in 1979 (Reed et al. 1980). Approximately 1250 adults were banded and 142 goslings were observed during a subsequent survey in 1980 (Reed and Dupuis 1980). This total represented 1% of the Canadian population of Atlantic Brant. Brant occurred throughout the island, although they were most numerous near the coast.

Sabine's Gulls, Arctic Terns, Long-tailed Ducks, Pacific Loons, and Red-throated Loons were also observed on the island (Gaston et al. 1986; A. Reed, pers. commun.). Aerial counts in 2003, associated with radio-tracking of Atlantic Brant, indicated that at least 280 Sabine's Gulls were present on the island (K. Dickson, pers. commun.).

Sensitivities: Nesting and moulting Brant are sensitive to disturbance.

Potential conflicts: None.

Status: None.



NU Site 33 – Turton Island

Location: 66°24'N, 82°55'W

Size: 7 km²

Description: Turton Island lies in Foxe Basin, just off the southeast coast of the Melville Peninsula, about 140 km east of the community of Repulse Bay. The island is dotted by a few small ponds. Foreshore flats extend off the north side of the island.

Biological value: The colony of nesting Common Eiders (presumably *S. m. borealis*; Abraham and Finney 1986) nesting on this island appears to be similar in size to the well-surveyed colony at East Bay, Southampton Island (3800–5900 pairs), which is one of the largest colonies of Common Eiders in the Canadian Arctic (Abraham and Ankney 1986; Gaston et al. 1986). The colony at Turton Island likely represents just under 2% of the Canadian population of *S. m. borealis*. More data are needed to confirm the importance of this site, but it appears that it is one of the largest Common Eider colonies in the eastern Canadian Arctic. Large colonies such as this may also act as “source” populations, which produce young that eventually settle and reproduce elsewhere in the region.

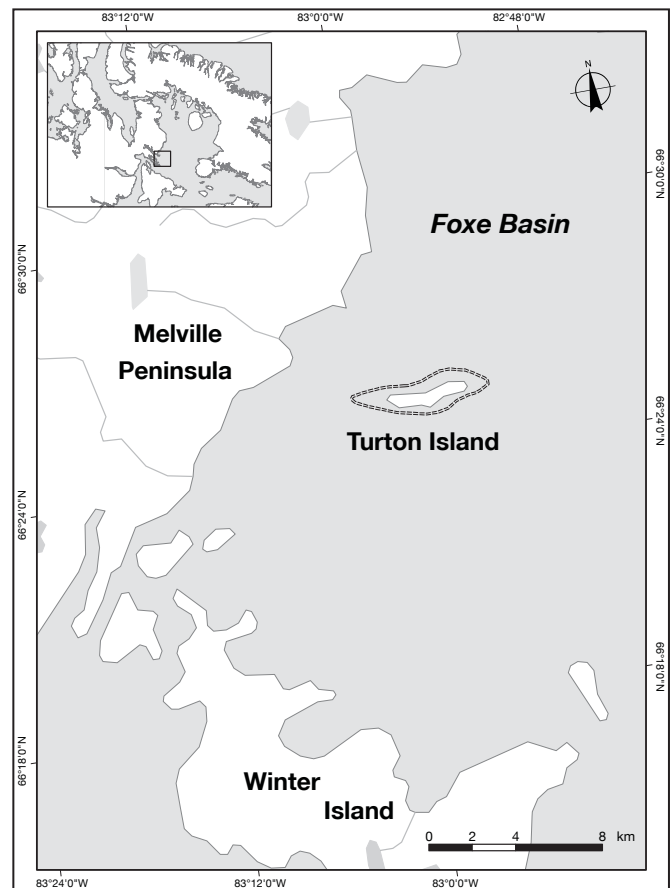
Based on studies at East Bay, Southampton Island, the eiders migrate into the area in late May; by early June, with the breakup of ice around the nesting islands, they have moved onto the colonies and initiated nesting. Once the clutch has been laid and incubation begins, males leave the colony and moult elsewhere. Ducklings hatch throughout July and early August; shortly thereafter, the females and ducklings likely leave the nesting island (Nakashima 1986).

Other bird species nesting on Turton Island include Tundra Swans, Canada Geese, Atlantic Brant, Black Guillemots, Herring Gulls, and Arctic Terns (Environment Canada 1984).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the colony site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution, particularly hydrocarbons, in the surrounding marine environment may be detrimental to the eiders.

Potential conflicts: None.

Status: This key site is an Important Bird Area in Canada (NU021; IBA Canada 2004).



Location: 68°40'N, 93°00'W

Size: 9267 km²

Description: The Rasmussen Lowlands extend along the east side of Rae Strait and the Rasmussen Basin, from the south shore of Netsilik Lake to approximately 45 km north of Chantrey Inlet. The nearest settlement is Taloyoak (Spence Bay), located 55 km north of the site.

The lowlands, Paleozoic in origin, represent an area of recent marine emergence. The southern portion is flat and poorly drained, covered with marine silts and sands and an occasional esker or rock outcrop. Approximately 10 km north of Inglis River, the marine sediments are penetrated by glacial moraine, forming the gently rolling Ross Hills. The escarpment of the Wager Highlands occurs along the eastern edge of this site.

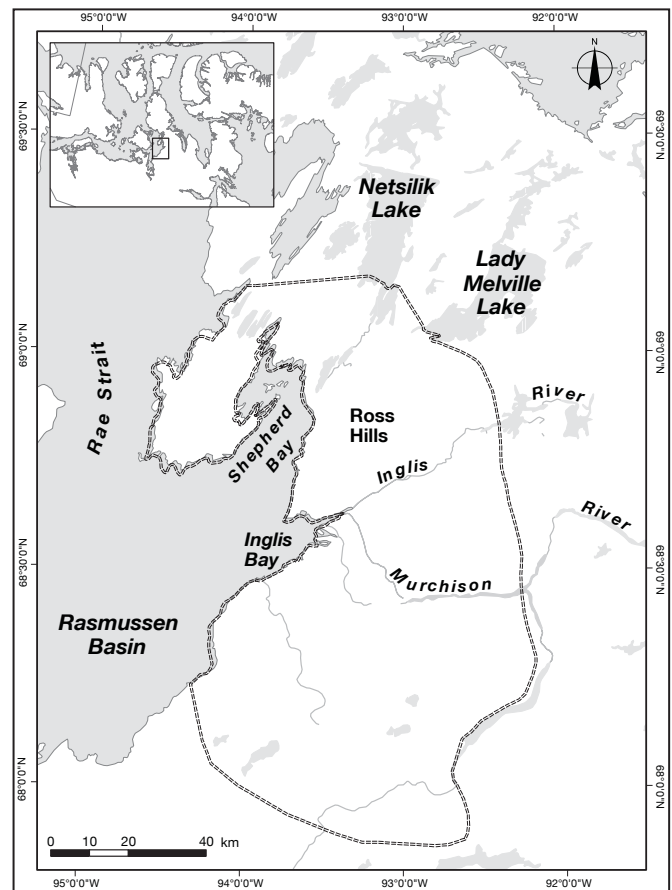
Habitats in the lowlands vary from partially vegetated dry tundra to densely vegetated sedge marsh. Tussocky sedge meadows and sedge marshes predominate. Numerous lakes and ponds are scattered throughout the lowlands.

Biological value: The lowlands support a high diversity and density of summering birds. Surveys performed in 1975–1976 recorded 46 species, 35 of which were confirmed breeders (McLaren et al. 1977). Surveys conducted in 1994–1995 documented significant changes in abundance for a wide variety of species (Gratto-Trevor et al. 1998; Johnston et al. 2000; J.E. Hines, unpubl. data).

Red Phalaropes formerly accounted for 40% of all shorebird sightings on the lowlands and were estimated at 130 000–190 000 individuals. The recent surveys place the estimate at 38 000 (4.2% of the Canadian population). Black-bellied Plovers and American Golden-Plovers have exhibited similar declines, from populations of 30 000 for each species in 1975–1976 to 5000 Black-bellied Plovers and 6000 American Golden-Plovers in 1994–1995. Despite the declines, these local populations represent 3% and 6% of the Canadian populations of these species, respectively (Donaldson et al. 2000). The area also holds >30% of Canada's Buff-breasted Sandpipers, nesting primarily in the southern portion of the lowlands. Buff-breasted Sandpipers are a species of high concern in the Canadian Shorebird Conservation Plan (Morrison et al. 2001). The area also supports roughly 28 000 Pectoral Sandpipers, or 11% of Canada's population, 27 000 White-rumped Sandpipers (5%), and 4000 Baird's Sandpipers (1%). These numbers, however, do not take into account the turnover of birds moving farther north and the importance of the lowlands to migrating individuals.

The local population of King Eiders was estimated at 23 000 individuals in 1975–1976, while surveys in 1994–1995 placed it at 6000 (2% of the Canadian population). Long-tailed Ducks appear to have declined from roughly 9000 to 2000 individuals over the same time period (Hines et al. 2003).

In contrast, several species have shown dramatic increases since 1976. Population estimates for Lesser Snow Geese rose from 3800 in 1975–1976 to 38 200 in 1994–1995 (1% of the Canadian population of Lesser Snow



Geese). Over the same time period, estimates for Greater White-fronted Geese rose from 7000 to 15 300 (4.6% of the Mid-continent Population) and for Cackling Geese, from 500 to 3700 (Hines et al. 2003).

The Rasmussen Lowlands are the most important nesting area in the eastern Arctic for Tundra Swans. The population appears to be stable, estimated at 3800 in both 1975–1976 and 1994–1995 (Hines et al. 2003) (3.8% of the Eastern Population).

Along the eastern border of the site, an escarpment rising to the Wager Highlands provides nesting sites for over 30 pairs of Peregrine Falcons (Shank 1995).

Sensitivities: Wetland areas are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost. Wildlife in the area is sensitive to disturbance. Pollution of offshore waters would result in the degradation of shoreline habitats.

Potential conflicts: This key site and surrounding area are considered to have moderate to high mineral potential, and some mineral exploration has occurred.

Status: About one-third of the area is designated as a Ramsar site (Wetland of International Importance) (Ramsar 2005). The Rasmussen Lowlands is the only Ramsar site in the Canadian North with no legal protection. This key site is an Important Bird Area in Canada (NU006; IBA Canada 2004).

NU Site 35 – Jenny Lind Island

Location: 68°43'N, 101°58'W

Size: 370 km²

Description: Jenny Lind Island, bordered by Queen Maud Gulf to the south and Victoria Strait to the north, lies approximately 20 km off the southeastern corner of Victoria Island. The community of Cambridge Bay is located 120 km to the northwest.

The island lies within the Victoria Lowland Division of the Arctic Lowlands Physiographic Region (Bostock 1970). This region was subject to complete marine inundation during the last glacial period (Prest et al. 1966). It has low, undulating to flat relief, with several rocky and sparsely vegetated ridges having a maximum elevation of 80 m. Most of the coastline is sandy with scattered rocks.

Biological value: The population of Lesser Snow Geese on Jenny Lind Island grew from a few hundred geese in the 1960s (Parmelee et al. 1967) to more than 50 000 adult geese in 1985 and represented 2–3% of the Canadian population at that time (McCormick and Poston 1986). More recent surveys indicated 38 000 nesting adults in 1988, 25 000 flightless adults in midsummer 1990, and 19 000 nesting adults in 1998. Therefore, the number of geese using the island seems to have declined since 1985 (Kerbes et al. 2004; R.H. Kerbes and J.E. Hines, unpubl. data).

Lesser Snow Geese nest in the north-central part of the island, but broods disperse throughout most the island (except the sparsely vegetated southeastern corner). In 1985, the main concentration of birds was in the central low-lying portions, which contain numerous wetlands and extensive sedge meadows (McCormick and Poston 1986).

In 1988, it was estimated that 900 Ross's Geese nested on the island. In 1998, slightly over 500 Ross's Geese nested there (R.H. Kerbes, unpubl. data).

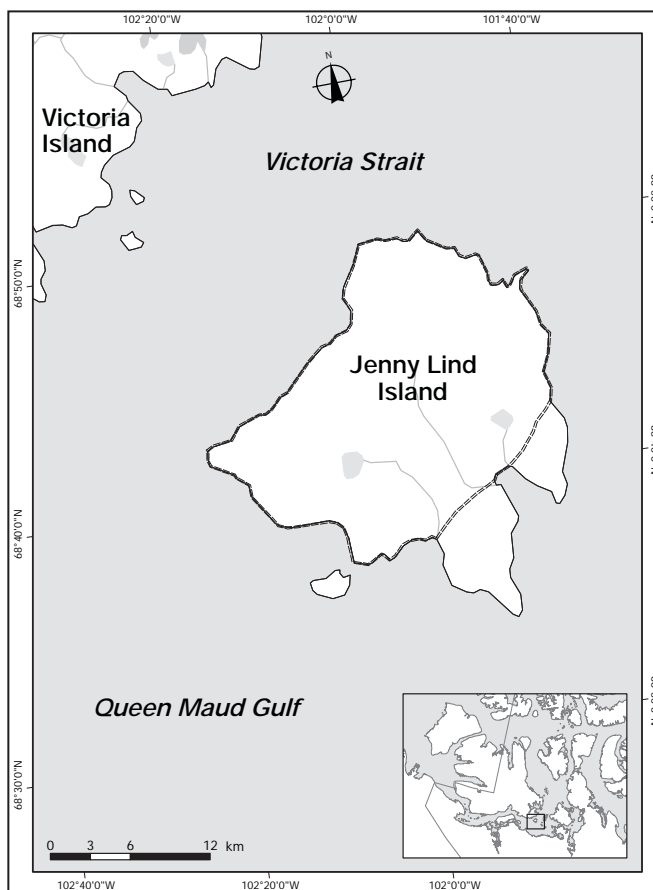
In 1985, an estimated 1500 Cackling Geese were found scattered over most of the island, with the exception of the southeastern and northern areas. The majority of these were moulting and non-breeding birds (McCormick and Poston 1986). Over 1000 Cackling Geese were present on the island in 1990 (J.E. Hines and R.H. Kerbes, unpubl. data).

Given the habitat on Jenny Lind Island, it is likely that the island supports high numbers of various shorebird species (Parmelee et al. 1967), but this has yet to be assessed (V.H. Johnston, pers. commun.).

Sensitivities: Nesting, staging, brood-rearing, and moulting waterfowl are sensitive to disturbance and the degradation of low-lying habitats. The number of Snow Geese on the island is very large relative to the amount of lowland habitat there. This could result in long-term loss of habitat.

Potential conflicts: None.

Status: This key site is an Important Bird Area in Canada (NT088; IBA Canada 2004).



Location: 68°45'N, 112°30'W

Size: 7798 km²

Description: Southwestern Victoria Island slopes gently southwestward towards Lady Franklin Point. It is an area of nearly continuous cover of tundra vegetation consisting of willow, dwarf birch, Labrador tea, *Dryas* spp., and *Vaccinium* spp. The area falls within the Northern Arctic ecozone and has a low Arctic ecoclimate, with a mean summer temperature of 2°C, winter temperature of -28.5°C, and annual precipitation of 100–200 mm (Kirkwood et al. 1983; Environment Canada 1986).

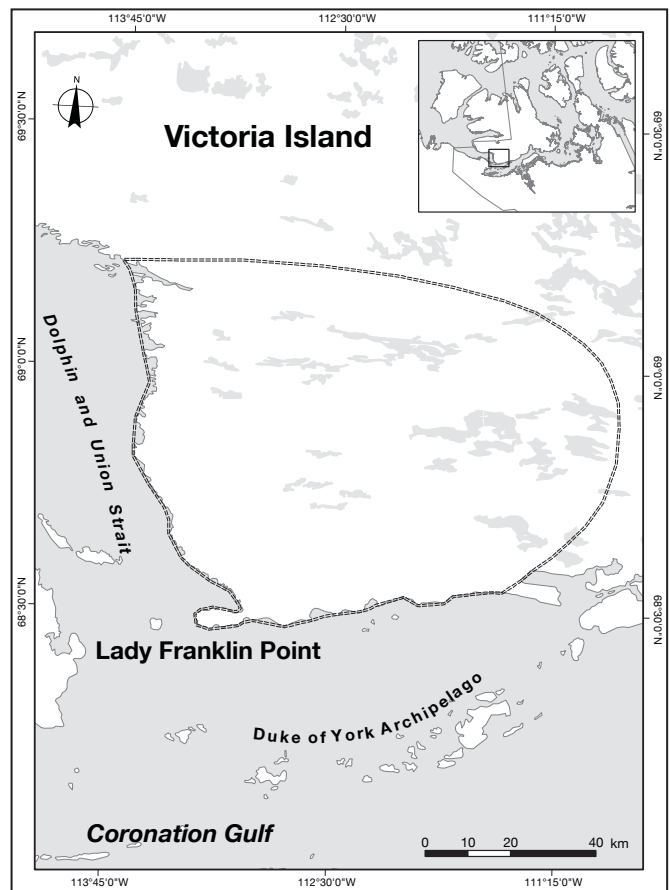
Biological value: Southwestern Victoria Island has one of the highest densities of breeding pairs of Canada Geese in the western Canadian Arctic (2.2 pairs/km²) (Hines et al. 2000). An estimated 25 000 geese, or 8% of the Short-grass Prairie Population of Canada Geese, occur within this site. In the same area, there are an estimated 4800 King Eiders (1–2% of the western Arctic population) (Dickson et al. 1997) and 70 Yellow-billed Loons (perhaps 1% of the western Arctic population) (Cornish and Dickson 1996).

Other species that are relatively abundant include Tundra Swans (2000) (2% of the Canadian population), Glaucous Gulls (1000), and Arctic Terns (700) (Cornish and Dickson 1996). Shorebird species that occur in this region include Semipalmated Sandpiper, Pectoral Sandpiper, White-rumped Sandpiper, Stilt Sandpiper, and Red Phalarope (McLaren and Alliston 1981).

Sensitivities: The well-vegetated wetlands that support the highest bird densities are sensitive to disturbance, and recovery would be slow. Most bird species are sensitive to disturbance during nesting season, when human activity could seriously jeopardize their breeding success.

Potential conflicts: There have been considerable prospecting and mining exploration on Victoria Island in recent years. Low-level aircraft traffic in support of these activities may cause excessive disturbance during critical times, such as the breeding season (May through July).

Status: None.



NU Site 37 – Queen Maud Gulf

Location: 67°00'N, 100°30'W

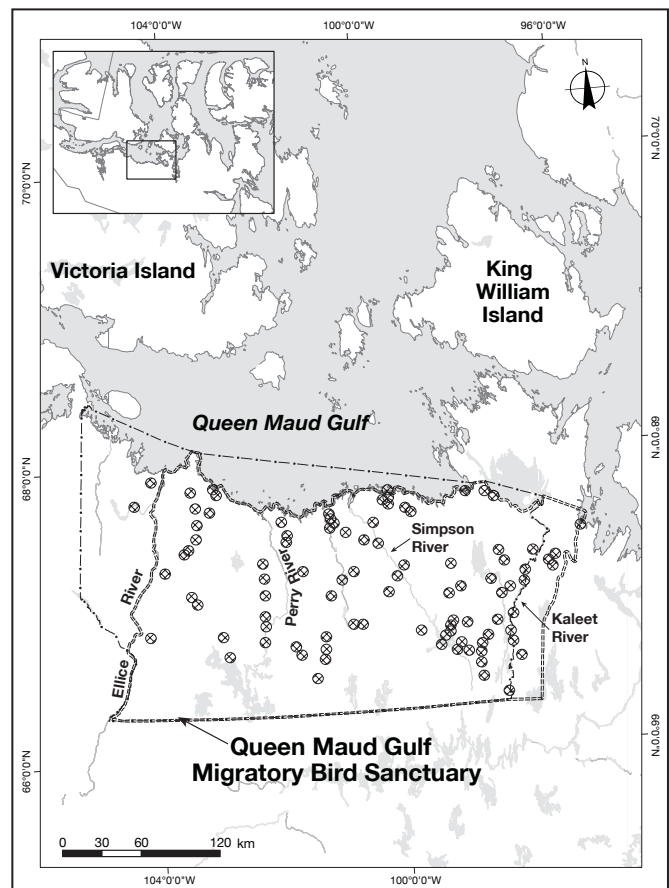
Size: 52 535 km²

Description: The northern border of this site is bounded by Queen Maud Gulf and is situated approximately 75 km south of the community of Cambridge Bay. The landscape is dominated by a generally flat plain of postglacial marine emergence, which extends approximately 135 km inland from the coast. The lowland consists of Precambrian bedrock overlain with glacial till and marine clays and silts. Relief is provided by rock outcrops, drumlins, and old beach ridges that are most evident in the southern and western regions of the lowlands. The vegetation consists of wet sedge meadows and marshy tundra in low-lying areas, interspersed with upland plant communities of lichen – moss – vascular plant associations (Ryder 1969).

