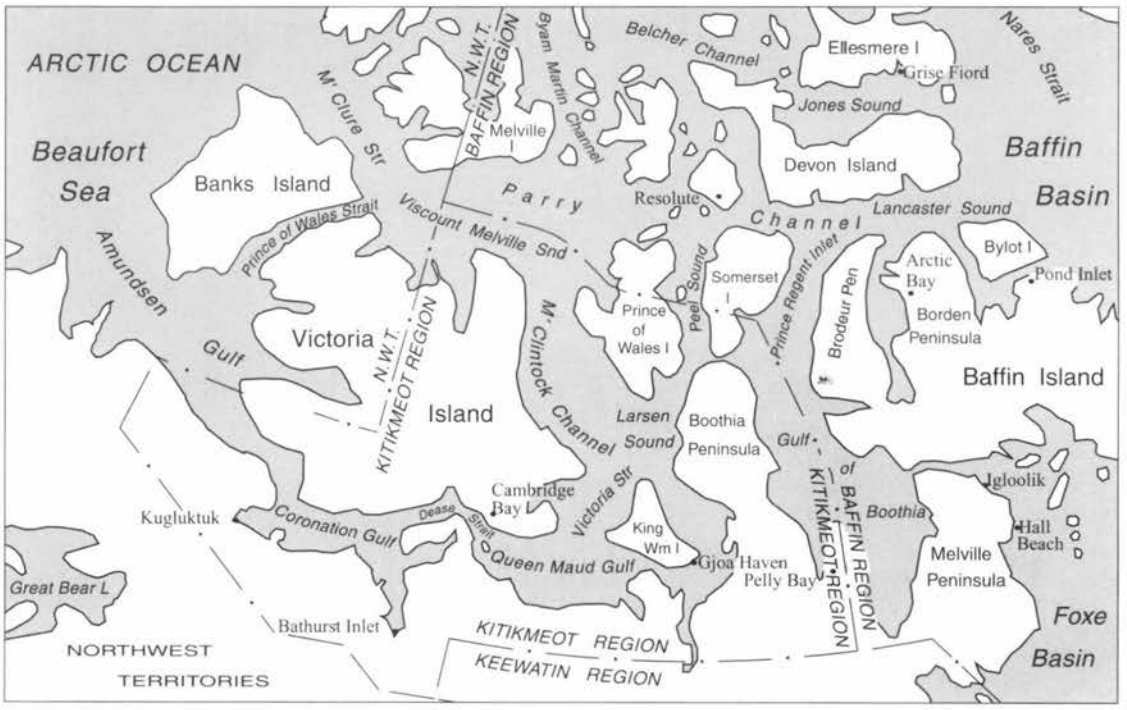
First Edition

Marine Environmental Handbook

Arctic Northwest Passage

Fisheries and Oceans | Pêches et Océans

Canada



The Regions of Nunavut

Marine Environmental

Handbook

Arctic Northwest Passage

First
Edition
1999

Fisheries and Oceans Canada

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Preface

This First Edition of the *Marine Environmental Handbook - Arctic Northwest Passage* has been compiled by the Canadian Hydrographic Service from Canadian Government and other sources.

This Handbook is intended to provide information to Masters and others interested in the Arctic environment and conditions in the coverage area. It should be used in conjunction with *Sailing Directions, Arctic Canada, Volumes I, II and III* and the appropriate large-scale nautical charts as well as the reference charts and other publications mentioned in the text.

The information offered in this Handbook is the best available at the time of compilation. Individuals and organizations with more recent local knowledge are invited to forward this information so it can be used as source material for future editions.

Photographs are by the Canadian Hydrographic Service, Department of Fisheries and Oceans.

The Arctic Environment

General

Arctic Fox

This Handbook is being published as a result of representations by northern residents in the 1970s and 1980s. These arose from concerns that Arctic shipping activity had increased dramatically from its post-war level in response to the needs of resource development and oil exploration in the Canadian Arctic. This was a period of rapid development in Arctic shipping technology, capability and activity, accompanied by increasing activity on the part of northerners in land-claim and land-use discussions with Federal authorities.