Biological value: In 1982, an estimated 90 800 Ross's Geese nested in association with approximately 106 000 Lesser Snow Geese in Queen Maud Gulf Migratory Bird Sanctuary. By 1988, the numbers had increased considerably to 188 000 Ross's Geese and 279 000 Lesser Snow Geese (Kerbes et al. 2004). In 1998, there were at least 73 Lesser Snow and Ross's goose colonies in the area, most of which were in the sanctuary. A few additional colonies are located outside the sanctuary, but within 15 km of its eastern boundary. Numbers of nesting Lesser Snow Geese and Ross's Geese numbered 721 000 and 539 000, respectively, in 1998 (Kerbes et al. 1999). These most recent counts made up approximately 15% of the Lesser Snow Geese nesting in Canada and >90% of the nesting Ross's Geese in the world (Kerbes 1994; Moser 2001).

Aerial surveys carried out in 1990 and 1991 indicate the importance of the key site to a number of other species of waterfowl, including Cackling Geese (55 760 birds), Brant (4105 birds, probably mostly Pacific Brant from the Pacific Flyway), Greater White-fronted Geese of the Mid-continent Population (94 455), Tundra Swans of the Eastern Population (14 771), King Eiders (14 812), Northern Pintails (25 043), and Sandhill Cranes (13 162) (Alisaukas 1992). None of these counts is adjusted for "visibility bias," and adjusted counts would certainly have reflected well over 1% of each of the different Canadian populations in the early 1990s. The Ellice River is an important moulting area for large Canada Geese (*B. c. maxima* and *B. c. moffitti*) from more southerly breeding areas. In 1986, about 8500 birds (2% of the Canadian population at that time; Alexander et al. 1991) moulted along the river (McCormick and Bromley 1990; cf. Alexander 1990). Geese arrive in late May. Brood rearing and moulting occur throughout the area, and geese begin leaving during the last week of August.

The lowlands south of Queen Maud Gulf feature some of the most extensive wetlands in the mid-Arctic. Like the Rasmussen Lowlands, they likely harbour many thousands of shorebirds and songbirds. The populations of these species have been described in anecdotal terms only (e.g., Gavin 1947; Hanson et al. 1956).



Caribou from the Ahiak herd calve within the key site, and large numbers of muskoxen are present within the sanctuary. Ringed seals are the most abundant marine mammal found in offshore waters.

Sensitivities: Moulting, nesting, and brood-rearing birds are sensitive to disturbance. Low-lying habitats are sensitive to terrain disturbance. As witnessed in some parts of the Hudson Bay region, increasing numbers of Snow Geese and Ross's Geese could cause long-term destruction to lowland tundra habitat on which many species of birds depend.

Potential conflicts: This area of the central barrens has received, and continues to receive, considerable diamond and mineral exploration. There has been pressure in the past to allow mineral prospecting in the Queen Maud Gulf Migratory Bird Sanctuary. Low-level aircraft and camps associated with this activity are possible sources of disturbance to nesting and migratory birds.

Status: Most of this key site is within the Queen Maud Gulf Migratory Bird Sanctuary. The sanctuary has also been designated as a Ramsar site (Wetland of International Importance) (Ramsar 2005), an Important Bird Area in Canada (NU009; IBA Canada 2004), and an International Biological Programme Site (Site 4-8; Beckel 1975).

Location: 65°55'N, 100°20'W

Size: 1661 km²

Description: This site encompasses the Back River, from a point 10 km east of the McKinley River downstream 70 km to the west end of Pelly Lake. It also includes all northern and southern bays of Pelly Lake, Upper Garry Lake, Garry Lake, and Lower Garry Lake to 99°W. The site is situated approximately 240 km northwest of the settlement of Baker Lake.

Pleistocene glacial features are evident in this area of low relief (Wright 1967). Drumlins with continuous and discontinuous eskers, which are oriented in a north–south direction, are common. Silt, sand, and gravel predominate along the river–lake system. The underlying bedrock is of Proterozoic origin, consisting mainly of granitic and allied rocks (Wright 1967). Wet sedge–graminoid meadows occur along stream and lake banks (Sterling and Dzubin 1967).

Biological value: In the 1960s, this site supported up to 3000 moulting large Canada Geese (*B. c. maxima* and *B. c. moffitti*) (Sterling and Dzubin 1967). In 1984 and 1986, respectively, an estimated 9800 and 32 300 Canada Geese moulted in the area (McCormick and Arner 1986; McCormick and Bromley 1990; using the estimation procedure in Alexander 1990). The higher estimate represented about 8% of the continental population of large Canada Geese (Alexander et al. 1991).

Pre-moulting flocks generally arrive about mid-June. By mid-August, the geese have regained their ability to fly and begin to leave the area (Kuyt 1966; Sterling and Dzubin 1967). The geese feed on the sedge–graminoid meadows and use the waters of the streams and rivers as retreats during the moulting period (Sterling and Dzubin 1967).

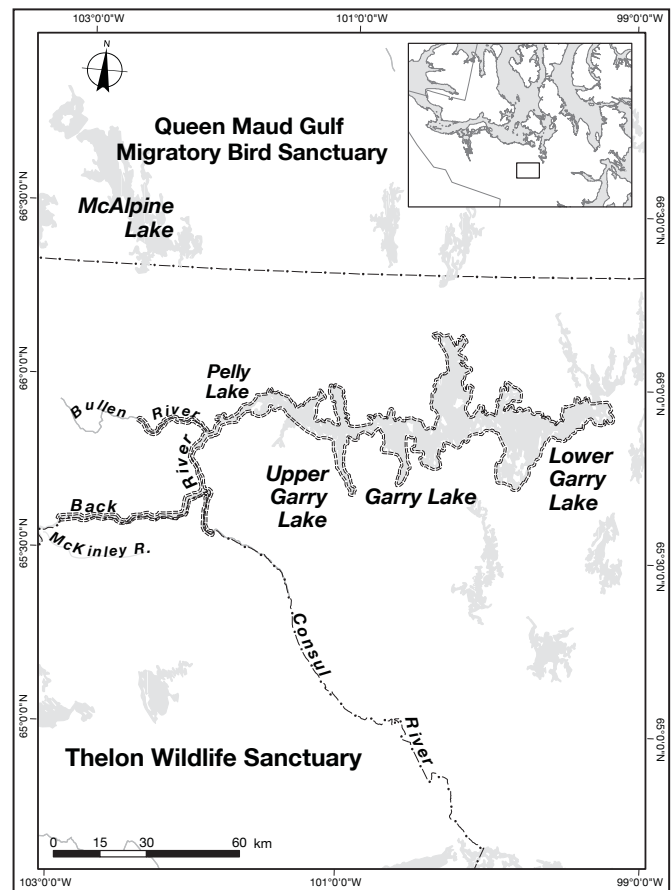
There are several small colonies of nesting Lesser Snow Geese in the Pelly Lake area. Numbers of adults (breeders and non-breeders) increased from about 360 in 1984 to 2200–2600 in 1986 and to over 9000 in 1987 (McCormick 1988). The increase was attributed to late spring snow conditions at Queen Maud Gulf nesting colonies. In 1988, 8000–8300 Snow Geese were counted, even though there was a more typical spring farther north (McCormick 1989).

The calving grounds for the Beverly caribou herd lie along the southern boundary of this area.

Sensitivities: Moulting geese are sensitive to disturbance.

Potential conflicts: This area of the central barrens has received, and continues to receive, considerable diamond and mineral exploration. Low-level aircraft and camps associated with this activity are possible sources of disturbance to nesting and migratory birds.

Status: The southwestern end of the key site borders the Thelon Wildlife Sanctuary. It is an Important Bird Area in Canada (NU089; IBA Canada 2004).



NU Site 39 – Lower Back River

Location: 67°00'N, 95°21'W

Size: 2649 km²

Description: This site includes an area along the lower Back River from the junction of the Herman River downstream, along the southern and eastern shores of Franklin Lake, to the junction of the Hayes River and north to Cockburn Bay. The site varies from 5 to 60 km in width and occurs approximately 200 km north of the settlement of Baker Lake.

The shoreline of Franklin Lake is rocky and poorly vegetated. There is a network of channels interspersed with extensive sandflats and mudflats and the mouth of the Back River. In spring, the Hayes River is one of the first areas with open water in this region (Allen and Hogg 1979).

Biological value: The status of this area as a key habitat site is tentative; the available data are inadequate for a full assessment.

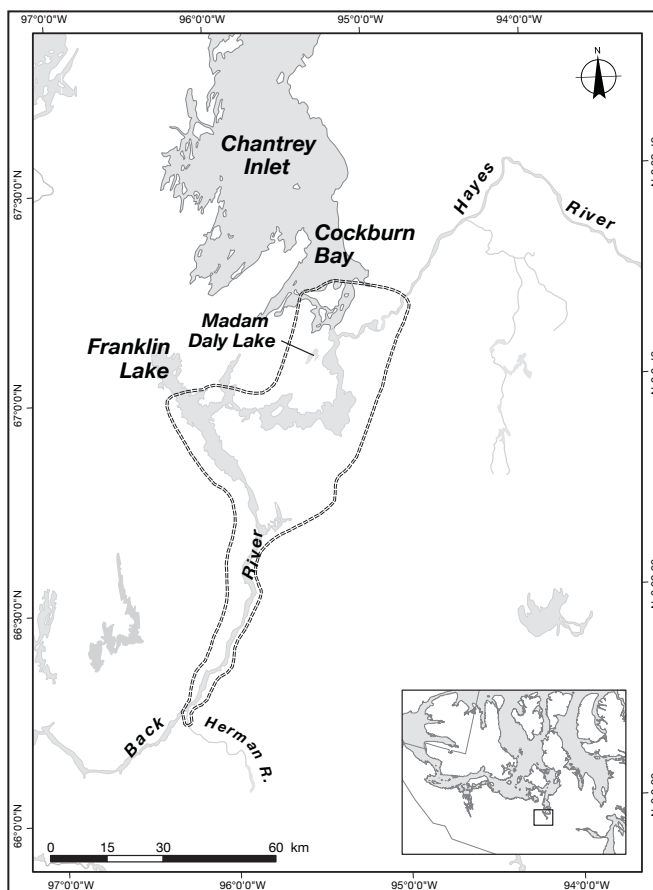
This site may be an important spring staging area, particularly around the confluence of the Hayes and Back rivers, where the presence of open water attracts spring migrants. A single aerial survey was flown each spring in 1976 and 1977. In 1976, there were 762 Canada Geese, nearly 600 Lesser Snow Geese, 724 Brant, and 236 Tundra Swans (Zdan and Brackett 1978). In general, fewer birds were seen in 1977; the exception was 409 Tundra Swans (Allen and Hogg 1979). Small numbers of Sandhill Cranes, King Eiders, scoters, loons, and shorebirds were also noted. However, single surveys at staging areas are not adequate for determining extent of use by migrants.

The lower reaches of the Back River, its tributaries, and the southern and eastern shores of Franklin Lake are used by moulting Canada Geese and Lesser Snow Geese. Over 900 Canada Geese (likely subspecies *B. c. maxima*; Dzubin et al. 1978) were recorded between the Herman River and Chantrey Inlet in mid-July 1976. Approximately 620 birds were recorded in early July 1977 (Allen and Hogg 1979). In 1984 and 1986, the numbers of moulting geese were estimated at 1660 and 2900 birds, respectively (McCormick and Arner 1986; McCormick and Bromley 1990; using estimation procedure in Alexander 1990). The latter estimate probably exceeded 1% of the Canadian population of *B. c. maxima* (Alexander et al. 1991).

Over 4700 moulting and brood-rearing Lesser Snow Geese were also recorded in the same area on 12 July 1976. Far fewer Snow Geese were seen in 1984 and 1986 (McCormick and Arner 1986; McCormick and Bromley 1990). A small number of geese breed in the area, probably around Madam Daly Lake (McLaren et al. 1977).

Sensitivities: Breeding, moulting, and staging waterfowl are sensitive to both aircraft and ground-based disturbance. Lowland habitats and permafrost environments are susceptible to terrain disturbance and degradation.

Potential conflicts: This area of the central barrens has received, and continues to receive, considerable diamond and mineral exploration.



Status: None.

Location: 64°30'N, 101°45'W

Size: 1873 km²

Description: This area includes the Thelon River from Eyeberry Lake to Beverly Lake, the Ursus Islands area, the shores of Beverly Lake, and the west half of Aberdeen Lake (to 99°10'W) and 20 km upstream along the Dubawnt River. Baker Lake is 150 km east of the eastern end of this area.

The underlying rock formation is Precambrian sandstone, much of which is obscured by low-relief Pleistocene deposits. The area around Lookout Point is within a sand-silt formation. The Ursus Islands area is largely sandstone and pebbly sandstone (Bird 1951). Most of the Beverly Lake – Aberdeen Lake region is underlain by Dubawnt sandstone. The low and rolling area is covered with unbroken glacial till, which has been sorted into expanses of sand and pebbles. Continuous and discontinuous eskers are common. A late glacial lake inundated much of the area; strandlines and wave-cut beaches are evident (Bird 1967). A large delta occurs on the south side of Beverly Lake.

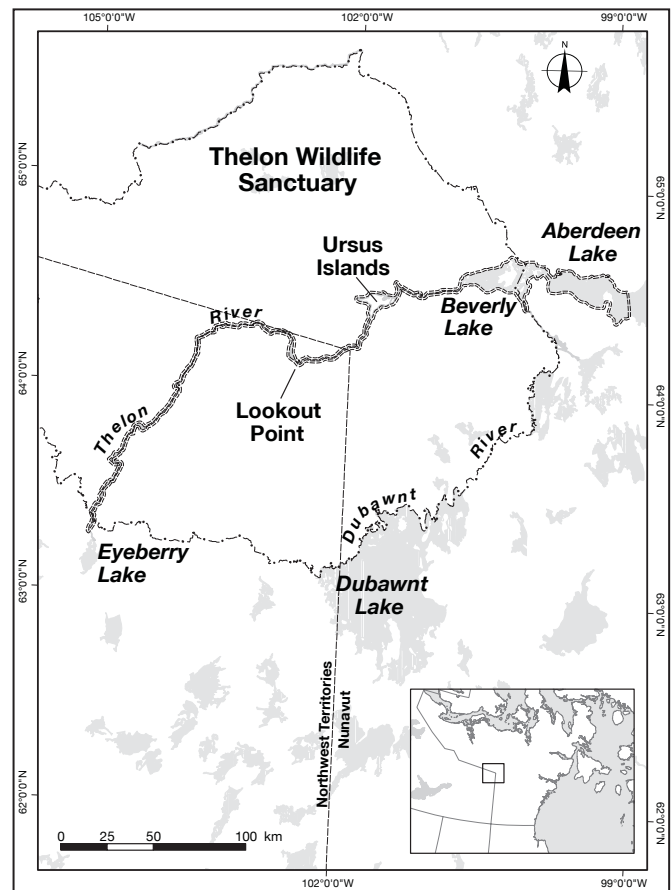
The vegetation belongs to the northern transition section of the boreal forest, giving way to Low Arctic around Beverly Lake. From Lookout Point to Ursus Islands, the river banks are wooded with spruce, larch, and willows. The river banks between Ursus Islands and Beverly Lake are high but not precipitous. Adjacent wet sedge meadows and moss-sedge complexes provide suitable grazing areas for geese. A few stunted spruce are found in gullies.

Biological value: Between 10000 and 13000 non-breeding Canada Geese, originating in the northern United States and southern Canada, use this area to moult (Kuyt 1966; Alexander 1990). Most of the geese belong to the *B. c. maxima* and *B. c. moffitti* subspecies (Sterling and Dzubin 1967). There is some indication that birds in the western part of the area are from the Pacific, Hi-Line Plains, and Rocky Mountain populations, whereas those east of Beverly Lake are from the Western Prairie and Manitoba Interlake populations (Kuyt 1966; Sterling and Dzubin 1967). The larger estimate of Canada Geese represented 3% of the Canadian population of the two subspecies (Alexander et al. 1991). Flocks of Canada Geese generally appear in mid-June and depart soon after moulting is completed in mid-August (Sterling and Dzubin 1967).

Greater White-fronted Geese are known to breed in the area. In 1960, Kuyt (1962) reported 30 broods between Beverly and Aberdeen lakes. Tundra Swans also breed and moult west of Beverly Lake. Islands in Beverly Lake provide habitat for some of the few inland breeding colonies (numbering up to 140 pairs) of Lesser Snow Geese (Alexander 1990).

Raptor nesting areas are found on the north shores of Beverly and Aberdeen lakes (Kuyt 1980).

Calving grounds for the Beverly caribou herd lie along the northern boundary of the area. Several river crossings used by the herd occur in this area.



Sensitivities: Flightless geese are sensitive to disturbance during their moult.

Potential conflicts: The surrounding area has high potential for uranium. The proposed Kiggavik uranium mine site is located southeast of Aberdeen Lake.

Status: Most of this site occurs within the Thelon Wildlife Sanctuary, which has a subsurface land withdrawal. It is an Important Bird Area in Canada (NU091; IBA Canada 2004) and an International Biological Programme Site (Site 4-6; Beckel 1975).

NU Site 41 – Middle Quoich River

Location: 65°25'N, 93°35'W

Size: 1391 km²

Description: This site includes approximately 210 km of the Quoich River valley, from a point 40 km north of its junction with Chesterfield Inlet to 66°N latitude. The east end of Tehek Lake, Tehek River, Lunan Lake, and Lunan River are also included. The area occurs approximately 100 km east and northeast of the settlement of Baker Lake.

The Quoich River flows through a broad, open valley containing many scattered lakes and ponds. Bedrock of Precambrian origin, consisting mainly of granitic and allied rocks, occupies much of the area (Wright 1967). Eskers are common in the upper river basin. Stony and sandy glacial tills and fluvial deposits are common throughout the lower river valley. Numerous small lakes and localized wet meadows and associated tussocks make the area attractive to moulting geese.

Biological value: The status of this area as a key habitat site is tentative; the available data are inadequate for a full assessment.