Out of these representations grew an understanding that from a northern perspective two types of adverse environmental effects could arise from shipping activities.

1. The discharge of pollutants through accident or normal operations. This type of adverse environmental effect is not the subject of this Handbook except through cross-reference to appropriate regulations or authorities.
2. Interference with traditional use patterns and adverse effects on the ice surface or on bird, animal or fish populations. This type of adverse environmental effect is called a **Direct Marine Ecosystem Impact** and is the subject of this Handbook.

It should be noted that "land use" in the eyes of northerners includes the use of sea ice for hunting and transportation. In the traditional use by northerners of the frozen sea surface, the sea surface for the greater part of the year is considered to be a natural extension of the land in terms of use and transportation patterns. The interruption of the normally available ice cover by open water is of short duration in the summer, which is the reverse of the pattern that Canadians usually expect and experience in southern Canada.

There have been many more transits of the Northwest Passage in recent years than in the past, and there has been a significant growth in marine traffic since 1985. In view of this increase in traffic and continuing resource limitations, this ***Arctic Marine Environmental Handbook*** has been compiled to help mariners who are planning to use the busiest part of the route.

The northern deep-water routes through Viscount Melville Sound and Prince of Wales Strait or M'Clure Strait are not covered, nor is the southern route via Hudson Strait, Foxe Basin and Fury and Hecla Strait to the Gulf of Boothia.

Reporting Procedures

If a physical or ecological component is incorrectly presented or is missing from this booklet, a brief report should be sent to:

Director General
Canadian Hydrographic Service
615 Booth Street
Ottawa, ON K1A 0E6

Emergency Response Organizations

In the event of an incident that may have environmental impact, shipmasters should immediately contact the nearest Canadian Coast Guard Radio Station. This will initiate appropriate environmental response procedures. Additional information on emergency response procedures can be obtained from:

Rescue and Environmental Response
Canadian Coast Guard
Department of Fisheries and Oceans
5th. Floor, 200 Kent Street
Ottawa, ON K1A 0E6
(613) 990-3110

Government of Northwest Territories Spill Line
Box 1320
Yellowknife, NT X1A 2L9
(867) 920-8130

Regulatory Authorities

Many Acts and Regulations safeguard the marine environment and social and economic aspects of the Arctic culture. The most important and their administrative authorities are listed here.

Transport Canada administers the *Canada Shipping Act* and the *Arctic Waters Pollution Prevention Act*. Regulations under the authority of these Acts govern the design and operation of ships.

Environment Canada is responsible for the *Canada Wildlife Act*. Under the authority of this Act, the Department may take measures necessary for the protection of any species of wildlife in danger of extinction, and may acquire lands (including marine areas) for wildlife research, conservation or interpretation.

Department of Renewable Resources is a department of the Government of the Northwest Territories and administers the *Wildlife Act*. The department is responsible under this Act for research on wildlife and habitat, regulating and monitoring harvest levels, and monitoring and assessing the impact of human activities on wildlife and habitat.

Department of Indian Affairs and Northern Development (DIAND) administers the *Territorial Lands Act*. Under the authority of this Act, DIAND is responsible for northern lands, coordination of activities of other federal agencies on them, and the disposition of land and resource rights. DIAND also administers the *Northwest Territories Waters Act* and administers the *Arctic Waters Pollution Prevention Act* for non-shipping activities north of Latitude 60°N.

Department of Fisheries and Oceans administers the *Fisheries Act*. Under the authority of this Act, the Department is responsible for Canada's inland and marine fisheries, including marine mammals. This responsibility includes the management of fish and marine mammal populations, the protection of habitat on which they depend, and the regulation of their harvest.

Natural Resources Canada (NRCan) is responsible for the *Department of Natural Resources Act*, the *Resources and Technical Surveys Act*, the *Forestry Act*, the *Explosives Act* and several others. As the principal natural resources department of the Federal government, NRCan has a mandate to promote the sustainable development and responsible use of Canada's minerals and energy, including those in the Arctic.