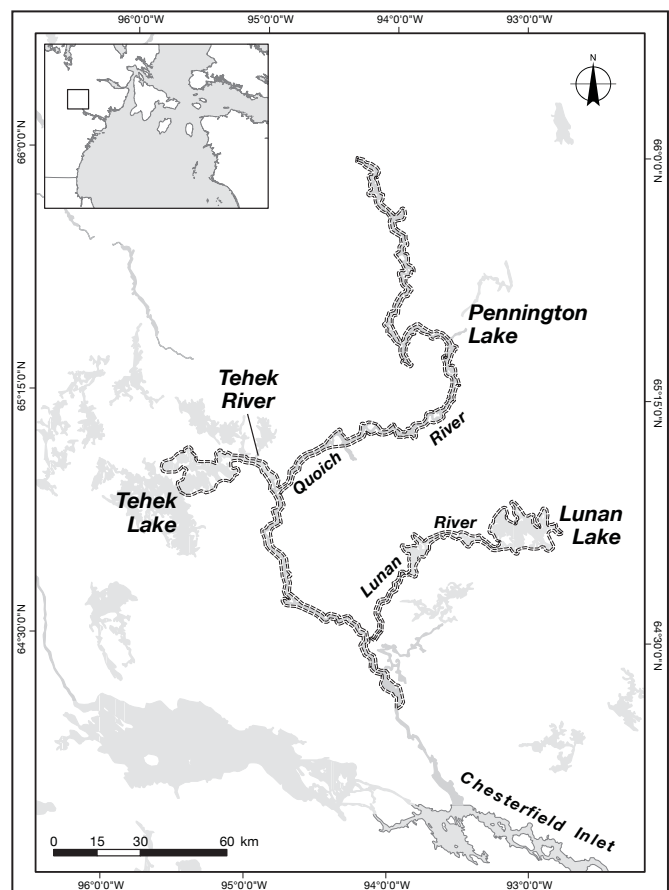
This site is a summer moulting ground for several thousand large Canada Geese (probably part of the Eastern Prairie Population; *B. c. interior*). A maximum of 3400 birds was noted in July 1966 (Sterling and Dzubin 1967), which was about 1% of the Canadian population of the *B. c. interior* subspecies at that time. Some Giant Canada Geese (*B. c. maxima*) may moult in this area from late June to early August. A small number of Canada Geese (3.5 birds per linear kilometre) were found on 168 km of river in late August 1975 (McLaren et al. 1976). Canada Goose populations have expanded markedly over the last 20 years. Recent studies have shown that moulting Canada Goose numbers have increased along parts of the Back River (McCormick and Bromley 1990) but that they have not increased along the Thelon River (Alexander 1990). Moulting geese feed on the sedge–grass meadows near the river and use the rivers and lakes as retreats during the flightless period (Sterling and Dzubin 1967). Canada Geese generally arrive by mid-June and leave by late August (Sterling and Dzubin 1967). Further investigations are needed to determine the number of birds currently using the Quoich River site.

The upper valley of the Quoich, including the Brown River valley lying directly west of Wager Bay, is an important summering and wintering area for caribou (Calef and Heard 1979).

Sensitivities: Flightless geese are sensitive to disturbance during their moult.

Potential conflicts: None.

Status: None.



Location: 60°50'N, 94°20'W

Size: 5092 km²

Description: This area includes coastal habitats between the Thlewiaza River and the Maguse River on the west coast of Hudson Bay. The area is underlain by Precambrian rock of the Canadian Shield; however, there are very few rock outcrops near the coast, particularly south of Austin Island. The landscape has a low relief, rising to about 60 m in the western portion of the area. Extensive marsh flats occur along the coast, extending 3–8 km inland. Farther inland, there are low hills and numerous lakes.

Biological value: The McConnell River key site is an important breeding ground for Lesser Snow Geese, Ross’s Geese, and Canada Geese. The coastal sedge lowlands provide nesting habitat for the Snow Geese, whereas the adjacent ponds, lakes, and inland areas are critical for feeding and moulting. In late summer, a large number of young and non-breeders as well as moult migrants are present within the key site. Numbers of nesting Snow Geese at the site have varied greatly over the years. Numbers increased from 390 000 nesting geese in 1973 to 436 000 nesting geese in 1982 (Kerbes 1975, 1982). Subsequently, the nesting population declined to 212 000 in 1997 (Kerbes et al. 2004). The decline is thought to have resulted from overgrazing of lowlands by the increased numbers of resident and transient geese using the site (Kerbes et al. 1990; Didiuk et al. 2001). Most recent counts represented about 5% of the Canadian population of Lesser Snow Geese.

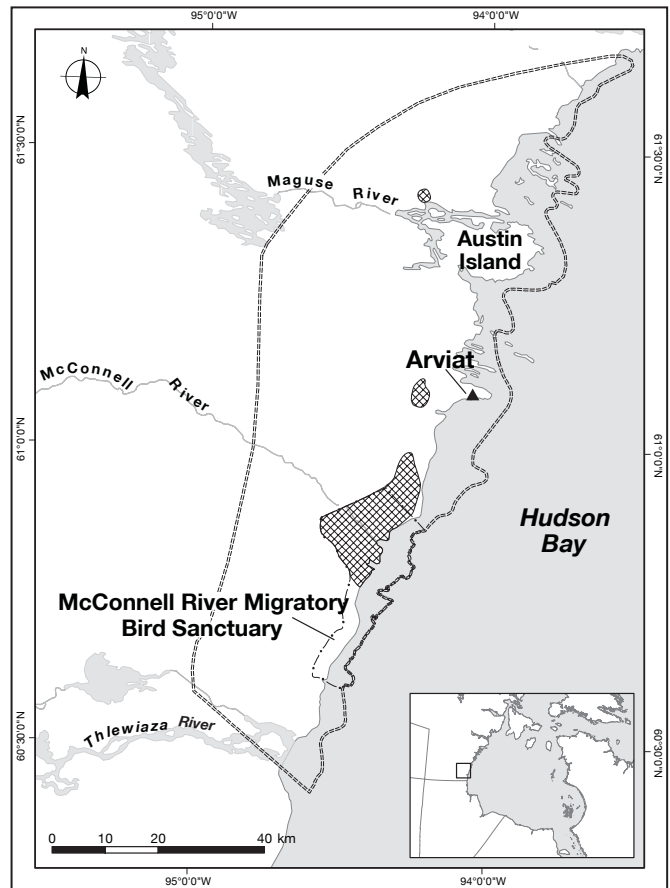
In 1994, there was a major influx of Ross’s Geese into the region (Kerbes et al. 2004); by 1997, there were at least 23 000 Ross’s Geese nesting at a relatively small site near the McConnell River. The nesting geese represented about 4% of the Canadian, continental, and world population of Ross’s Geese in the late 1990s. Snow Geese and Ross’s Geese reach the nesting areas by late May and move to inland feeding areas by the third week in August. Few birds remain in the area after the beginning of September.

Canada Geese are likely numerous enough (i.e., numbering in the several thousands and thereby constituting >1% of the Tall-grass Prairie Population). At least 111 bird species have been recorded for the McConnell River area, including “extra-limital” sightings of prairie and forest species.

Barren-ground caribou of the Qamanirjuak herd winter along the Hudson Bay coast from the Manitoba border to Arviat. Ringed seals, beluga, and polar bears frequent coastal and offshore waters.

Sensitivities: Lowland areas are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost. Geese and other wildlife are sensitive to disturbance by human activities.

Potential conflicts: Dramatically increased numbers of Lesser Snow Geese are possibly having a detrimental and long-term impact on the lowland tundra.



Status: Part of this area lies within the McConnell River Migratory Bird Sanctuary. The key site is a Ramsar site (Wetland of International Importance) (Ramsar 2005), an Important Bird Area in Canada (NU020; IBA Canada 2004), and an International Biological Programme Site (Site 5-3; Beckel 1975).

NU Site 43 – Boas River

Location: 63°45'N, 85°40'W

Size: 6120 km²

Description: Boas River is located on southwestern Southampton Island at the northern extremity of Hudson Bay. The area is underlain by Paleozoic limestone and is covered with glacial drift and beach deposits. There is little relief; much of the area lies below 60 m elevation. The Boas River flows southward through the area, across an extensive sedge lowland, and empties into the Bay of Gods Mercy. Numerous lakes are scattered throughout the lowlands. Extensive tidal flats are found along most of the coastline. A recurring polynya occurs near Cape Kendall in Roes Welcome Sound (Stirling and Cleator 1981).

Biological value: Slightly over 10% of the nesting Lesser Snow Geese in Canada occurred in the key site in 1997 (Kerbes et al. 2004), similar to the proportion that occurred there in 1979 (Reed et al. 1987). The largest colony is situated around the Boas River delta. Smaller concentrations are located at Ell Bay, Bear Cove, and along 20 km of coastline west of the Boas River colony. There was a fourfold increase in numbers of geese nesting in the area between 1973 and 1997. The nesting population increased from 139 000 geese in 1973 to 190 000 geese in 1979 and to over 560 000 geese in 1997 (Kerbes 1975; Reed et al. 1987; Kerbes et al. 2004). Feeding habitat for geese extends inland from the nesting area and includes adjacent marsh and sedge lowlands. Snow Geese arrive in late May or early June. Non-breeding Snow Geese leave the area in mid-August, followed by the breeding birds in early September.

The Boas River area also supports nesting populations of Atlantic Brant, Cackling Geese, and Tundra Swans.

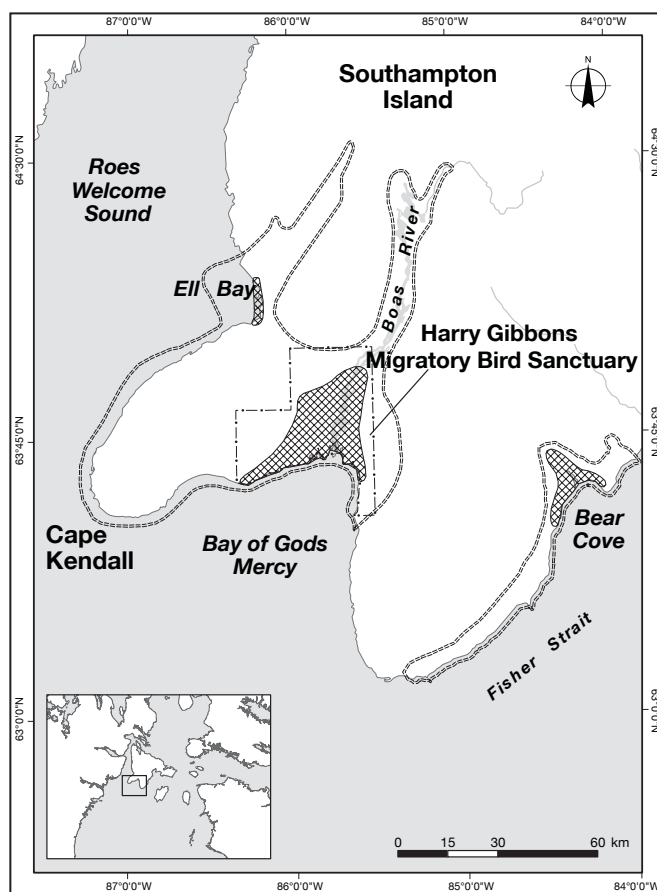
The Roes Welcome Sound polynya is a wintering area for beluga, walrus, and harbour seals. Polar bears, bearded seals, and ringed seals are present year-round. Bowhead whales and narwhals use the polynya as a summer feeding area (Stirling and Cleator 1981).

Barren-ground caribou (which were reintroduced to Southampton Island in 1967; Parker 1975) and arctic foxes occur throughout the key site.

Sensitivities: The lowlands are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost. Geese and other wildlife are sensitive to disturbance.

Potential conflicts: The dramatically increased numbers of Lesser Snow Geese appear to be having a detrimental impact on some portions of the lowland tundra (A.J. Fontaine, pers. commun.), as has been observed elsewhere in the Hudson Bay region.

Status: Part of the site occurs within the Harry Gibbons Migratory Bird Sanctuary. It is an Important Bird Area in Canada (NU022; IBA Canada 2004) and an International Biological Programme Site (Site 6-5; Beckel 1975).



Location: 64°00'N, 82°30'W

Size: 2699 km²

Description: East Bay is an inlet, 50 km long, which lies on the southeast coast of Southampton Island. The bay is approximately 50 km east of the settlement of Coral Harbour. Flat sedge meadows, separated by raised beaches, surround East Bay. As the land rises towards Native Bay, the meadow is broken by outcrops of disintegrated Ordovician and Silurian limestone.

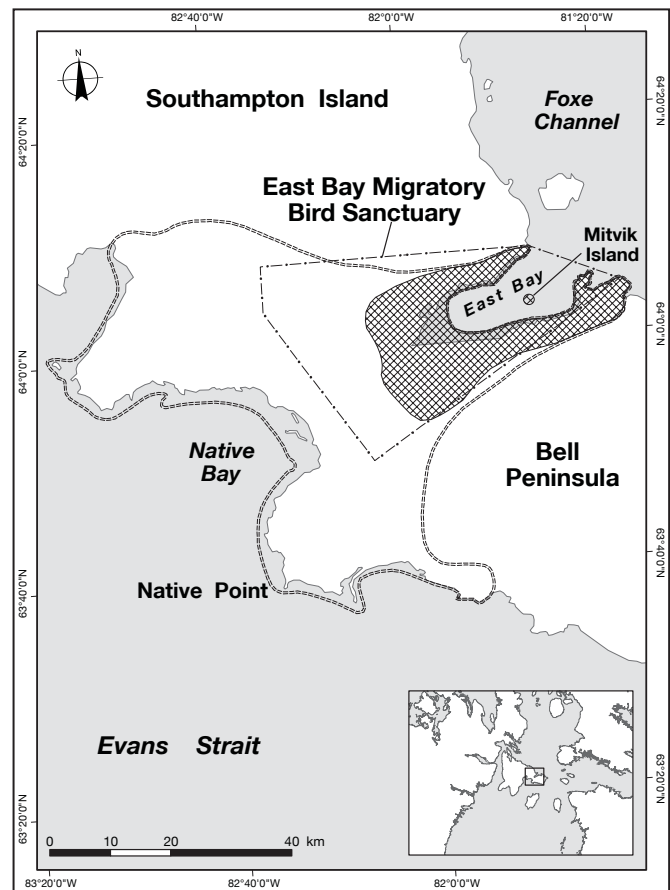
East Bay lies in the Low Arctic oceanographic zone (Nettleship and Evans 1985), where water flowing south through Foxe Channel meets western Hudson Strait. Freeze-up usually occurs by mid-October, although the ice remains unconsolidated for much of the winter. Landfast ice forms around coastlines (Larnder 1968), including East Bay (Gaston et al. 1985). Ice breakup begins in April, and by May, large patches of open water occur, although the pattern is highly variable among years (Gaston and Hipfner 1998).

Biological value: In 1979, the East Bay plain supported a nesting population of 42 600 Lesser Snow Geese (Reed et al. 1987). Earlier surveys indicated that at least an additional 2000 nesting geese occurred in the lowlands between the southwestern boundary of the East Bay colony and the eastern shore of Native Bay (Kerbes 1975). By 1997, the number of nesting geese within the East Bay key site had increased to nearly 157 000, which represented more than 3% of the Canadian breeding population (Kerbes et al. 2004). The primary nesting and brood-rearing habitat is situated in a 600 km² lowland area between East Bay and Native Bay.

Thirty-five breeding pairs of Cackling Geese and 450 nests of Atlantic Brant have been observed at this site (Abraham and Ankney 1980; Reed et al. 1980), likely representing 1% of the Canadian Atlantic Brant population.

Mitvik Island, located in East Bay, and an area on the south shore of East Bay support Arctic Canada's largest single colony of Common Eiders, both *S. m. borealis* and *S. m. sedentaria*. Estimates vary between 3500 and 5900 pairs (Abraham and Ankney 1986) and more recently 4500 pairs (H.G. Gilchrist, unpubl. data.). Gaston and Cooch (1986) observed several thousand eiders staging in Hudson Strait, and recent satellite telemetry work (2001–2003) indicates that many of these birds move to East Bay to breed (H.G. Gilchrist, pers. commun.). Most of these birds are of the *borealis* subspecies, and thus this single site represents 1.5% of their Canadian population. Mitvik Island also supports a colony of approximately 200 pairs of Black Guillemots (H.G. Gilchrist, pers. commun.).

Shorebirds are also numerous, with the area supporting some of the highest breeding densities known for the eastern Arctic (V.H. Johnston, pers. commun.). Red Phalarope are the most common shorebirds, occurring in densities of about 30 birds/km² and nesting at densities of 8 nests/km² (P. Smith, unpubl. data). In 2001, other shorebird densities recorded at East Bay were as follows: Semi-palmated Plover, 5.8/km²; Black-bellied Plover, 0.4/km²; Ruddy Turnstone, 16.25/km²; Red Knot, 3.3/km²; and White-rumped Sandpiper, 14.2/km² (P. Smith, unpubl. data).



East Bay is also an important site for some marine mammals, notably walrus and beluga. An estimated 350–400 beluga, including calves, and 75 walrus were observed in the waters of East Bay in 2001 (A. Fontaine, pers. obs.). Polar bears commonly move through East Bay to cross Southampton Island and may den in this area (Riewe 1992).

East Bay is an important site for research on eiders, shorebirds, and gulls (e.g., Robertson et al. 2001; Wayland et al. 2001; Bottitta et al. 2003).

Sensitivities: Nesting, moulting, and brood-rearing geese are sensitive to disturbance. The lowlands are susceptible to terrain disturbance through the disruption of natural drainage patterns and the melting of permafrost. Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. Pollution, particularly hydrocarbons, in the surrounding marine environment may be detrimental to the eiders.

Potential conflicts: The greatly increased numbers of Lesser Snow Geese could have a detrimental impact on the lowland tundra, as has been seen elsewhere in the Hudson Bay region.

Status: This key site lies within the East Bay Migratory Bird Sanctuary. It is an Important Bird Area in Canada (NU023; IBA Canada 2004), and it is also within a Key Marine Habitat Site in Nunavut (Site 24; Mallory and Fontaine 2004).

NU Site 45 – Coats Island

Location: 62°57'N, 82°00'W

Size: 1 km²

Description: Coats Island is located in northern Hudson Bay, approximately 100 km south of Coral Harbour on Southampton Island and 110 km west of Mansel Island. The key terrestrial habitat site is centred around Cape Pembroke on the northeast corner of Coats Island. Most of Coats Island is composed of Cambrian and Silurian limestone (de Kemp 1999), but the northeastern part of the island is principally Precambrian gneiss, which rises 215 m above Hudson Strait (Heywood and Sanford 1976). Much of the island is dotted with tundra ponds, wet lowlands, and raised beaches, but the northern portion is mainly exposed rock. Luxuriant graminoid vegetation occurs around the seabird colonies.

Ice remains unconsolidated around Coats Island for most of the winter, with large areas of open water between May and October in Hudson Strait. The marine region around Coats Island is described elsewhere (Gaston and Hipfner 1998; Mallory and Fontaine 2004).

Biological value: Coats Island supports two Thick-billed Murre colonies, estimated at 33 000 pairs, or about 2% of the Canadian population (Gaston et al. 1993), situated a few kilometres west of Cape Pembroke. These colonies have increased substantially in size from estimates in the 1950s (Tuck 1961; Nettleship 1980; Gaston et al. 1987) and have been the subject of much research (Gaston and Elliot 1991; Gaston et al. 1993; Gilchrist and Gaston 1997; Gaston and Hipfner 1998; Hipfner et al. 1999).

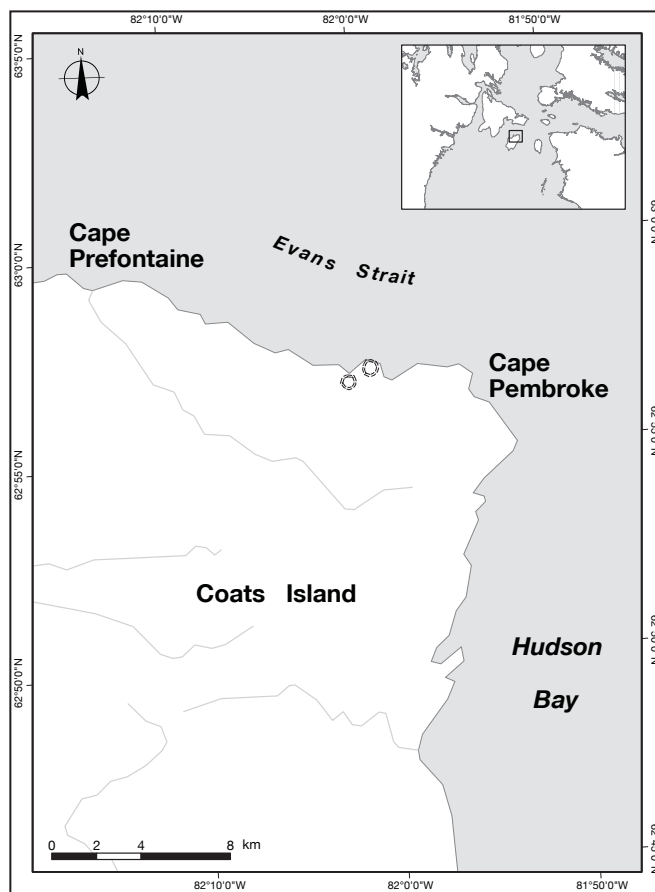
There are also Black Guillemots, Glaucous Gulls, and Peregrine Falcons on the cliffs (Riewe 1992). A large Iceland Gull colony is situated south of the murre colonies (Gaston and Elliot 1990), and Herring Gulls nest on nearby lakes. Eighty-four species of birds and 13 species of mammals have been recorded in the terrestrial or marine region around Coats Island since 1975 (Gaston and Ouellet 1997). Small numbers of Razorbills have recently appeared on Coats Island (A.J. Gaston, pers. commun.). This marine region is used by seabirds from late April through September.

The waters around Coats Island also support many marine mammals, notably walrus, polar bear, bowhead whale, and beluga (Riewe 1992; Gaston 2000). The area is an important hunting location for the community of Coral Harbour.

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas.

Potential conflicts: There is increasing activity by cruise ships in the eastern Arctic (Wakelyn 2001), notably in Hudson Bay, with ships moving through Hudson Strait to Churchill, Manitoba, coming close to Coats Island.

Status: Coats Island is an International Biological Programme Site (Site 6-3; Nettleship 1980), an Important Bird Area in Canada (NU005; IBA Canada 2004), and a



Key Marine Habitat Site in Nunavut (Site 26; Mallory and Fontaine 2004).

Location: 63°29'N, 78°30'W

Size: 49 km²

Description: This site is a small island lying off the northwest tip of Nottingham Island, at the juncture of Hudson Strait and Foxe Channel. The community of Kinngait (Cape Dorset) is about 120 km to the northeast. The islands in this area are generally rocky, with variable topography and sparse vegetation.

Biological value: This area provides habitat for between 1000 and 3000 pairs of nesting Common Eiders (Gaston et al. 1986) (presumably *S. m. borealis*; Abraham and Finney 1986), which represents from 1 to 3% of the Canadian population of the *borealis* subspecies. Common Eiders also nest on small islands off the east end of Nottingham Island.

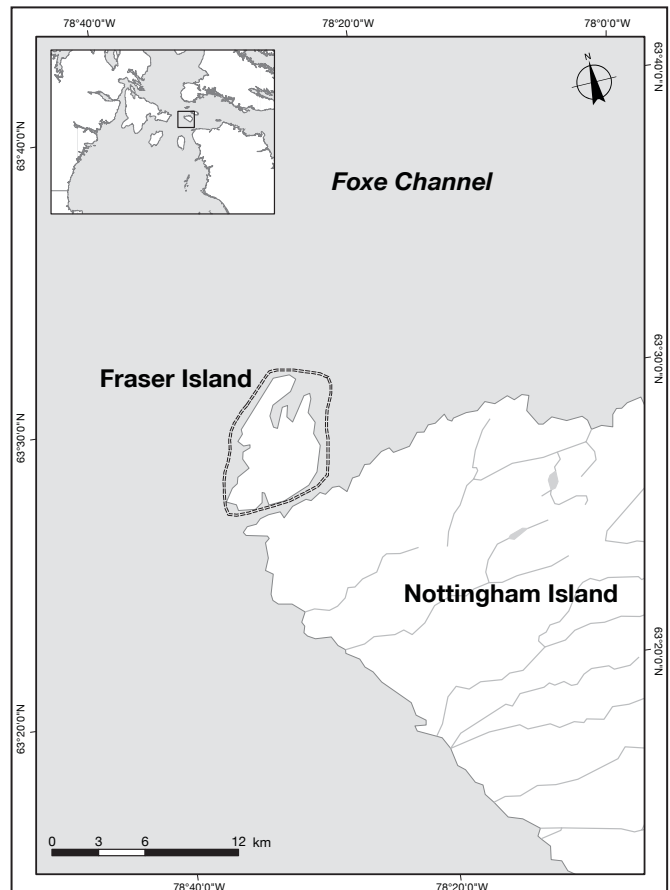
The eiders migrate into the area in late May; by early June, with the breakup of ice around the nesting islands, they have moved onto the colonies and initiated nesting. Once the clutch has been laid and incubation begins, the males leave the islands and moult elsewhere. Ducklings hatch throughout July and early August; shortly thereafter, the females and ducklings likely leave the nesting island (Nakashima 1986).

Recent studies tracking the fall migration of eiders from Foxe Basin into Hudson Strait indicated that Fraser Island and Nottingham Island are important areas for moulting eiders in late August and September (H.G. Gilchrist, unpubl. data).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution, particularly hydrocarbons, in the surrounding marine environment may be detrimental to the eiders.

Potential conflicts: None.

Status: This key site is an Important Bird Area in Canada (NU024; IBA Canada 2004).



NU Site 47 – Digges Sound

Location: 62°33'N, 77°35'W

Size: 6.5 km²

Description: Digges Sound is located at the northeastern corner of Hudson Bay, where it meets Hudson Strait. It is enclosed by the Digges Islands to the northwest, Cape Wolstenholme to the northeast, and the mainland of Ungava Peninsula, Quebec, to the south. The site is approximately 17 km north of the community of Ivujivik. Rock of the area is Precambrian granite (de Kemp 1999), forming 200-m cliffs at East Digges Island. Cliffs along Cape Wolstenholme (in Nunavik, Quebec) rise to 300 m above sea level, forming steep, precipitous drops to Hudson Strait. A detailed description of the Digges Sound terrestrial environment is provided in Gaston et al. (1985).

In the Digges Sound region, water currents flow north from Hudson Bay into Hudson Strait, and the region remains ice-free from May through October, although the annual distribution of ice varies (Larnder 1968). The marine region is described further in Mallory and Fontaine (2004).

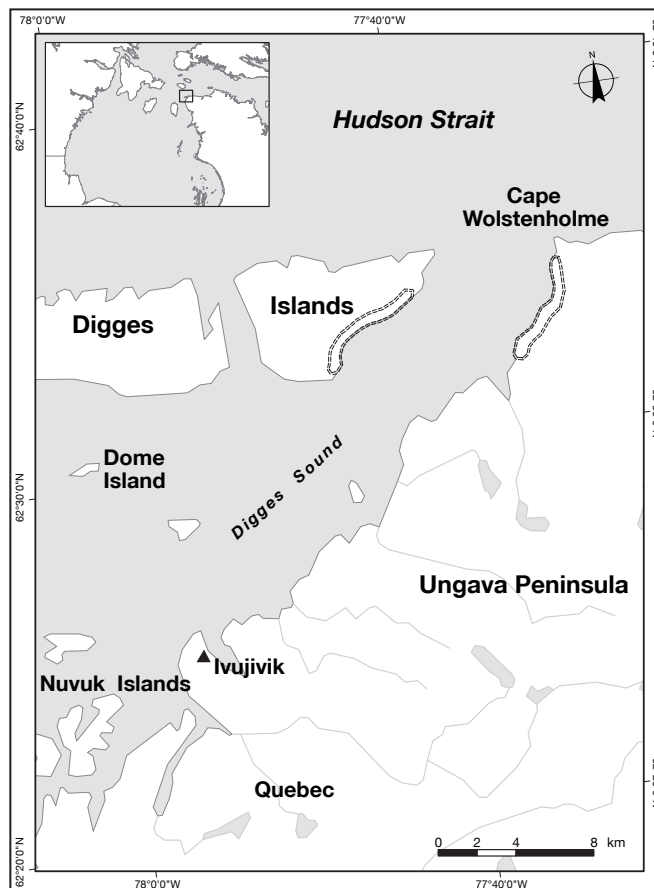
Biological value: The murres of Digges Sound represent one of the largest concentrations of Thick-billed Murres in Canada (Gaston and Hipfner 2000). Collectively, the two colonies of Thick-billed Murres in Digges Sound represent approximately 300 000 pairs, or 20% of the Canadian population (Gaston et al. 1985). The larger colony occurs on eastern Digges Island, while the smaller colony is found southwest of Cape Wolstenholme on the mainland.

Approximately 870 pairs of Black Guillemots, 170 pairs of Glaucous Gulls, 350 pairs of Iceland Gulls, 30 pairs of Herring Gulls, and 100 pairs of Arctic Terns also breed here (Gaston et al. 1985). A small colony of Atlantic Puffins occurs on Dome Island, south of western Digges Island, and Razorbills have been sighted in the area, but no evidence of breeding has yet been found (Gaston and Mallone 1980). The Digges Sound area also supports several pairs of nesting Gyrfalcons (Gaston et al. 1985).

This marine region is occupied by seabirds from late April through September, notably in August, when the swimming migration of adult and young murres begins on their way to their wintering grounds off Newfoundland and Labrador (Gaston and Elliot 1991; Gaston et al. 1985). In September 1980, at least 40 000 chicks were present 140 km northwest of Digges Sound, and at least 140 000 adults were scattered east of 72°W (Gaston 1982).

The waters around Digges Sound also support populations of marine mammals, notably beluga, bearded seal, ringed seal, and polar bear (Gaston et al. 1985; Riewe 1992). The area is an important hunting location for the community of Ivujivik, and some community members regularly harvest murre eggs at the Digges Sound colonies (Gaston et al. 1985).

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas.



Potential conflicts: There is increasing activity by cruise ships in the eastern Arctic (Wakelyn 2001), notably in Hudson Bay, with ships moving through Hudson Strait to Churchill, Manitoba. These colonies are one of the locations most disturbed by humans in the Canadian Arctic (Chardine and Mendenhall 1998).

Status: Digges Sound is an International Biological Programme Site (Site 6-7; Nettleship 1980), an Important Bird Area in Canada (NU001; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 27; Mallory and Fontaine 2004). The Quebec provincial government has begun work to set up a provincial park at Cape Wolstenholme, containing the mainland murre colony (S. Cossette, pers. commun.).

Location: 63°30'N, 72°30'W

Size: 4172 km²

Description: Markham Bay is an island-studded coastline located along the southern coast of Baffin Island about midway between the communities of Kimmirut (Lake Harbour) and Kinngait (Cape Dorset). Markham Bay lies in the Low Arctic oceanographic zone (Nettleship and Evans 1985). Main currents flow east through Hudson Strait (Larnder 1968). Freeze-up usually occurs by mid-October, and mobile pack ice dominates Hudson Strait from January to April, with landfast ice formed along coastlines (Larnder 1968). Ice breakup begins in April; by May, large patches of open water occur. Patterns of ice breakup and the location of the floe edge can change considerably among years. Little ice remains by late July.

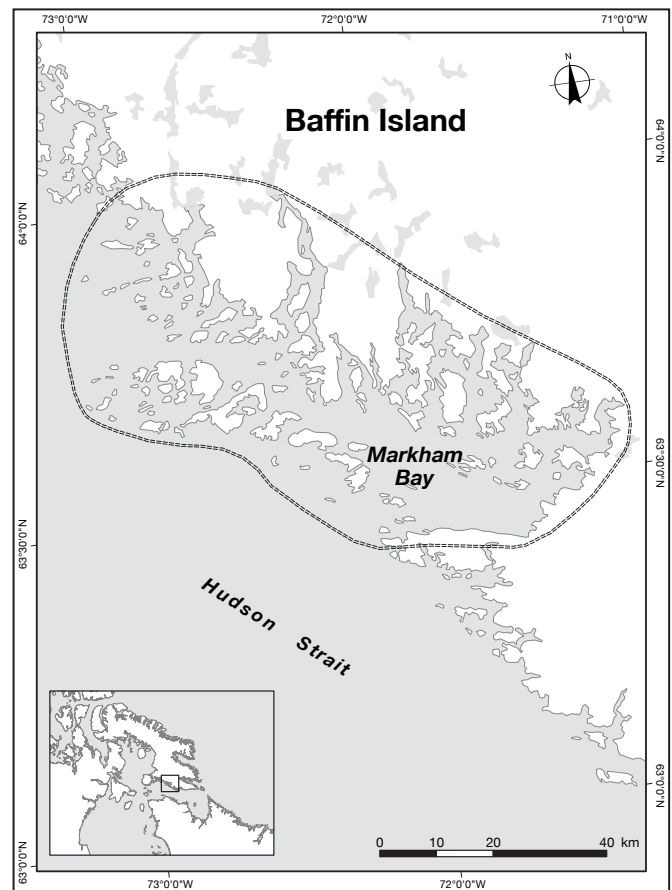
Biological value: Gaston and Cooch (1986) observed a minimum of 8000 Common Eiders (*S. m. borealis*) staging off the ice edge between Cape Dorset and Markham Bay in April 1982. They estimated that 10000 pairs bred along this section of Baffin Island. In 1997 and 1998, Gilchrist et al. (1998, 1999) surveyed the area between Cape Dorset and Markham Bay. Aerial surveys revealed 44 500 eiders (7% of the Canadian population of *borealis*), and boat surveys found 8000 nests over 2 years in Markham Bay. This represents nearly 3% of the Canadian population of this subspecies. The eider colonies are typically small and distributed across many islands. They are also susceptible to high annual fluctuations in success due to predation by arctic foxes and polar bears (D. Kay, pers. commun.), and they probably experienced higher use by humans when the settlement of Amadjuak was extant. Eiders occur in this area from April through October (MacLaren Marex Ltd. 1979; Gaston and Cooch 1986). Markham Bay and area also support substantial numbers of Iceland Gulls in colonies of 10–200 birds, as well as Black Guillemots (Riewe 1992).

This coast of Baffin Island supports a variety of marine mammals, including beluga, ringed seal, walrus, and polar bear (Stirling et al. 1980; Riewe 1992).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Colonial marine birds congregate in open ice leads and over key foraging sites, where they are susceptible to disturbance and to pollution of their foraging and migration areas.

Potential conflicts: None.

Status: This key site is an Important Bird Area in Canada (NU101; IBA Canada 2004).



NU Site 49 – Hantzsch Island

Location: 61°56'N, 65°01'W

Size: 1 km²

Description: Hantzsch Island is the unofficial name for the small island 1 km off the northeastern shore of Edgell Island and north of Resolution Island at the mouth of Frobisher Bay. It is a dome-shaped island, less than 1 km in diameter, with a maximum elevation of 150 m. The rugged coastline of steep cliffs is mainly Precambrian gneiss (Douglas 1970), with grassy slopes and summits.

Frobisher Bay is an area of strong currents and tides, and a large polynya develops to the north of Hantzsch Island (Stirling and Cleator 1981). As such, open water may persist in this area year-round. The marine region is described in Mallory and Fontaine (2004).

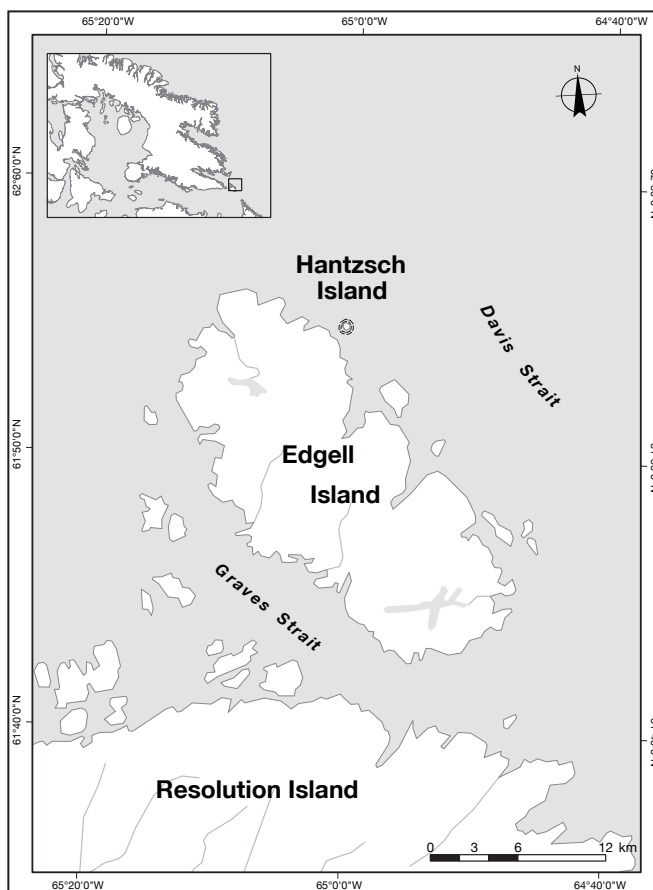
Biological value: A colony of Thick-billed Murres occurs on Hantzsch Island (Gaston 1991), estimated at 50 000 pairs (Nettleship 1980), which represents approximately 3% of the Canadian population; however, the colony was last visited in 1982. About 5000 pairs of Black-legged Kittiwakes (1% of the Canadian population) breed here (Gaston 1986, 1991), with large numbers around Resolution and Edgell islands in August 1977 (MacLaren Atlantic Inc. 1978b). Glaucous Gulls and possibly Northern Fulmars also breed on Hantzsch Island (Gaston 1991). Many Black Guillemots breed in Frobisher Bay (Fontaine et al. 2001) and may breed on Hantzsch Island, although a comprehensive census has not been conducted. Traditional Inuit ecological knowledge suggests that the mouth of Frobisher Bay is an important feeding, staging, and breeding area for over 15 species of marine birds (Riewe 1992), occurring in highest concentrations from early May to October. Migrating marine birds and seabirds may also be found in open-water areas earlier or later in the season (Riewe 1992).

This marine area is also important for many marine mammals, including bearded seal, ringed seal, harp seal, walrus, and beluga (Riewe 1992).

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas.

Potential conflicts: Davis Strait has the potential to become a marine shipping route and an area of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979). The complex nature of currents in the region suggests that oil spills in southern Davis Strait could enter this marine area (Barry 1977). Increased ship traffic attributable to the needs of the growing community of Iqaluit could contribute to higher disturbance of birds, as well as increased chance of pollution.

Status: Hantzsch Island is an International Biological Programme Site (Site 7-10; Nettleship 1980), an Important Bird Area in Canada (NU025; IBA Canada 2004), and part of a Key Marine Habitat Site in Nunavut (Site 28; Mallory and Fontaine 2004).



Location: 60°25'N, 68°08'W

Size: 32 km²

Description: Akpatok Island is located in northwestern Ungava Bay, about 65 km offshore from the northern mainland of Quebec. It is part of Nunavik (Makivik Land Claim). It is a flat-topped island surrounded by cliffs 245 m high and lies near the eastern entrance to Hudson Strait. The island is almost entirely composed of Cambrian and Silurian sandstone, limestone, and dolomite (de Kemp 1999). Other physical characteristics of the island are described in Chapdelaine et al. (1986a), and the nearby marine area is described in Mallory and Fontaine (2004).

Biological value: Two large colonies of Thick-billed Murres occur on Akpatok Island (Tuck 1961). The northern colony is spread along 14 km of cliff face, and the southern colony is spread over 15 km. Collectively, these colonies are estimated at approximately 520 000 pairs (Gaston 1991), with the northern colony slightly larger. This means that the island supports the largest number of breeding Thick-billed Murres in Canada, at more than 20% of the Canadian population (Gaston and Hipfner 2000). Murres arrive at waters around the island in early May and depart on a swimming migration with their young at the end of August. Tuck and Squires (1955) suggested that most murres from Akpatok Island fed within 16 km of the colony.