These authorities all have an impact on the design and operation of ships in the Arctic. In particular, the *Canada Shipping Act* and *Arctic Waters Pollution Prevention Act* bear directly on navigation practices and the prevention of pollution.

References to Other Publications

- *Annual Edition of Canadian Notices to Mariners* gives details of the various regulations and marine services provided by the **Canadian Coast Guard.**
- *Canadian Lists of Lights, Buoys and Fog Signals, Navigation (Pacific, Atlantic and Great Lakes Editions)* give details of lights, light buoys, and fog signals.
- *Canadian Tide and Current Tables* give tidal predictions and tidal stream information.
- *Catalogue of Canadian Nautical Charts and Related Publications (Arctic)* lists charts covered by this publication and includes a list of the dealers from whom they can be obtained.
- *Ice Atlas — Canadian Arctic Waterways* gives information on ice conditions in the Canadian Arctic.
- *Ice Navigation in Canadian Waters* gives information on ice and includes details of operating in ice, both independently and with icebreaker escort.
- *Radio Aids to Marine Navigation (Pacific, Atlantic and Great Lakes Editions)* give details of coastal radio stations, radio beacons, direction finding stations, radio navigational aids and services as well as distress, urgency and safety communications.
- *Sailing Directions, Arctic Canada, Volume I* complements this publication and gives general information on Arctic Canada and notes on subjects of general interest to mariners. *Volume I* includes details on ice conditions, wildlife and regulations.
- *Sailing Directions, Arctic Canada, Volume II* complements this publication and gives general information on Arctic Canada (eastern part) and notes of general interest to mariners.
- *Sailing Directions, Arctic Canada, Volume III* complements this publication and gives general information on Arctic Canada (western part) and notes of general interest to mariners.
- *Topographic Maps* (scale 1:250,000) are useful in areas where charted topography is sparse.

Community Contacts (Hamlet Offices)

Hamlet of Arctic Bay
(867) 439-9917
(867) 439-8767 (Fax)

Hamlet of Arviat
(867) 857-2841
(867) 857-2519 (Fax)

Hamlet of Baker Lake
(867) 793-2874
(867) 793-2509 (Fax)

Bathurst Inlet
HF Radio Channel 5446

Hamlet of Broughton Island
(867) 927-8832
(867) 927-8120 (Fax)

Hamlet of Cape Dorset
(867) 897-8820
(867) 897-8030 (Fax)

Hamlet of Cambridge Bay
(867) 983-2337
(867) 983-2193 (Fax)

Hamlet of Chesterfield Inlet
(867) 898-9951
(867) 898-9108 (Fax)

Hamlet of Clyde River
(867) 924-6220
(867) 924-6293 (Fax)

Hamlet of Coral Harbour
(867) 925-8867
(867) 925-8823 (Fax)

Hamlet of Gjoa Haven
(867) 360-6092
(867) 360-6309 (Fax)

Hamlet of Grise Fiord
(867) 980-9959
(867) 980-9052 (Fax)

Hamlet of Hall Beach
(867) 928-8844
(867) 928-8355 (Fax)

Hamlet of Igloolik
(867) 934-8830
(867) 934-8757 (Fax)

Hamlet of Kimmirut
(867) 939-2247
(867) 939-2045 (Fax)

Hamlet of Kugluktuk
(867) 982-4471
(867) 982-3060 (Fax)

Town of Iqaluit
(867) 979-5600
(867) 979-5922 (Fax)

Community of Nanisivik
(867) 436-7502
(867) 436-7435 (Fax)

Hamlet of Pangnirtung
(867) 473-8833
(867) 473-2915 (Fax)

Hamlet of Pelly Bay
(867) 769-6281
(867) 769-6069 (Fax)

Hamlet of Pond Inlet
(867) 899-8935
(867) 899-8940 (Fax)

Hamlet of Rankin Inlet
(867) 645-2895
(867) 645-2146 (Fax)

Hamlet of Repulse Bay
(867) 462-9952
(867) 462-4144 (Fax)

Hamlet of Resolute
(867) 252-3616
(867) 252-3749 (Fax)

Hamlet of Sanikiluaq
(867) 266-8874
(867) 266-8903 (Fax)

Hamlet of Taloyoak
(867) 561-6341
(867) 561-5057 (Fax)

Hamlet of Umingmaktok
HF Radio Channels 5046, 5031

Hamlet of Whale Cove
(867) 896-9961
(867) 896-9109 (Fax)

The Northwest Passage — General Overview

Demographics

About 24,000 people live in the Canadian Arctic, 19,000 of them in the area covered by this Handbook. The Regions of Kitikmeot, Kivalliq (Keewatin) and Qikiqtaaluk (Baffin) are part of the **Territory of Nunavut**.

Nunavik, or "great land," is the Inuit name for the northern part of the Ungava Peninsula, Quebec. This is inhabited and used for hunting by the Inuit of Labrador and northern Quebec.

About 80% of the people are **Inuit**. Most of the non-native people are in the centres of regional government at Iqaluit, Ikaluktutiak (Cambridge Bay) and Kangiqtinq (Rankin Inlet), the mining community of Nanisivik, and the transportation hub at Qausuittuq (Resolute). The population of the area is growing quickly; about 40% of the people are under 15 years of age and the birth rate is twice the Canadian average.

Muskox

Land Use and the Annual Harvest Cycle

Hunting

Hunting and the relationship to the land are of profound cultural and spiritual importance to the Inuit. The meaning of life is still found in nature and most Inuit are at least part-time hunters. Hunting is a link to the past and a cultural identity. It is valued for its healthy lifestyle and its contribution to independence, psychological well being, self-esteem and the respect of others. "Going out on the land" is a spiritual renewal after the long, cold, dark winter and is a way to re-establish the ancient connection to the land that has sustained them for thousands of years. A sense of personal pride and fulfillment is gained from their age-old tradition of providing for family and sharing with others.

Figure 2-1: Arctic Communities

Community Name	Previous Name	Population
Kitikmeot		**4,644**
Arviliqjuat	Pelly Bay	496
Ikaluktutiak	Cambridge Bay	1,351
Kinggauk	Bathurst Inlet	18
Kugluktuk	Coppermine	1,201
Taloyoak	Spence Bay	648
Umingmaktok	Bay Chimo	51
Ursuqtuq	Gjoa Haven	879
Kivalliq		**7,499**
Arviat	Eskimo Point	1,559
Iqluligaarjuk	Chesterfield Inlet	337
Kangiqtinq	Rankin Inlet	2,058
Naujat	Repulse Bay	559
Qamanittuaq	Baker Lake	1,385
Salliq	Coral Harbour	669
Sanikiluaq	—	631
Tikirarjuaq	Whale Cove	301
Quikiqtaaluk		**12,317**
Aujuittuq	Grise Fiord	148
Iglulik	Igloolik	1,174
Ikpiarjuk	Arctic Bay	639
Iqaluit	Frobisher Bay	4,220
Kangiqtugaapik	Clyde River	708
Kimmirut	Lake Harbour	397
Kingnait	Cape Dorset	1,118
Mittimatalik	Pond Inlet	1,154
Nanisivik	—	287
Panniqtuuq	Pangnirtung	1,243
Qausuittuq	Resolute	198
Qikiqtarjuaq	Broughton Island	488
Sanirajak	Hall Beach	543

Table 2-1: Community Populations

Source: Nunavut Handbook: www.arctic-travel.com

Changing Technology

Hunting techniques and harvesting patterns have changed drastically in the past several decades as a result of the introduction of modern technology and the concentration of the population in permanent communities.

Although hunting territories have become smaller since the people moved into permanent settlements, the range and efficiency of individual hunters have greatly increased with the use of snowmobiles, powerboats and rifles. The over-exploitation of wildlife near communities has encouraged the use of powered vehicles and outpost camps to extend the hunting territory. These camps are seasonal hunting camps used regularly by the hunters of a community. Locations are shown on maps in the geographic chapters of this Handbook.