Approximately 300–500 pairs of Black Guillemots nest along the island’s coast, and Peregrine Falcons, Gyrfalcons, and Glaucous Gulls also breed here (Alexander et al. 1991). Significant concentrations of marine birds may be distributed throughout this region, depending on the annual patterns of ice breakup and the distribution of prey (MacLaren Atlantic Inc. 1978b; Riewe 1992).

The marine area around Akpatok Island is important for many mammals, especially walrus, ringed seal, and polar bear (Smith et al. 1975). Akpatok Island is a traditional hunting ground for these species for nearby Inuit communities (Hentzel 1992).

Sensitivities: Nesting seabirds are sensitive to disturbance and the pollution of their feeding areas. The shoreline area around Akpatok Island is considered as being at a “high hazard risk” for oil spills (Barry 1977). Oil and gas exploration occurred in 1969 and left a contaminated site on the island. This site was assessed in 2003 and is leaking contaminated waste, but it is distant from the seabird colonies. The site has been recommended for urgent cleanup on the Federal Contaminated Sites Accelerated Action Plan (Environment Canada, unpublished report, October 2003), but no action has been taken as of 2005.

Potential conflicts: Davis Strait has the potential to become a marine shipping route and an area of hydrocarbon exploration and development (Imperial Oil Ltd. 1978; Petro-Canada Ltd. 1979). The complex nature of currents in the region suggests that oil spills in southern Davis Strait



could enter the Akpatok Island marine area (Barry 1977). Increased tourism (particularly from cruise ships; Wakelyn 2001) and associated disturbance to murre colonies (Hentzel 1992) also pose threats. Oil spills associated with drilling or shipping activities could endanger large numbers of seabirds and pollute their feeding areas.

Status: Akpatok Island is an International Biological Programme Site (Site 6-6; Nettleship 1980), an Important Bird Area in Canada (NU007; IBA Canada 2004), and a Key Marine Habitat Site in Nunavut (Site 30; Mallory and Fontaine 2004). Some discussions were held with nearby communities in the early 1990s about protection, but these were suspended until the settlement of the Makivik Land Claim.

Location: 60°10'N, 69°30'W

Size: 1882 km²

Description: Ungava Bay is a large bay in Nunavik (Makivik Land Claim), northern Quebec, which is rimmed with many small islands that are also part of Nunavik. The community of Kangirsuk is located 5 km from the Payne Islands area of this key site.

Ungava Bay lies in the Low Arctic oceanographic zone (Nettleship and Evans 1985). Main currents flow east through Hudson Strait (Larnder 1968). Freeze-up usually occurs by mid-October, and mobile pack ice dominates Hudson Strait from January to April, with landfast ice formed along coastlines (Larnder 1968). Ice breakup begins in April; by May, large patches of open water occur. Patterns of ice breakup can change considerably among years (Nakashima 1986), but little ice remains by late July.

The islands are characterized by granitic–gneiss bedrock thinly overlain by soil. The vegetation is composed of tundra species, primarily arctic willow, crowberry, sedges, lichens, and mosses (Chapdelaine et al. 1986b). Ice, in combination with strong tidal action, results in extensive bare rock around the margins of the islands. The tidal range is among the highest in Canada and can reach 14–16 m in Ungava Bay (Dunbar 1958).

Biological value: A number of archipelagoes in Ungava Bay provide nesting habitat for over 19% of the Canadian population of Common Eiders (*S. m. borealis*) (Chapdelaine et al. 1986b). The most important of these archipelagoes are the Eider Islands, the Plover and Payne islands, the Gyrfalcon Islands, and islands of northeastern Ungava Bay. Collectively, the main colonies in these archipelagoes contained 17 900 pairs (in 1980), which represented 6% of the Canadian population at that time. However, many smaller eider colonies are scattered across the islands in Ungava Bay and collectively represented an additional 16% of the national population (Chapdelaine et al. 1986b).

Pre-nesting aggregations of eiders occur off the Plover and Gyrfalcon islands, as migrating birds move west along the Ungava coast during April (Gaston and Cooch 1986; Nakashima 1986). By early June, with the breakup of ice around the nesting islands, they have moved onto the colonies and initiated nesting (Nakashima 1986). Once the clutch has been laid and incubation begins, the males leave, flying over 60 km west to coastal moulting areas (Nakashima 1986). Ducklings hatch throughout July and early August; shortly thereafter, the females and ducklings leave the nesting islands for sheltered bays and estuaries, remaining in the area until October.

This coast of Ungava Bay also supports a variety of marine mammals, including beluga, ringed seal, walrus, and polar bear (Riewe 1992).

Eider Islands (60°50'N, 69°20'W; 147 km²)

The 172 Eider Islands form a small archipelago off the north end of the west side of Ungava Bay, approximately 20 km southeast of the community of Quaqtuaq. The Eider

Islands had an estimated 4100 nesting pairs of Common Eiders and an average of 24.5 nests per island (1980 surveys; Chapdelaine et al. 1986b), representing over 4% of the Canadian population in 1980. In 2000, only 621 nesting pairs were found on the Eider Islands, but it remains unclear whether this represented a true population decline, a poor breeding year, or both (Falardeau et al. 2003).

The Plover and Payne islands (60°10'N, 69°30'W; 923 km²)

There are at least 100 islands, and they form a small archipelago off the west side of Ungava Bay, just east of the community of Kangirsuk. The Plover and Payne islands have a nesting population of around 3500 pairs of Common Eiders and an average of 32.1 nests per island (1980 surveys; Chapdelaine et al. 1986b), representing nearly 4% of the Canadian population in 1980. In 2000, surveys detected a significant increase in the number of nesting pairs present in this archipelago (5903 nesting pairs; Falardeau et al. 2003).

Gyrfalcon Islands (59°06'N, 68°58'W; 334 km²)

The 201 Gyrfalcon Islands form a small archipelago off the southwest side of Ungava Bay, about 120 km northwest of Kuujuaq. The Gyrfalcon Islands have a nesting population of around 3600 pairs of Common Eiders and an average of 18.0 nesting pairs per island (1980 surveys; Chapdelaine et al. 1986b), representing nearly 4% of the Canadian population. In 2000, surveys detected a slight increase in the number of nesting pairs present in this archipelago (4010 nesting pairs; Falardeau et al. 2003).

Northeast Ungava Bay (59°40'N, 65°30'W; 478 km²)

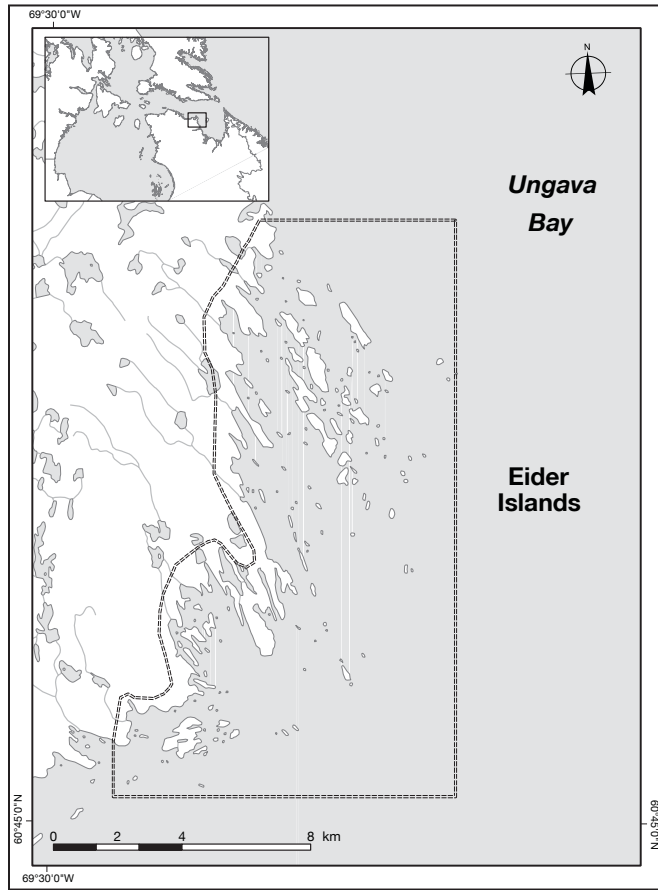
There are at least 589 islands located along the northeast coast of Ungava Bay, about 100 km north of the community of Kangiqsualujuaq. The three archipelagoes have a nesting population of around 6700 pairs of Common Eiders and an average of 12.4 nesting pairs per island (1980 surveys; Chapdelaine et al. 1986b), representing over 7% of the Canadian population. Northeast Ungava Bay was not surveyed in 2000 (Falardeau et al. 2003).

Sensitivities: Colonial marine birds congregate in open ice leads and over key foraging sites, at which time they are susceptible to disturbance and pollution. Nesting eiders are also sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution, particularly hydrocarbons, in the surrounding marine environment may be detrimental to eiders.

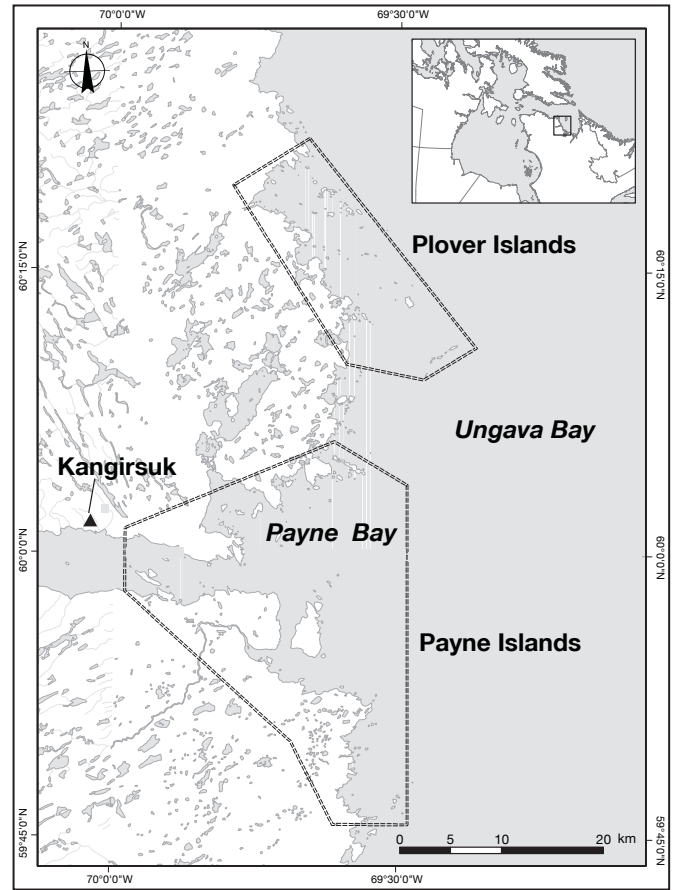
Potential conflicts: In this region, Inuit from nearby communities gather a large number of eggs and a substantial amount of down, but harvest levels are thought to have negligible impacts on the population (Reed 1986).

Status: The Plover and Payne, Gyrfalcon, and northeastern Ungava Bay islands are Important Bird Areas in Canada (NU027, NU028, NU029; IBA Canada 2004).

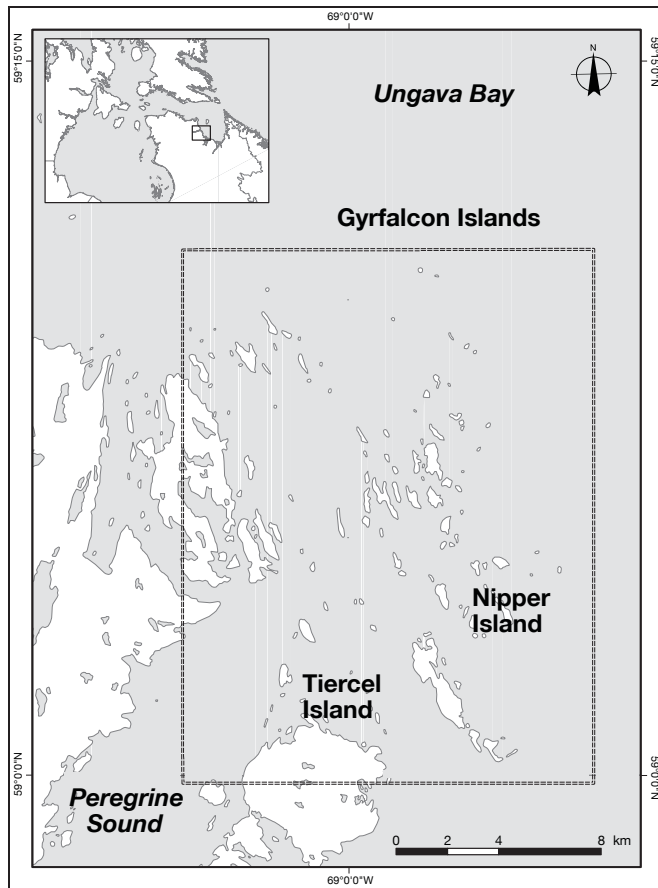
Eider Islands



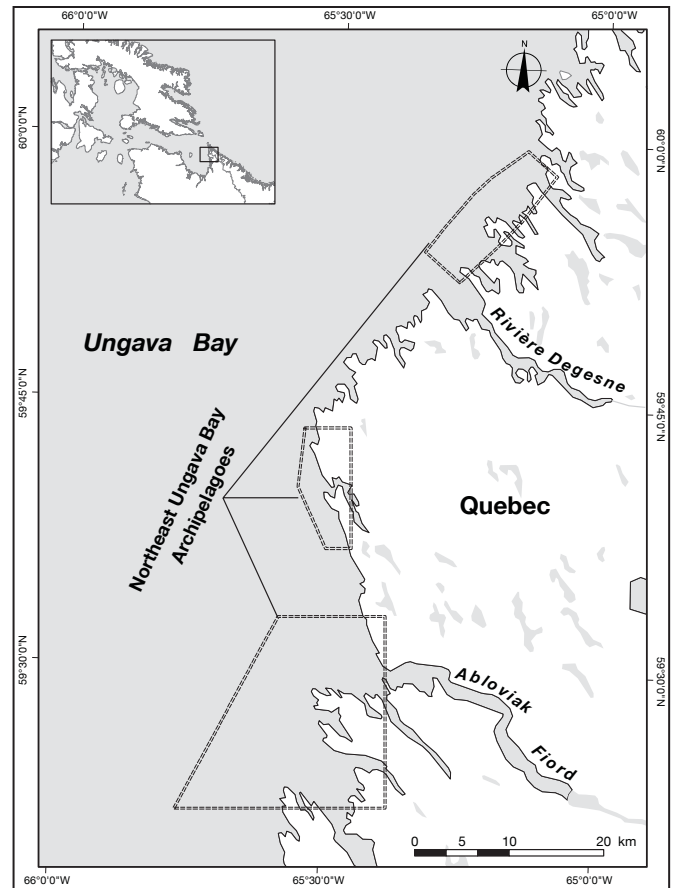
Plover and Payne islands



Gyrfalcon Islands



Northeast Ungava Bay



NU Site 52 – Koktac River Archipelago

Location: 59°15'N, 78°00'W

Size: 800 km²

Description: This area extends along 70 km of the Quebec coastline of Hudson Bay between the communities of Inukjuak and Puvirnituq, also known as Povungnituk. All offshore islands and reefs in this area are within Nunavik (Makivik Land Claim).

There are 768 islands in the area; 2 of the islands are greater than 500 ha, and 141 are within the foreshore flats. Most of the remaining 625 islands are less than 50 ha and fully detached from the mainland (Nakashima and Murray 1988).

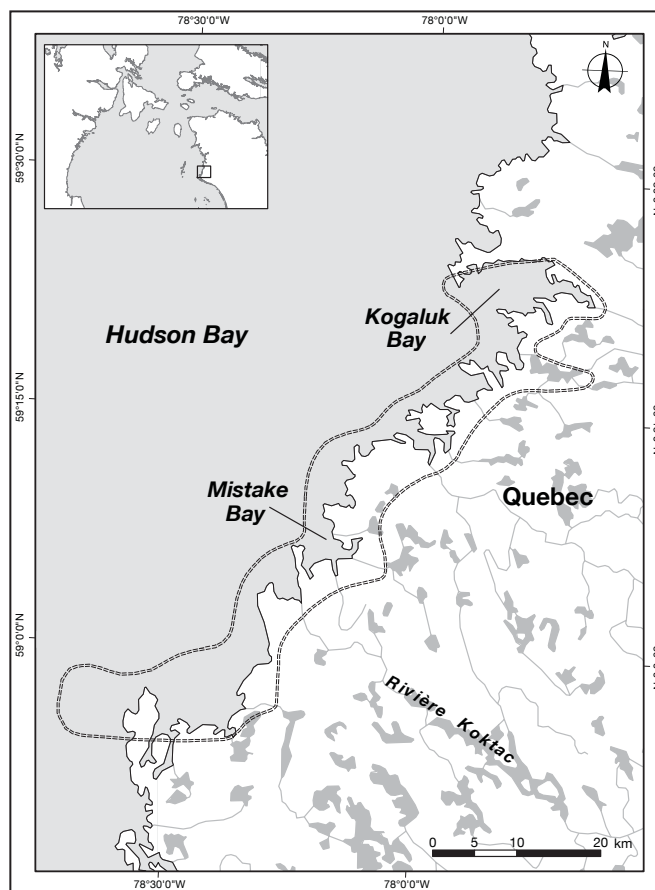
Biological value: In 1985, an estimated 2300 pairs of Hudson Bay Common Eiders (*S. m. sedentaria*) nested on small islands in this area (Nakashima and Murray 1988). This represents at least 5% of the Canadian population, although the number of Hudson Bay eiders remains poorly known (Robertson and Gilchrist 1998). Not all islands were inhabited by the eiders in their survey, which covered half the small islands. Although colonies were distributed throughout the site, Nakashima and Murray (1988) found 80% of nests on only 15% of the islands.

Many Hudson Bay eiders winter along the western land-fast ice edge northwest of the Belcher and Sleeper islands and, to a lesser extent, on polynyas around the Belcher Islands (Freeman 1970; Nakashima and Murray 1988; Gilchrist and Robertson 2000). Concentrations of wintering marine birds are very unusual in either the Northwest Territories or Nunavut. In spring, eiders disperse as open water becomes available elsewhere; islands at the edges of archipelagoes tend to be the first ice-free nesting areas and are often adjacent to dense mussel beds in shallow water (the primary prey of Hudson Bay eiders). Eiders at the Koktac River initiate nesting in the third and fourth weeks of June, and the eggs hatch in late July, shortly after which broods disperse from the nesting islands. Brood rearing continues into November.

Around 870 pairs of Arctic Terns and 160 pairs of Glaucous and Herring gulls nested on islands in the archipelago in 1985, usually in association with Common Eiders (Nakashima and Murray 1988). The population status of gulls and Arctic Terns in this region of Hudson Bay is also uncertain and may have declined since the 1980s (Gilchrist and Robertson 1999).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution in the surrounding marine environment would be detrimental to the eiders.

Potential conflicts: Oil exploration in central Hudson Bay is a potential source of pollution. Prevailing west and northwest winds render the east coast of the bay most susceptible to oil damage (Davidson 1985).



Status: This key site is an Important Bird Area in Canada (NU030; IBA Canada 2004).