Marine Mammals

Hunting marine mammals is the foundation of the Inuit subsistence economy, and much of the hunt is from the sea ice. The Inuit have well-established on-ice travel routes linking communities with hunting areas and outpost camps, and with other communities. These routes are shown on the large-scale maps in the geographic chapters.

Inuit have traditionally had an intimate knowledge of ice dynamics and its role in determining the distribution and abundance of marine mammals, particularly of ringed seals. Hunters have learned to focus their efforts in areas such as flaw-lead zones, ice edges and tidal cracks where seals are most accessible. Inuit campsites are often in places where coastal topography, currents and winds cause these types of ice features.

The ringed seal is the most important marine mammal in the Inuit subsistence economy. Widespread and abundant, it is a dependable year-round source of food. The ringed seal is also an important cash crop, though anti-sealing protests and the sealskin ban by the European Economic Community have drastically reduced this market.

Ringed seal hunting patterns and techniques change with the seasons. During freeze-up in October and November, the hunt is in the near-shore vicinity of settlements where seal breathing holes are fairly easy to find in areas of thin ice. Seal catches decline in the winter as ice and snow cover thickens. During this

period, most seals are taken in ice cracks and in flaw leads where ice cover is thinner and seal holes are easier to see.

With longer daylight hours in late winter, the Inuit hunting range expands as local hunting grounds become over-exploited; hunters make longer trips to hunt polar bears and other wildlife. From early April, when seal pups are born, until June, most hunting effort is directed towards young seals in the snow lairs usually found in areas of hummocky fast ice. In late May and in June, hunting is very productive as ringed seals haul out on the fast ice to moult; hunters can shoot the basking seals from snowmobiles.

The peak of the ringed seal harvest is in the open-water season from July to October. Most seals taken during this time are shot from outboard-powered boats in sheltered coastal waters near settlements and camps.

The Inuit also hunt walrus, beluga whales and narwhal. Walrus, once an important source of dog food before dogs were largely replaced by snowmobiles, are now hunted mainly for their tusks. Belugas are hunted for the skin, *muktuk* or *maqtaq*; narwhals are hunted for their skin and for their valuable tusks. Some meat is used as dog food.

Most migratory species, such as bearded and harp seals, walrus, narwhal and beluga, are taken in the summer open-water season. Spring floe-edge hunting for narwhal, beluga and walrus is important to many communities. In July, as the fast ice leaves coastal waters, marine mammals in sheltered coastal waters and in drifting ice are hunters from boats.

Although hunting by boat during the open-water period is largely opportunistic, Inuit in many areas focus on species that are locally abundant: narwhal in northern Baffin Island fiords, walrus in Foxe Basin, bearded seals in Hudson Strait, and harp seals in Cumberland Sound.

Terrestrial Mammals

Because polar bears also hunt seals, the hunting pattern for bears is similar to that for seals. Polar bears are in low densities, however, so hunters range farther from home. Most polar bears are taken between January and May, which is when they congregate in places such as flaw-lead zones and polynyas where seals are most accessible. The polar bear harvest is closely regulated by a community quota system. There is a limited tourist sport hunt in several communities.

Caribou is another major source of food and in some communities is more important than marine mammals. Caribou are hunted year-round but most of the hunting is in September; this is when they gather in large herds to begin the migration south to the winter feeding grounds. They are fat at this time of year and their pelts are in prime condition. In October, the bulls become less edible as their bodies change in preparation for the rut, and travel becomes more difficult for hunters with the beginning of freeze-up. In November, once snowmobile travel is possible, and during the winter, there is some hunting but with less intensity than in September.

The caribou gather in large herds again in April for the spring migration to the calving grounds. They are thin, however, due to the sparse winter food supply, and their coats are in poor condition. Calving is from late May in the southern part of the region to mid-June in more northerly areas. After calving, the animals disperse to wander in small groups over their summer range. As a result, hunting at this time of year is less productive.