Location: 57°30'N, 79°45'W

Size: 349 km²

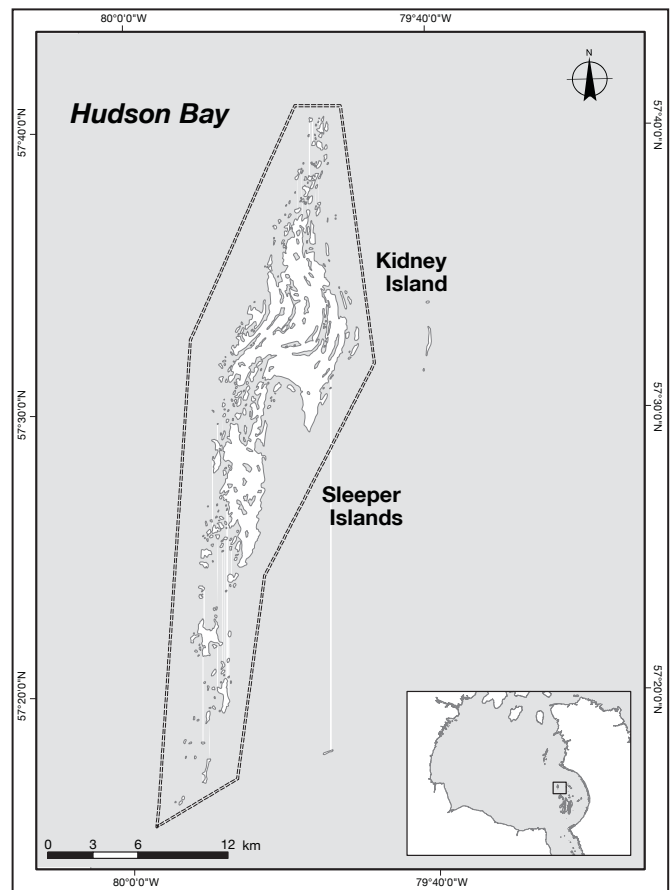
Description: The Sleeper Islands (Qumiutug) archipelago is situated in Hudson Bay about 115 km north-northeast of the Belcher Islands community of Sanikiluaq. The archipelago stretches about 49 km north to south and consists of over 360 islands plus numerous reefs and shoals. Most of the islands are less than 50 ha, but two are greater than 1000 ha. Most islands consist mainly of exposed, smooth bedrock. Vegetation is restricted to depressions in the bedrock and is more abundant on the larger islands (Nakashima and Murray 1988).

Less than 100 years ago, Inuit occupied the Sleeper Islands year-round. Human-made stone rings still surround old and active nest cups of eider ducks on many of the islands. Inuit oral history states that stone structures protected nesting eiders from wind and weather and also facilitated trapping the birds for food. The archipelago is visited infrequently by Inuit between July and September by boat (Nakashima and Murray 1988).

Biological value: In 1985, an estimated 5900 pairs of Hudson Bay Common Eiders (*S. m. sedentaria*) nested on small islands in this key site (Nakashima and Murray 1988). This represents 14% of the Canadian population, although the number of Hudson Bay eiders remains poorly known and has apparently declined by at least 70% since the late 1980s (Robertson and Gilchrist 1998). Inuit consider that the population began to recover throughout the 1990s, however.

Not all islands are inhabited by the eiders, and it was common to find that 90% of nests (i.e., breeding pairs) occurred on 8% of the islands (Nakashima and Murray 1988; Robertson and Gilchrist 1998). In 1997, 107 islands were surveyed, with an average number of nests per island of 4.4 (range 0–146). Only 24 (23%) islands supported some breeding pairs (Robertson and Gilchrist 1998). The more isolated and exposed islands around the perimeter of the archipelago were the preferred sites. These islands were likely free of ice earlier in the season than more central islands, and this limits the ability of arctic foxes to reach islands over the ice during egg laying and incubation. The eiders also preferred islands with large, flat, well-vegetated areas.

Many Hudson Bay Common Eiders winter along the western land-fast ice edge northwest of the Belcher and Sleeper islands and, to a much lesser extent, on polynyas around the Belcher Islands (Freeman 1970; Nakashima and Murray 1988). Concentrations of wintering birds are very unusual in both the Northwest Territories and Nunavut (Jamieson et al. 2001). In spring, eiders disperse as open water becomes available elsewhere; islands at the edges of archipelagoes tend to be the first ice-free nesting areas. Eiders at the Sleeper Islands initiate nesting in the second and third weeks of June, and the eggs hatch in July, shortly after which families disperse from the nesting islands. Brood rearing continues into November.



About 1600 pairs of Arctic Terns and 200 pairs of Glaucous and Herring gulls nested on islands in the archipelago in 1985, usually in association with Common Eiders (Nakashima and Murray 1988). The numbers of Glaucous and Herring gulls appear to have remained stable, but there is evidence of decline in the numbers of nesting Arctic Terns (Robertson and Gilchrist 1998).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution in the surrounding marine environment would be detrimental to the eiders.

Potential conflicts: Oil exploration in central Hudson Bay is a potential source of pollution. Prevailing west and northwest winds render the east coast of the bay most susceptible to oil damage (Davidson 1985).

Status: This key site is an Important Bird Area in Canada (NU033; IBA Canada 2004).

NU Site 54 – North Belcher Islands

Location: 56°45'N, 79°40'W

Size: 52 km²

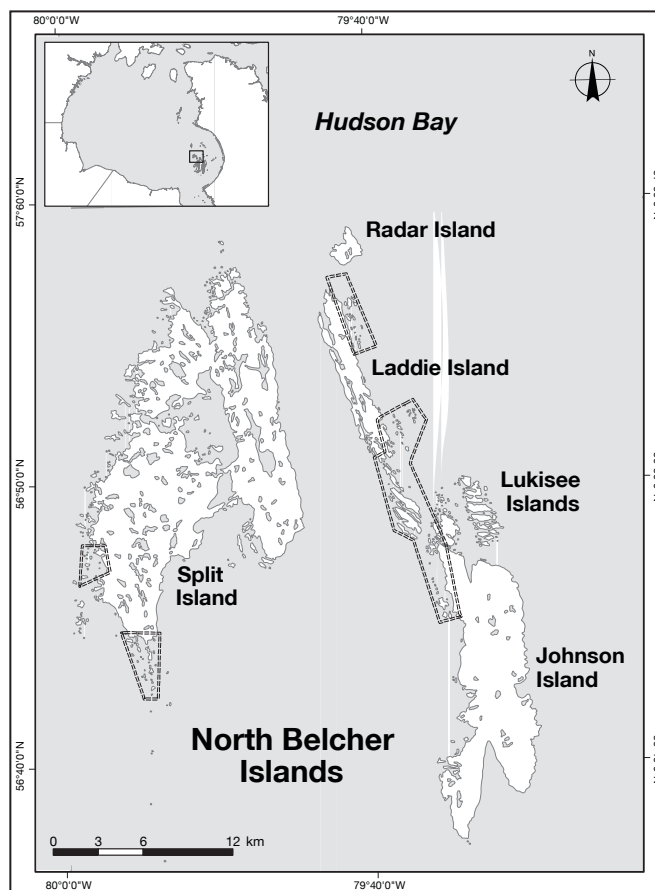
Description: The North Belcher Islands are situated in Hudson Bay just north of the main Belcher Islands, about 60 km northeast of the community of Sanikiluaq. The archipelago consists of three large islands (Split, Johnson, and Laddie) and almost 700 small islands. The islands north of Laddie Island are typically hump-shaped, with steep sides of exposed bedrock, and are sparsely vegetated. Other islands in the vicinity are more low lying. Exposed bedrock is predominant, but there are also extensive areas of cobble and gravel. Islands off southwest Split Island are composed completely of cobble and boulders (Nakashima and Murray 1988).

Until the 1940s, Split Island was the most important Inuit camp in the North Belcher Islands, owing to an abundance of walrus. This area continues to be an important camping and hunting area for people from Sanikiluaq (Nakashima and Murray 1988).

Biological value: In 1985, an estimated 2870 pairs of Hudson Bay Common Eiders (*S. m. sedentaria*) nested on small islands of this area, over 1650 around Laddie Island and 1215 near Split Island (Nakashima and Murray 1988). This represents 7% of the Canadian population. Not all islands were inhabited by eiders. In their survey, which covered half the small islands, Nakashima and Murray (1988) recorded 80% of nests on 11% of the islands in the Laddie Island area and 87% of nests on 5% of the islands in the Split Island area. More recently, Inuit report that there has been massive die-off of Common Eiders during winters with heavy ice conditions. This was confirmed by Robertson and Gilchrist (1998), who detected a 75% decline in the breeding population in the Split, Johnson, and Laddie island archipelagos.

Many Hudson Bay eiders winter along the western land-fast ice edge northwest of the Belcher and Sleeper islands and, to a much lesser extent, on polynyas around the Belcher Islands (Freeman 1970; Nakashima and Murray 1988). Concentrations of wintering birds are very unusual in both the Northwest Territories and Nunavut (Jamieson et al. 2001). In spring, eiders disperse as open water becomes available elsewhere; islands at the edges of archipelagos tend to be the first ice-free nesting areas. Eiders at the Sleeper Islands initiate nesting in the second and third weeks of June, and the eggs hatch in July, shortly after which families disperse from the nesting islands. Brood rearing continues into November.

About 380 pairs of Arctic Terns and 180 pairs of Glaucous and Herring gulls nested on islands in the archipelago in 1985, usually in association with Common Eiders (Nakashima and Murray 1988). However, more recent surveys indicated that the breeding numbers of these species have declined significantly. Causes of these declines are unknown (Gilchrist and Robertson 1999).



Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution in the surrounding marine environment would be detrimental to the eiders.

Potential conflicts: Oil exploration in central Hudson Bay is a potential source of pollution. Prevailing west and northwest winds render the east coast of the bay most susceptible to oil damage (Davidson 1985). Hunting and egg collecting may maintain local populations below the habitat's carrying capacity.

Status: This key site is an Important Bird Area in Canada (NU031; IBA Canada 2004).

Location: 56°22'N, 77°40'W

Size: 60 km²

Description: The Salikuit Islands archipelago is situated in eastern Hudson Bay about halfway between the Belcher Islands and the Quebec coastline, approximately 80 km east of the community of Sanikiluaq. The archipelago consists of 91 islands less than 50 ha in size and 12 between 50 and 500 ha. The islands are primarily low-lying, exposed bedrock. Some islands have extensive cobble beaches, which in some cases connect islands (Nakashima and Murray 1988). The islands are rarely visited by people; however, in the days before air travel, they were an important stopover for travellers moving between the Belcher Islands and Hudson’s Bay Company posts on the mainland (Nakashima and Murray 1988).

Biological value: In 1985, an estimated 895 pairs of Hudson Bay Common Eiders (*S. m. sedentaria*) nested on small islands in this area (Nakashima and Murray 1988). This represents 2% of the Canadian population. Not all islands were inhabited by the eiders; in their survey, which covered a third of the small islands, Nakashima and Murray (1988) recorded 84% of the nests on 20% of the islands.

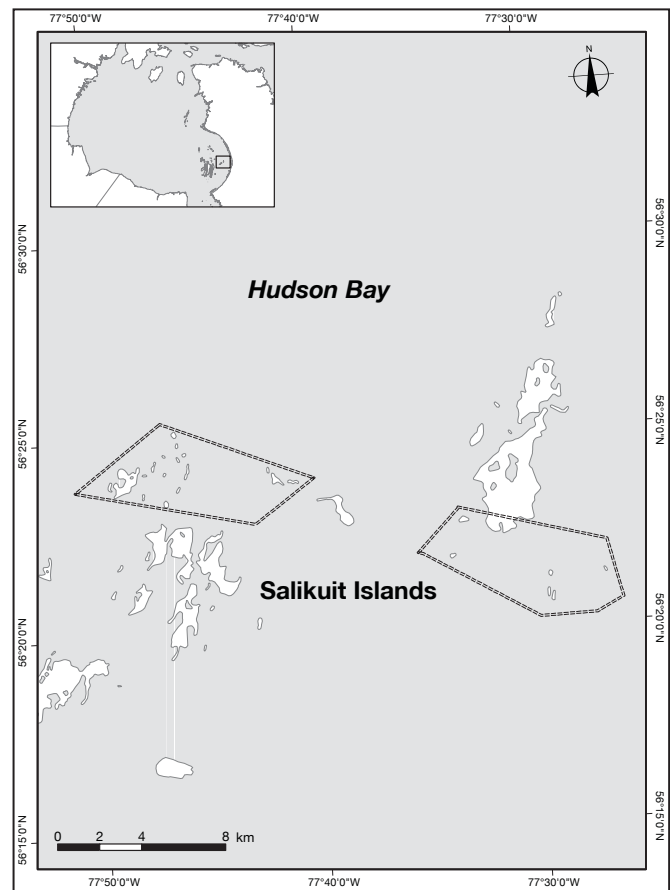
Many Hudson Bay eiders winter along the western land-fast ice edge northwest of the Belcher and Sleeper islands and, to a much lesser extent, on polynyas around the Belcher Islands (Freeman 1970; Nakashima and Murray 1988). Concentrations of wintering birds are very unusual in the Northwest Territories and Nunavut (Jamieson et al. 2001). In spring, eiders disperse as open water becomes available elsewhere; islands at the edges of archipelagoes tend to be the first ice-free nesting areas. Eiders at the Salikuit Islands probably initiate nesting in the second and third weeks of June, and the eggs hatch in mid- to late July, shortly after which families disperse from the nesting islands. Brood rearing continues into November.

A total of 218 pairs of Arctic Terns and 179 pairs of Glaucous and Herring gulls nested on islands in the archipelago in 1985, usually in association with Common Eiders (Nakashima and Murray 1988).

Sensitivities: Nesting eiders are sensitive to disturbance at the colony and will desert the colony site altogether if disturbance is persistent. The occurrence and success of colonies are highly dependent on the presence of small isolated islands, which are less accessible to predators. Pollution in the surrounding marine environment would be detrimental to the eiders.

Potential conflicts: Oil exploration in central Hudson Bay is a potential source of pollution. Prevailing west and northwest winds render the east coast of the bay most susceptible to oil damage (Davidson 1985).

Status: This key site is an Important Bird Area in Canada (NU032; IBA Canada 2004).



NU Site 56 – Twin Islands

Location: 53°10'N, 79°55'W

Size: 308 km²

Description: The Twin Islands are situated in central James Bay approximately 60 km offshore of mainland Quebec. North Twin Island, which is approximately 150 km² in area, is composed chiefly of unconsolidated sand and gravel deposits. Maximum elevation is 60 m above sea level. Approximately one-quarter of the island is covered by lakes. Sand dunes occur along half of the coastline, and wide tidal flats border most of the island. Marshland is scattered throughout the island. Tussock tundra is also common, especially in western areas of the island. Small stands of white spruce, dwarf birch, and willows are present. South Twin Island, which occurs approximately 11 km southeast of North Twin Island, is approximately half the size of its northern counterpart. This island has similar topography, but there are fewer trees and more mossy tundra (Manning 1981).

Biological value: The status of this area as a key habitat site is tentative; the available information is dated or otherwise inadequate for a full assessment.

In 1973, 1500 Canada Geese (*B. c. interior*) nested on North Twin Island. Similar densities of birds were noted on South Twin Island (Manning 1981). Therefore, the breeding population of the two islands was approximately 2300 birds, which represents 0.5% of the present population of *B. c. interior*. The geese arrive by early May and depart from the area by the end of September.

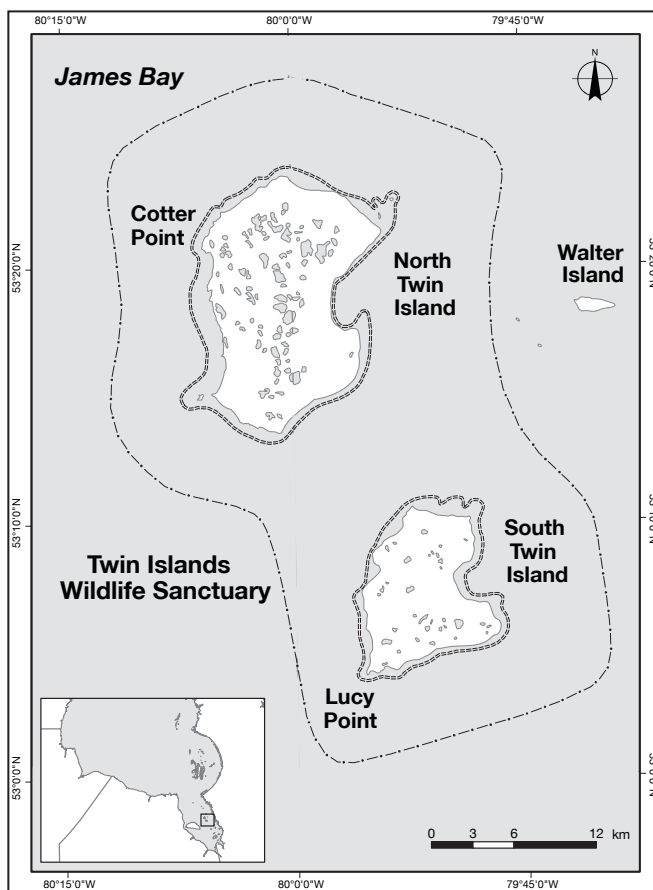
Manning (1981) estimated the following breeding populations of other birds on North Twin Island: 1450 waterfowl, mostly Long-tailed Ducks, Lesser Scaup, Northern Pintails, and Green-winged Teal; 800 Willow Ptarmigan; 1200 Semipalmated Plovers; 2000 Semipalmated Sandpipers; 1800 other shorebirds, such as Northern Phalaropes, Least Sandpipers, Dunlins, and Purple Sandpipers; 500 Arctic Terns; and 8000 passerines, mostly Horned Larks, Water Pipits, Savannah Sparrows, Tree Sparrows, White-crowned Sparrows, and Lapland Longspurs.

The Twin Islands are the most heavily used summer retreat and maternity denning area by polar bears in James Bay (Jonkel et al. 1976).

Sensitivities: Low-lying areas are susceptible to terrain disruption. Geese and other wildlife are sensitive to disturbance.

Potential conflicts: None.

Status: This area is part of the James Bay Preserve and has been designated as the Twin Islands Wildlife Sanctuary. Neither designation confers any legal protective status to the lands in this area. It is an Important Bird Area in Canada (NU034; IBA Canada 2004) and an International Biological Programme Site (Site 6-2; Beckel 1975).



Location: 53°35'N, 79°00'W

Size: 3360 km²

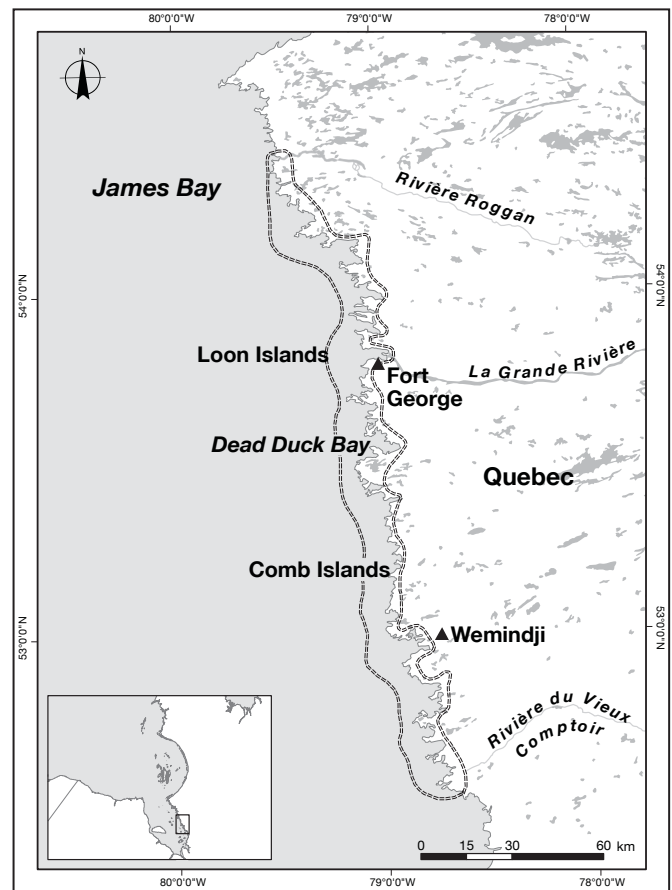
Description: All offshore islands and reefs in this area are within Nunavut. These islands, along with the sheltered bays, marshes, mudflats, and eelgrass beds between the Rivière du Vieux Comptoir and the Rivière Roggan on the Quebec coast of James Bay, constitute the key habitats. The many rivers and streams flowing into James Bay have created a rich blend of marine, estuarine, and freshwater environments with highly productive waters and coastal wetlands. Eelgrass grows extensively in sheltered areas, such as in the lee of the Comb Islands and in Dead Duck Bay. Silt, sand, or coarse gravel flats occur in bays with incoming streams and rivers, and many nearshore islands are connected to the mainland during low tide. Marine, brackish, and freshwater marshes are associated with the stream- and tide-fed bays.