Caribou are taken on land and from boats as they swim across rivers, lakes and bays during migration. The caribou use the same crossing places each year though migration routes and seasonal ranges change over time.

Caribou are hunted for their meat and hides, mostly for subsistence use. There are also commercial quotas for most herds. Caribou meat taken under commercial quotas is processed for sale across the north. Tourists on guided hunting excursions also take some caribou.

Birds and Fish

Sea birds are not a major part of the Inuit wildlife harvest but a spring hunt for waterfowl near some communities may involve some marine species. In some areas, the Inuit also collect the eggs of eiders and thick-billed murres.

Residents of all Inuit communities take fish in varying amounts. The relative importance of fish varies from place to place but it is sometimes a large proportion of the available food supply. Apart from some jigging for cod on the sea-ice near some communities, almost all fishing is of non-marine species or anadromous species such as Arctic char.

General Ice Conditions

Refer to Sailing Directions, Arctic Canada, Volume I for more information on the arctic climate, oceanography and ice conditions. In particular, the maps in that volume are useful complements to the following discussion.

Wildlife activity is closely associated with ice conditions so a summary of ice conditions in the area covered by this Handbook is given here. Notes are also included in the geographic chapters.

There are two main types of ice: fast ice, which is anchored to land and does not move laterally (areas of fast ice can, however, move vertically with rising and falling tides); and pack ice, which is not anchored to land and moves with ocean currents and wind. Fast ice and pack ice can both include areas of new ice (less than one year old), second-year ice, multi-year ice, and old ice (of indeterminate age). In winter in the northern channels of the Central Arctic, such as M'Clure Strait, Viscount Melville Sound and M'Clintock Channel, most of the ice cover is multi-year ice. Multi-year ice floes are usually thicker, stronger and larger than first-year ice floes.

The roughness of the ice cover in the Arctic Ocean can vary greatly. The variations result from ice forming and breaking up each year and the activity in the ice-shear zone at any particular location. The maximum ice coverage in the Arctic is usually reached in April; the minimum is in late August or early September.

Fast ice usually re-forms each year and may enclose icebergs and floes of older pack ice trapped in the fast ice as it forms. Although icebergs and ridges in the fast ice can have high relief, fast ice is generally fairly flat and no more than 2.2 m thick. Areas with intense ice movement, such as Parry Channel, can have wide fields of rough rubble and ridges where ice is thicker.

Fast ice may extend for only a few metres from a shore, ice front, shoal or grounded iceberg, or it may extend for several hundred kilometres from such attachment points. The depth of water is one of the main factors that determine the extent of fast-ice coverage; fast ice usually ends where the water reaches a depth of about 25 m. Beyond this depth, ice ridges and other pieces of ice protruding from the under surface of the ice rarely stay aground. Where icebergs become grounded, however, they may be trapped in fast ice and that ice may then extend beyond the usual depth.

In winter, most channels between the islands in the central Arctic are covered by fast ice.

Pack ice forms offshore and includes ice that was originally fast ice but has been dislodged. Pack ice can be flat over wide areas but usually has rough relief caused by the movement of floes against each other. The resulting pressure ridges can be many metres thick. Pack ice is not always continuous and at times can be very broken with leads between ice floes. As leads open and later refreeze, newly formed ice adds to the ice cover.

Pack ice lingers in the Arctic Ocean all year. In spring, the extent of pack ice in the Arctic Archipelago increases as sections of fast ice melt and break up. In most of the Archipelago and areas further south, ice is at a minimum for about two months each year (the period is generally longest in the south and shortest further north and west).

Ice-shear zones, between moving pack ice and stationary fast ice, often have large pressure ridges and rubble fields. Pressure ridges form when winds or currents drive pack ice into the edge of fast ice or along that edge (producing a shearing action). These ridges often reach a depth of 25 m and act as offshore anchor points for the adjacent fast ice. In calm freezing conditions, the shear-ice zone may move offshore and the area of fast ice may increase in size. As a result, pressure ridges from an ice-shear zone may be trapped in fast ice.

The ice-shear zone also has many leads. At times, when offshore winds carry loose ice away from consolidated ice, a large lead (up to tens of kilometres wide) may form between the edge of the fast ice and the mobile pack ice. This is common in the Beaufort Sea.

The ice-shear zone may have the width of one pressure ridge (as is often seen at the mouth of Admiralty Inlet in spring) or it may be hundreds of kilometres wide (as is often seen in the Beaufort Sea, where it is called the seasonal ice zone).

Polynyas

See Figure 2-2

Winds, currents, salinity and water temperatures combine in some parts of the Arctic to produce areas where there is no ice, or comparatively thin ice, during the winter. These polynyas are in the same places year after year, although the exact boundaries vary. Wide polynyas are found in northern Baffin Bay (the North Water Polynya) and near Cape Bathurst in the eastern Beaufort Sea. Some polynyas form only for short periods in the early spring.

Whales, walrus and seals can survive the winter in polynyas when other parts of the Arctic have thick ice cover and few places to breathe. The survival of animals over-wintering in polynyas depends on the water staying open.

Birds that migrate into the Arctic in spring often use polynyas as their first feeding areas. There are many large bird colonies near these important open-water food sources.

The influence of these areas of open water on surrounding lands and seas is not well understood. Recent studies suggest that aquatic productivity is much greater downstream from polynyas, making these areas excellent habitat for some species of seal.

Polynyas are in the same general areas each year but the seasonal locations of fast-ice edges change. This is due to wind strength and directions, air temperatures, solar radiation, and ocean currents in previous years as well as in the current year. Figure 7-2, in Chapter 7, shows the various locations of the spring fast-ice edge in the Barrow Strait and Lancaster Sound area for the years 1964 to 1989.

Ice Edges and Ice Bridges

The following briefly describes what are believed to be the most important ice edges and bridges in summer and fall. If these are broken, there could be a significant effect on the local or regional ice regime.

Spring Ice Edges and Bridges

Studies indicate that because of the overall instability of ice edges in spring, it is at this time that the potential impact of ship traffic is greatest. However, if attention is paid to minimizing ice edge entry and exit points, the impact will be well within the natural variability of ice-edge deterioration.

Studies indicate that frequent transits during freeze-up can delay edge stabilization and move the Lancaster Sound ice edge farther west.

A potential impact linked to ice-edge break-up is the release of previously confined multi-year ice. This impact is particularly important in the summer when the ice cover has decayed and the ice is free to move with wind and currents. This is of concern in the Sverdrup Basin where the movement of ice into Parry Channel is restricted by ice arches across Byam Martin Channel and Penny Strait. The arch in Penny Strait breaks up each year but the arch in Byam Martin Channel stays in place one year in four. The effect of arch deterioration thus largely depends on timing.

The same applies to the ice arch in Nares Strait where break-up occurs annually. The timing may vary from year to year but the ice bridge restricts the southward drift of multi-year ice into north Baffin Bay. Because of the presence of the North Water Polynya, this bridge is important all year; the disruption of this ice edge could affect ice regimes in other areas in winter and in summer.

As in the case of potential impacts on regional break-up patterns, the available data suggests that the impact of present ship-traffic on the ice edges is within the natural variability.