Biological value: The marine, estuarine, and freshwater habitats along the Quebec coast of James Bay are extremely important for staging Canada Geese, Atlantic Brant, and Lesser Snow Geese. An unknown variety and number of shorebirds, such as Black-bellied Plovers, Sanderlings, Semipalmated Sandpipers, Hudsonian Godwits, and Red Knots, also stage here during migration. Moulting and fall staging dabbling ducks, particularly American Black Ducks, and seaducks are also very abundant (Curtis and Allen 1976; Morrison and Harrington 1979). The large number and diversity of ducks and geese that use the area have been attributed to the mosaic of habitats that occur along the irregular coastline (Reed et al. 1996a,b).

Canada Geese are among the most abundant birds during spring migration. Over 51 300 and 65 400 Canada Geese (*B. c. interior*) were seen in this area in late May 1973 and 1974, respectively (Curtis and Allen 1976), which are each over 5% of the Canadian population of *B. c. interior*. Thousands of American Black Ducks feed on the mudflats and eelgrass beds during the summer months; about 6900 were seen in the area in late July and early August 1974 (Curtis and Allen 1976), a total that represented over 2% of the Canadian American Black Duck population at that time. In addition, 4000 dabbling ducks, 6300 diving ducks, and 17 400 seaducks were seen during the 1974 surveys.

Canada Geese, Lesser Snow Geese, Atlantic Brant, and shorebirds are abundant in September and October. Over 61 400 and 120 700 Canada Geese were seen in mid-September and early October 1973, respectively. The latter number is over 9% of the Canadian population estimate. In 1973, over 10 000 Atlantic Brant were present in early October. The number increased to over 20 500 by late October — about 16% of the Canadian population of Atlantic Brant in the early 1970s. Dead Duck Bay, in particular, is heavily used by Brant. Bellrose (1980) stated that James Bay was the most important fall staging area for Atlantic Brant, citing that in mid-September 1971, over 60 000 Brant used the Fort George area.

Thousands of Snow Geese migrate through the area, but most birds stage in southern James Bay. Estimates of use



by shorebirds in late summer and fall are not available. This represents a serious gap in our knowledge of the importance of James Bay to migratory birds (Curtis and Allen 1976). The above data do not take into account turnover rates at staging sites and therefore underestimate the extent of staging in the area.

Sensitivities: Staging and moulting waterfowl and shorebirds are sensitive to disturbance. Pollution or degradation of the marine, estuarine, and freshwater habitats would be detrimental.

Potential conflicts: Hydroelectric projects in Quebec could result in the degradation of habitats by disrupting water flow and altering sedimentation patterns, salinity gradients, and freshwater nutrient input. Increased disturbance or destruction of habitat could also occur. Recent evidence of extensive die-offs of eelgrass beds, on which staging waterfowl feed extensively, are of especially great concern (A. Reed, pers. commun.).

Status: This key site is part of the James Bay Preserve. This designation, however, pertains to hunting activities and does not confer any legal protective status to the lands in this area. It is an Important Bird Area in Canada (NU035; IBA Canada 2004).

NU Site 58 – Akimiski Island

Location: 53°10'N, 81°20'W

Size: 1159 km²

Description: Akimiski Island is the largest island in James Bay. It is situated in the midwestern part of the bay opposite the mouth of the Attawapiskat River. The island is underlain by Silurian limestone and dolomite (Sanford et al. 1968) and has a very low relief. The southern shore rises steeply from the water, then gradually slopes downward to the mudflats along the northern shore.

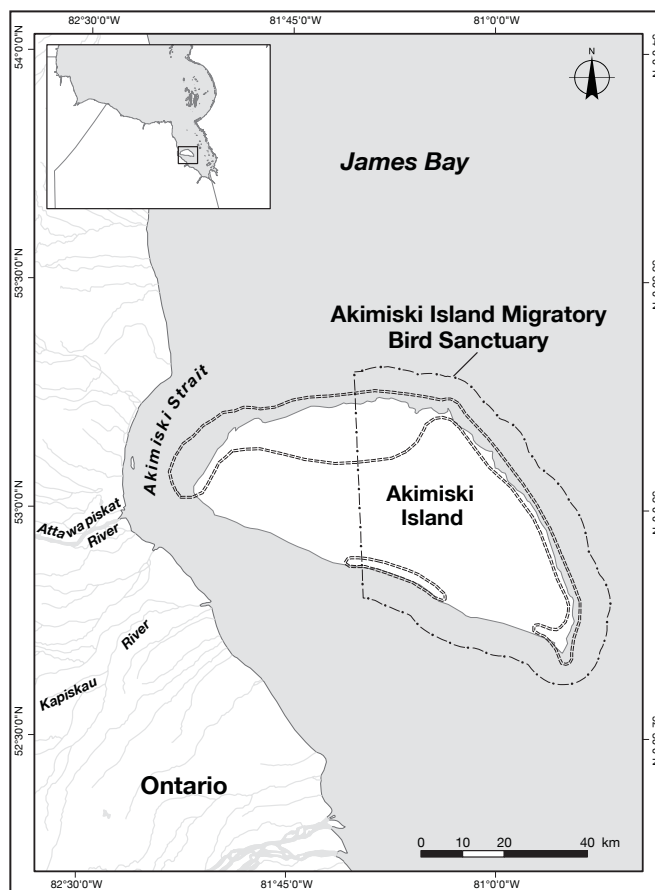
Although the island lies within the boreal forest region, many plant species with more coastal and tundra-like affinities are abundant (Blaney and Kotanen 2001). Dominant vegetation includes salt marshes and shrub fens near the coast, graminoid-dominated peatlands in the interior of the island, and spruce and tamarack forest scattered throughout the island (Blaney and Kotanen 2001).

Biological value: Up to 295 000 Lesser Snow Geese (>15% of the Canadian population in 1972) have staged on the island during the spring (Curtis 1973a), although more recent counts are much lower than that (Anonymous 2003). Snow Geese were present intermittently in small numbers (1–75 adults) on the island prior to 1968; since 1968, however, nesting has occurred annually (Abraham et al. 1999), and the population has increased to about 2500 nesting birds in recent years (Hudson Bay Project 2003).

Approximately 100 pairs of Caspian Terns nested on the small, offshore islands in Akimiski Strait in the early 1980s (R.I.G. Morrison, pers. commun.) and represented over 1% of the Canadian population. At that time, the Caspian Tern was a rare species in Canada (Martin 1978). Ring-billed Gulls and Herring Gulls also nest on the island in Akimiski Strait.

Large Canada Geese, from the Southern James Bay Population, nest among the permafrost hummocks in the tamarack fen and stage on the coast of the island. Most recent estimates indicate that a spring population of about 20 000 adult Canada Geese (*B. c. interior*) (>20% of the Southern James Bay Population) is present on the island (Walton et al. 2003). Approximately 20 000 Atlantic Brant have been observed in coastal areas near the island (Curtis 1973b). Thousands of American Black Ducks moult and stage along the east coast, particularly around the latitude of Akimiski Island, from June to September (H. Lumsden, pers. commun., in Allison 1977; Ross 1984).

The west coast of James Bay, including Akimiski Island, provides critical staging habitat for thousands of shorebirds (Morrison and Harrington 1979; Anonymous 2003). Large portions of the North American Red Knot and Hudsonian Godwit populations probably stage along these coasts. Semipalmated Sandpipers are also abundant (Morrison and Harrington 1979). On Akimiski Island, the northwest coast appears to be the most important area for staging shorebirds (R.I.G. Morrison, pers. commun., in Allison 1977). Marbled Godwits also nest on Akimiski



Island, probably forming a significant portion of the James Bay population of this species (R.I.G. Morrison, pers. commun.).

Northern Akimiski Island is a summer retreat and maternity denning area for polar bears (Jonkel et al. 1976).

Sensitivities: Staging and moulting waterfowl and shorebirds are sensitive to disturbance. Pollution or degradation of the marine, estuarine, and freshwater habitats would be detrimental.

Potential conflicts: Hydro development in Quebec or Ontario could result in catastrophic alterations to the James Bay estuarine and marine ecosystems. Increasing numbers of Lesser Snow Geese, staging in the area during spring migration, are having a severe impact on salt marsh habitat along parts of the Hudson Bay and James Bay coastlines (Batt 1997).

Status: The eastern part of the island includes the Akimiski Island Migratory Bird Sanctuary. This key site is also part of the James Bay Preserve, which, however, pertains to hunting activities and does not confer any legal protective status to the land. It is an Important Bird Area in Canada (NU036; IBA Canada 2004).

Location: 51°50'N, 78°52'W

Size: 170 km²

Description: Boatswain Bay lies in the southeastern corner of James Bay, approximately 40 km north of Fort Rupert, Quebec. The site includes all waters and lands in Boatswain Bay and all land 3 km inland from the high tide mark. All offshore islands and reefs in this area are within Nunavut. The topography is generally of low relief. The land slowly rises from coastal mudflats, bordered by spikerush marsh, through a sedge–grass lowland complex to willow and spruce farther inland. On the south side of Boatswain Bay, the marsh is relatively narrow, but it increases in width to approximately 1.6 km on the north side (Smith 1944). The area is one of two salt marshes along the Quebec side of James Bay (Allison 1977).

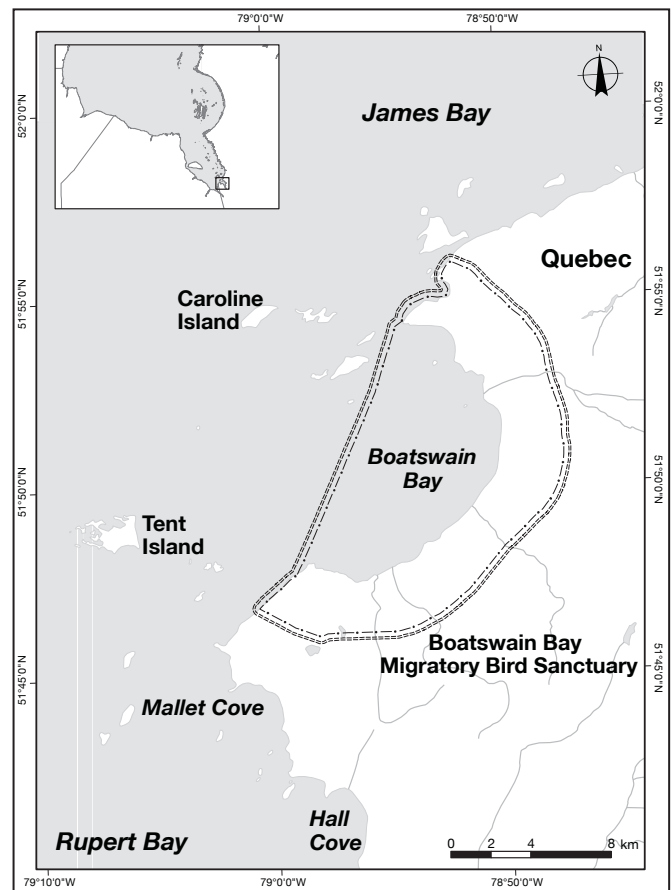
Biological value: The Quebec coast of James Bay is very important for a variety of migrating and moulting water birds, including Canada Geese, Lesser Snow Geese, Atlantic Brant, American Black Ducks, Northern Pintails, scoters, scaups, and several species of shorebirds (Curtis and Allen 1976). Boatswain Bay is an important staging site for Canada Geese and Lesser Snow Geese (Allison 1977; Bellrose 1980). Over 14 800 Canada Geese and 3000 Lesser Snow Geese were seen in and around Boatswain Bay during a survey in the spring of 1972 (Curtis and Allen 1976). Fall migrating Canada and Snow geese also make intensive use of the coastal areas. Curtis and Allen (1976) also recorded 535 migrating Brant in the spring and a further 2474 birds in the fall. Bellrose (1980) stated that James Bay is the most important fall staging area for Atlantic Brant. Turnover rates are not known, but it is likely that far greater numbers of geese stage in this area, accounting for greater than 1% of the Canadian populations of Canada Geese and Brant.

Dabbling ducks, particularly American Black Ducks, stage, moult, and nest in the surrounding area. The number of American Black Ducks likely exceeds 1% of the Canadian population. Large numbers of shorebirds also migrate through this area (Curtis and Allen 1976).

Sensitivities: Staging and moulting waterfowl and shorebirds are sensitive to disturbance. Pollution or degradation of the marine, estuarine, and freshwater habitats would be detrimental.

Potential conflicts: Hydroelectric projects in Ontario and Quebec could result in the degradation of habitats by disrupting water flows, sedimentation patterns, salinity gradients, and freshwater nutrient input and through increased disturbance.

Status: This key site is within the Boatswain Bay Migratory Bird Sanctuary. It is also part of the James Bay Preserve and is an Important Bird Area in Canada (NU097; IBA Canada 2004). The latter two designations, however, do not confer any legal protective status to the land.



NU Site 60 – Hannah Bay

Location: 51°15'N, 79°45'W

Size: 146 km²

Description: Hannah Bay lies in the extreme southern end of James Bay on the Ontario–Quebec border. Two large rivers, the Harricanaw and the Missisicabi, drain into Hannah Bay. All offshore islands and reefs in this area are within Nunavut.

Hannah Bay is one of the widest expanses of marsh along the James Bay coast (Allison 1977). The coastal marsh averages approximately 1.5 km in width, whereas the adjacent tidal flats are approximately 15 km wide. The flats are generally hard-packed silts and clays, and the water in the bay is turbid and brackish. The marsh-edge vegetation of rush species merges into sedge marshes with numerous ponds. The west side of the bay is paralleled by three beach ridges, which divide the marsh into sections with progressively more sphagnum as one moves inland (Smith 1944).

Biological value: Extensive mudflats and sedge marshes attract large numbers of migrating Lesser Snow Geese, Canada Geese, and shorebirds. In spring, numerous ponds of meltwater form in the marsh along the willow fringe. These ponds are heavily used by Lesser Snow Geese and dabbling ducks when they first arrive in late April and early May (Curtis and Allen 1976). The mouths of the Harricanaw and Missisicabi rivers are important to Atlantic Brant in late May and early June (Allison 1977).

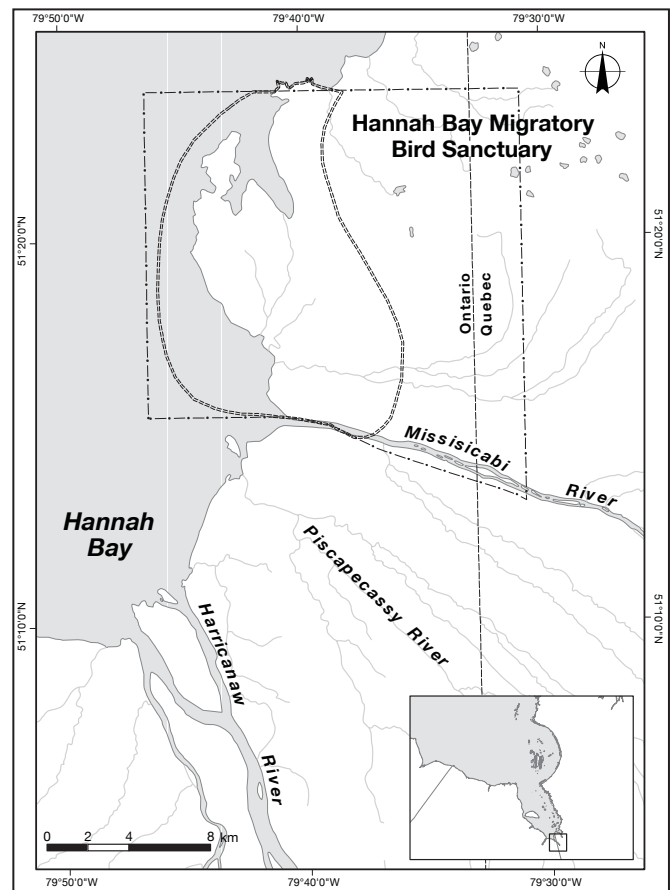
Snow Geese are the most numerous species staging in Hannah Bay. In fall 1973, 28 560 Lesser Snow Geese and 1884 Giant Canada Geese (*B. c. maxima*) were noted (Curtis 1973a). Lumsden (1971) recorded 64 538 Lesser Snow Geese from 15 to 18 October 1971.

The endangered Eskimo Curlew has been seen near Hannah Bay (Hagar and Anderson 1977).

Sensitivities: Staging and moulting waterfowl and shorebirds are sensitive to disturbance. Pollution or degradation of the marine, estuarine, and freshwater habitats would be detrimental.

Potential conflicts: Hydroelectric projects in Quebec or Ontario could result in the degradation of habitats by disrupting water flows, sedimentation patterns, salinity gradients, and freshwater nutrient input and through increased disturbance.

Status: Part of the area lies within the Hannah Bay Migratory Bird Sanctuary, which is also a Ramsar site (Wetland of International Importance) (Ramsar 2005). This area is also part of the James Bay Preserve. The latter two designations, however, do not confer any legal protective status to the land.



7.0 Discussion

Alexander et al. (1991) described 80 key terrestrial habitat sites in the Northwest Territories, which included the present-day Nunavut. In this updated description, we have added eight new sites (Northwest Territories: Tahiryuak Lake, Kagloryuak River Valley, McKinley Bay–Phillips Island, Kukjuktuk and Hutchison Bays, and Ramparts River Wetlands (Tu’eyeta); Nunavut: Western Cumberland Sound Archipelago, Southwestern Victoria Island, and Markham Bay) and deleted two sites (Cape Dorset, Awry Island). Sites were added where recent survey data indicated that the feature species numbers there exceeded 1% of the Canadian population. Sites were deleted where more recent survey data indicated that the numbers of the feature species there had declined below 1% of the Canadian population. In one case, the archipelagoes in Ungava Bay important to Common Eiders were combined into one site (Ungava Bay Archipelagoes), because recent estimates of the breeding population of that species indicated that no one archipelago met the 1% criterion. Also of note in the present report is the better quantification of shorebird numbers at some sites (Rasmussen Lowlands, Creswell Bay, Foxe Basin Islands). In the Northwest Territories, the 23 sites represent a range of habitat types, including boreal wetlands (30%), riverine and lake shallows (39%), low- and mid-Arctic wetlands (13%), marine coastal (13%), and one bird cliff. In Nunavut, on the other hand, bird cliffs comprise the majority of sites (37%), followed by low-, mid-, and high-Arctic wetlands (28%), marine coastal (22%), river and lake shallows (6%), and glaciers/uplands (6%).

7.1 The database

There continues to be considerable variability in the quality and quantity of data across all 83 key terrestrial habitat sites described in this report. Many of the initial data on key terrestrial sites in the Northwest Territories and Nunavut resulted from large survey efforts associated with proposed industrial development in the 1970s and 1980s (Mallory and Fontaine 2004). In the face of limited resources available for such routine inventory since then, data acquisition from many of these sites has been sporadic at best. Since Alexander et al. (1991), 60% of the 78 sites (72% in the Northwest Territories; 58% in Nunavut) from that report have had additional data collected on the feature species at each site (i.e., meet the 1% criterion). Virtually all

major goose colonies have been surveyed since Alexander et al. (1991). The majority of bird cliffs (60%) in Nunavut have had data updated, as has the one bird cliff in the Northwest Territories (Cape Parry). Some of these sites have seen routine updating during the intervening 12 years (i.e., some goose and seabird colonies), while others have had just one resurvey. Also of note since 1991 has been the increasing focus on other taxonomic groups of migratory birds — namely, shorebirds and waterbirds — and the need to better understand breeding populations in light of heightened conservation concern for these groups. As a result, extensive ground-based surveys were conducted at a number of sites in the late 1990s and early 2000s. The results from these have led to the addition of new sites in the present report or a better understanding of the importance of previously included sites.

In the Northwest Territories, the 28% of sites not having had additional data collected since 1991 are primarily river and lake shallows along the Mackenzie Valley. In Nunavut, the 42% of sites not having had additional data collected since 1991 include the river shallows in the central barrens (e.g., Thelon River, Lower Back River) and the marine coastal habitat in James Bay (e.g., Boatswain Bay, Hannah Bay). Considering that the data for many of these sites are now 20 years old, updating in the next 5–10 years is recommended; otherwise, the next key terrestrial habitat site report for the Northwest Territories and Nunavut will need to seriously consider the deletion of many of these sites.

For some sites where data have been updated (e.g., Snow Goose colonies at Banks Island Migratory Bird Sanctuary No. 1, Great Plain of the Koukdjuak), there is a need to obtain more precise data on other components of the breeding bird community, in particular shorebirds. For some of these sites, there is evidence that the breeding population of some species exceeds 1% of the Canadian population, and this has been noted in the text. However, additional evidence will need to be gathered in order to substantiate these suppositions.

7.2 Protection

The importance of the Northwest Territories and Nunavut to both Canadian and continental populations of migratory birds cannot be overstated. The 83 sites described here account for almost the entire breeding area for the

continental populations of a number of species of geese (Lesser Snow Goose, Greater Snow Goose, Ross's Goose, Pacific Brant, Atlantic Brant), ducks (Common Eider, King Eider), seabirds (Thick-billed Murre, Northern Fulmar, Black-legged Kittiwake, Black Guillemot), and waterbirds (Ivory Gull, Ross's Gull) (Bellrose 1980; CWS Waterfowl Committee 2003). In addition, 15 of the 47 species of shorebird known to occur in Canada breed in the Arctic (Skagen et al. 2003). Furthermore, the sites described here include all the known important areas where shorebirds concentrate for breeding (e.g., Rasmussen Lowlands, Foxe Basin Islands, Creswell Bay).

All the major goose colonies in the Northwest Territories and Nunavut have been protected by Migratory Bird Sanctuaries for at least the last 20 years. Since Alexander et al. (1991), two Migratory Bird Sanctuaries and two National Wildlife Areas have been established; however, the large majority of seabird cliffs and wetlands have seen no legal protection. There are currently a small number of seabird cliffs (e.g., Cape Searle, Akpait) and surrounding waters being considered for protection as National Wildlife Areas. In the Northwest Territories, it is possible that in response to heightened industrial activity (e.g., natural resource extraction), the pace of protected areas establishment will increase due to political pressure from Aboriginal communities, and the existence of a Protected Areas Strategy sanctioned by various levels of government. In Nunavut, although there is also the distinct possibility of increased industrial activity, primarily from the mining sector, community support for the establishment of new protected areas is more variable, and there is a lack of a formal plan or strategy to provide a framework for protected areas establishment there. Furthermore, while every effort will be made to include key terrestrial habitat sites wherever possible in both the Northwest Territories and Nunavut (e.g., Mills Lake within Edézhíe), this will not always be possible, since other criteria can come into effect when proposing candidate protected areas. The net effect in Nunavut and, to a lesser extent, the Northwest Territories is that the large majority of the 64 sites currently not found within a legally designated protected area will very likely remain unprotected by protected areas legislation.

CWS and territorial wildlife managers will need to rely on other mechanisms for the continued protection of these sites. First and foremost, there is a need to ensure that these sites are part of the environmental assessment process associated with proposals for industrial activity in their vicinity and that these sites remain off limits to such activity or that the appropriate operating conditions are applied to mitigate the effects of the activity on these sites. It is in environmental assessment that the utility of earlier cataloguing of these sites in the north (McCormick et al. 1984; Alexander et al. 1991) has become apparent. CWS and territorial habitat managers as well as environmental assessment agencies in both the Northwest Territories and Nunavut refer to these documents on a routine basis in their consideration of proposals related to mineral prospecting and exploration, tourism, and forestry. As developmental pressures continue to increase, conservation of the large majority of the key terrestrial habitat sites in the Northwest

Territories and Nunavut will need to rely on their becoming an integral component of sound land use planning in the two territories.

7.3 The future

This most recent updating and cataloguing of key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut have resulted in the addition of some new sites, resulting mainly from CWS's habitat monitoring efforts over the last decade. It is quite likely that the present listing is approaching the complete picture of key terrestrial habitat sites in the two territories, at least for waterfowl, waterbirds, and seabirds. For other groups, more surveys and monitoring are required, and, in the case of shorebirds, international effort is under way (e.g., Program for Regional and International Shorebird Monitoring). As indicated earlier, however, it is apparent that many of these sites are in serious need of updated information from which to obtain a better understanding of their present status. Next steps required to meet this, as well as to secure the long-term protection of these sites, are as follows:

1. Continue to work with the communities and other interested agencies, both government and non-government, to ensure that as many as possible of the sites that are not already legally protected are incorporated into new protected areas initiatives.
 - Communities may have traditional use areas that they wish to see protected, and they should be encouraged to prioritize, as much as possible, these areas according to the known key migratory bird terrestrial habitat in or adjacent to them.
 - Community knowledge should be used as much as possible to identify candidate sites for assessment as key terrestrial habitat sites.
2. Continue to ensure that environmental assessment in the Northwest Territories and Nunavut and the agencies responsible take into account the sites identified in this report as routine procedure in the assessment of individual development proposals, regardless of size.
 - Maintain close liaison with the Mackenzie Valley Environmental Impact Review Board, Nunavut Impact Review Board, and other land use-related boards.
 - Continue to take a proactive role in advising proponents on the sensitivities of the sites listed in this report and making clear recommendations concerning their operations and minimizing impacts (e.g., tourism, including cruise ships).
3. There should be regular population and habitat monitoring programs established at a number of sites, particularly seabird breeding cliffs and goose and seaduck colonies. Population trends can be tracked as well as impacts on habitat related to climate change, overpopulation of certain species, and other suspected stressors (e.g., contaminants).
4. Key terrestrial sites in serious need of updating on the feature species as well as additional species that may meet the 1% criterion need to be given priority in terms

of monitoring effort and the required resources.

- Systematic surveys using standard protocols are required to allow reliable comparisons among sites and to better assess temporal trends in populations of the feature species at each site.

As developmental pressures increase in both the Northwest Territories and Nunavut, it is apparent that protection of key terrestrial habitat for migratory birds will depend on community support coupled with outright protection through either appropriate legislation or closely regulated land use practices, supported by up-to-date monitoring. It is only through this approach that these sites will continue to play such a pivotal role in the international conservation of migratory birds.

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Appendices

Appendix A

Key sites for breeding and staging migratory birds in the Northwest Territories and Nunavut^a

Site number	Site name
Geese^b	
<i>Northwest Territories</i>	
NT Site 1	Prince Patrick Island
NT Site 2	Thomsen River
NT Site 3	Banks Island Migratory Bird Sanctuary No. 1
NT Site 4	Tahiryuak Lake
NT Site 5	Kagloryuak River Valley
NT Site 7	Harrowby Bay
NT Site 8	Lower Anderson River (and Mason River)
NT Site 9	Kugaluk River
NT Site 12	Mackenzie River Delta
NT Site 14	Lower Mackenzie River Islands
NT Site 15	Brackett (Willow) Lake
NT Site 16	Middle Mackenzie River Islands
NT Site 18	Mills Lake
NT Site 20	North Arm, Great Slave Lake
NT Site 22	Slave River Delta
<i>Nunavut</i>	
NU Site 20	Berlinguet Inlet
NU Site 22	South Bylot Island
NU Site 30	Great Plain of the Koukdjuak
NU Site 31	Foxe Basin Islands
NU Site 32	North Spicer Island
NU Site 34	Rasmussen Lowlands
NU Site 35	Jenny Lind Island
NU Site 36	Southwestern Victoria Island
NU Site 37	Queen Maud Gulf
NU Site 38	Middle Back River
NU Site 39	Lower Back River
NU Site 40	Thelon River
NU Site 41	Middle Quoich River
NU Site 42	McConnell River
NU Site 43	Boas River
NU Site 44	East Bay
NU Site 56	Twin Islands
NU Site 57	Northeast James Bay
NU Site 58	Akimiski Island
NU Site 59	Boatswain Bay
NU Site 60	Hannah Bay

Appendix A (cont'd)Key sites for breeding and staging migratory birds in the Northwest Territories and Nunavut^e

Site number	Site name
Swans^f	
<i>Northwest Territories</i>	
NT Site 12	Mackenzie River Delta
NT Site 14	Lower Mackenzie River Islands
NT Site 17	Southeastern Mackenzie Mountains
NT Site 18	Mills Lake
NT Site 19	Beaver Lake
NT Site 20	North Arm, Great Slave Lake
NT Site 22	Slave River Delta
<i>Nunavut</i>	
NU Site 34	Rasmussen Lowlands
NU Site 36	Southwestern Victoria Island
NU Site 37	Queen Maud Gulf
Seaducks^d	
<i>Northwest Territories</i>	
NT Site 3	Banks Island Migratory Bird Sanctuary No. 1
NT Site 4	Tahiryuak Lake
NT Site 5	Kagloryuak River Valley
NT Site 10	McKinley Bay – Phillips Island
NT Site 11	Kukjuktuk and Hutchison Bays
NT Site 12	Mackenzie River Delta
NT Site 13	Ramparts River Wetlands (Tu'eyeta)
<i>Nunavut</i>	
NU Site 29	Western Cumberland Sound Archipelago
NU Site 33	Turton Island
NU Site 34	Rasmussen Lowlands
NU Site 37	Queen Maud Gulf
NU Site 44	East Bay
NU Site 46	Fraser Island
NU Site 48	Markham Bay
NU Site 51	Ungava Bay Archipelagoes
NU Site 52	Koktac River Archipelago
NU Site 53	Sleeper Islands
NU Site 54	North Belcher Islands
NU Site 55	Salikuit Islands
Shorebirds^e	
<i>Northwest Territories</i>	
NT Site 3	Banks Island Migratory Bird Sanctuary No. 1
NT Site 12	Mackenzie River Delta
<i>Nunavut</i>	
NU Site 6	Polar Bear Pass
NU Site 17	Creswell Bay
NU Site 31	Foxe Basin Islands
NU Site 34	Rasmussen Lowlands
NU Site 44	East Bay
Seabirds^f	
<i>Northwest Territories</i>	
NT Site 6	Cape Parry
<i>Nunavut</i>	
NU Site 1	Inglefield Mountains
NU Site 2	Sydkap Ice Field
NU Site 3	North Kent Island
NU Site 4	Seymour Island
NU Site 5	Cheyne Islands
NU Site 7	Baillie-Hamilton Island
NU Site 8	Cape Vera
NU Site 9	Skruis Point

Appendix A (cont'd)Key sites for breeding and staging migratory birds in the Northwest Territories and Nunavut^a

Site number	Site name
NU Site 10	Nirjutiqavvik (Coburg Island)
NU Site 11	Eastern Devon Island
NU Site 12	Hobhouse Inlet
NU Site 13	Cape Liddon
NU Site 14	Browne Island
NU Site 15	Prince Leopold Island
NU Site 16	Batty Bay
NU Site 18	Northwestern Brodeur Peninsula
NU Site 19	Baillarge Bay
NU Site 21	Cape Hay
NU Site 23	Cape Graham Moore
NU Site 24	Buchan Gulf
NU Site 25	Scott Inlet
NU Site 27	Qaqulluit (Cape Searle)
NU Site 28	Akpait (Reid Bay)
NU Site 45	Coats Island
NU Site 47	Digges Sound
NU Site 49	Hantzsch Island
NU Site 50	Akapatok Island

^a See text for details on numbers of each species at each site.

^b Lesser Snow Goose, Greater Snow Goose, Ross's Goose, Greater White-fronted Goose, Pacific Brant (including Grey-bellied), Atlantic Brant.

^c Trumpeter Swan, Tundra Swan.

^d Common Eider, King Eider, scaup spp., scoter spp., Long-tailed Duck.

^e Various species.

^f Includes Northern Fulmar, gulls, Black-legged Kittiwake, terns, Thick-billed Murre, Razorbill, Dovekie, Atlantic Puffin.

Appendix B

Common and scientific names of all bird species and subspecies mentioned in the text

Common name	Scientific name	Common name	Scientific name
Greater White-fronted Goose	<i>Anser albifrons</i>	Hudsonian Godwit	<i>Limosa haemastica</i>
Lesser Snow Goose	<i>Chen caerulescens caerulescens</i>	Ruddy Turnstone	<i>Arenaria interpres</i>
Greater Snow Goose	<i>Chen caerulescens atlantica</i>	Red Knot	<i>Calidris canutus</i>
Ross's Goose	<i>Chen rossii</i>	Sanderling	<i>Calidris alba</i>
Atlantic Brant	<i>Branta bernicla hrota</i>	Semipalmated Sandpiper	<i>Calidris pusilla</i>
Pacific Brant	<i>Branta bernicla nigricans</i>	Least Sandpiper	<i>Calidris minutilla</i>
Cackling Goose	<i>Branta hutchinsii</i>	White-rumped Sandpiper	<i>Calidris fuscicollis</i>
Canada Goose	<i>Branta canadensis</i>	Baird's Sandpiper	<i>Calidris bairdii</i>
Trumpeter Swan	<i>Cygnus buccinator</i>	Pectoral Sandpiper	<i>Calidris melanotos</i>
Tundra Swan	<i>Cygnus columbianus</i>	Purple Sandpiper	<i>Calidris maritima</i>
American Wigeon	<i>Anas americana</i>	Dunlin	<i>Calidris alpina</i>
American Black Duck	<i>Anas rubripes</i>	Stilt Sandpiper	<i>Calidris himantopus</i>
Mallard	<i>Anas platyrhynchos</i>	Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>
Blue-winged Teal	<i>Anas discors</i>	Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Northern Pintail	<i>Anas acuta</i>	Red-necked Phalarope	<i>Phalaropus lobatus</i>
Canvasback	<i>Aythya valisineria</i>	Red Phalarope	<i>Phalaropus fulicarius</i>
Greater Scaup	<i>Aythya marila</i>	Pomarine Jaeger	<i>Stercorarius pomarinus</i>
Lesser Scaup	<i>Aythya affinis</i>	Parasitic Jaeger	<i>Stercorarius parasiticus</i>
King Eider	<i>Somateria spectabilis</i>	Long-tailed Jaeger	<i>Stercorarius longicaudus</i>
Common Eider (Pacific)	<i>Somateria mollissima v-nigra</i>	Bonaparte's Gull	<i>Larus philadelphia</i>
Common Eider (Northern)	<i>Somateria mollissima borealis</i>	Mew Gull	<i>Larus canus</i>
Common Eider (Hudson Bay)	<i>Somateria mollissima sedentaria</i>	Ring-billed Gull	<i>Larus delawarensis</i>
Surf Scoter	<i>Melanitta perspicillata</i>	California Gull	<i>Larus californicus</i>
White-winged Scoter	<i>Melanitta fusca</i>	Herring Gull	<i>Larus argentatus</i>
Black Scoter	<i>Melanitta nigra</i>	Thayer's Gull	<i>Larus thayeri</i>
Long-tailed Duck	<i>Clangula hyemalis</i>	Iceland Gull	<i>Larus glaucoides</i>
Bufflehead	<i>Bucephala albeola</i>	Glaucous Gull	<i>Larus hyperboreus</i>
Common Goldeneye	<i>Bucephala clangula</i>	Sabine's Gull	<i>Xema sabini</i>
Common Merganser	<i>Mergus merganser</i>	Black-legged Kittiwake	<i>Rissa tridactyla</i>
Red-breasted Merganser	<i>Mergus serrator</i>	Ross's Gull	<i>Rhodostethia rosea</i>
Red-throated Loon	<i>Gavia stellata</i>	Ivory Gull	<i>Pagophila eburnea</i>
Pacific Loon	<i>Gavia pacifica</i>	Caspian Tern	<i>Sterna caspia</i>
Common Loon	<i>Gavia immer</i>	Common Tern	<i>Sterna hirundo</i>
Yellow-billed Loon	<i>Gavia adamsii</i>	Arctic Tern	<i>Sterna paradisaea</i>
Northern Fulmar	<i>Fulmarus glacialis</i>	Black Tern	<i>Chlidonias niger</i>
Rough-legged Hawk	<i>Buteo lagopus</i>	Dovekie	<i>Alle alle</i>
Gyrfalcon	<i>Falco rusticolus</i>	Thick-billed Murre	<i>Uria lomvia</i>
Peregrine Falcon	<i>Falco peregrinus</i>	Razorbill	<i>Alca torda</i>
American Coot	<i>Fulica americana</i>	Black Guillemot	<i>Cephus grylle</i>
Sandhill Crane	<i>Grus canadensis</i>	Atlantic Puffin	<i>Fratercula arctica</i>
Whooping Crane	<i>Grus americana</i>	Snowy Owl	<i>Bubo scandiacus</i>
Black-bellied Plover	<i>Pluvialis squatarola</i>	Horned Lark	<i>Eremophila alpestris</i>
American Golden-Plover	<i>Pluvialis dominica</i>	American Pipit	<i>Anthus rubescens</i>
Semipalmated Plover	<i>Charadrius semipalmatus</i>	American Tree Sparrow	<i>Spizella arborea</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>	Savannah Sparrow	<i>Passerculus sandwichensis</i>
Eskimo Curlew	<i>Numenius borealis</i>	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Whimbrel	<i>Numenius phaeopus</i>		

Alphabetical index of key habitat sites

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Cape Parry (NT Site 6)
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Kugaluk River (NT Site 9)
Kukjutkuk and Hutchison Bays (NT Site 11)
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Lower Mackenzie River Islands (NT Site 14)
Mackenzie River Delta (NT Site 12)
McKinley Bay – Phillips Island (NT Site 10)
Middle Mackenzie River Islands (NT Site 16)
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North Arm, Great Slave Lake (NT Site 20)
Northwest Point (NT Site 21)
Prince Patrick Island (NT Site 1)
Ramparts River Wetlands (Tu'eyeta) (NT Site 13)
Sass and Nyarling Rivers (NT Site 23)
Slave River Delta (NT Site 22)
Southeastern Mackenzie Mountains (NT Site 17)
Tahiryuak Lake (NT Site 4)
Thomsen River (NT Site 2)

Nunavut

Abbajalik and Ijutuk Islands (NU Site 26)
Akimiski Island (NU Site 58)
Akpait (Reid Bay) (NU Site 28)
Akpatok Island (NU Site 50)
Baillarge Bay (NU Site 19)
Baillie-Hamilton Island (NU Site 7)
Batty Bay (NU Site 16)
Berlinguet Inlet (NU Site 20)
Boas River (NU Site 43)
Boatswain Bay (NU Site 59)
Browne Island (NU Site 14)
Buchan Gulf (NU Site 24)
Cape Graham Moore (NU Site 23)
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Cape Liddon (NU Site 13)
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Cheyne Islands (NU Site 5)
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