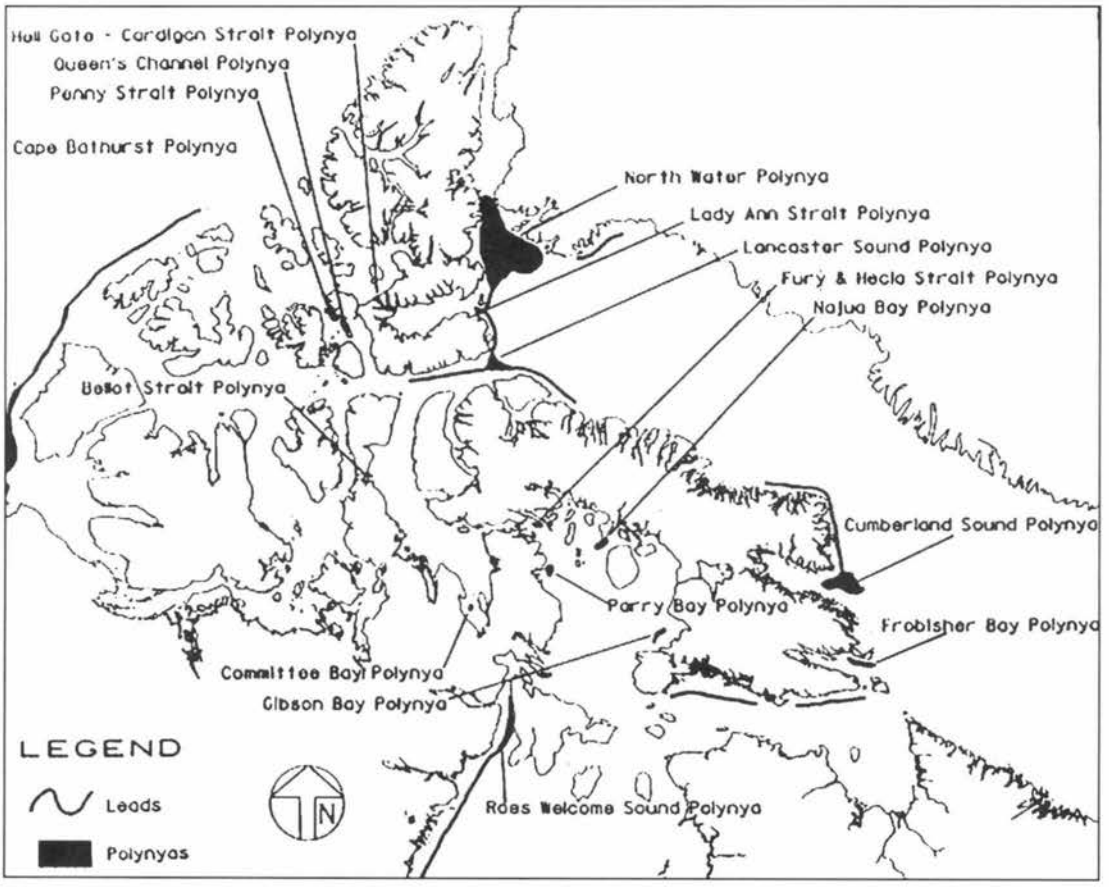


Figure 2-2: Polynyas of the Canadian Arctic

Summer Ice Edges and Bridges

Break-up of the ice edge in northern Byam Martin Channel is a significant event of mid- to late summer. This edge is important because it separates Parry Channel from the predominantly multi-year ice regime in the Prince Gustaf Adolf Sea. Whether or not the edge breaks and when it happens will largely determine how much of this multi-year ice will move into Parry Channel. This edge did not break in 6 years out of the 13 from 1974 to 1986.

An important ice edge in the Sverdrup Basin is in Maclean Strait between King Christian Island and Ellef Ringnes Island. The Maclean Strait edge does not break every year (3 years out of the 10 from 1974 to 1983) but when it does, large areas of mostly multi-year ice break behind it and move south into the Sverdrup Basin. The northern edge breaks around mid-September, releasing the multi-year ice floes in the Prince Gustaf Adolf Sea.

The last significant ice bridge develops at the north end of Penny Strait. It develops when one or more giant multi-year floes from the break-up of the Sverdrup Basin jam against the central islands in the channel. Once the bridge is in place, ice floes build up behind it. This effectively stops any further southward movement of multi-year ice from the eastern Sverdrup Basin into Parry Channel. The bridge usually develops in September and remains in place until break-up the following spring.

Fall Ice Edges and Bridges

Many ice edges and bridges develop in the fall freeze-up period but last only a few days. Sometimes they mark boundaries where the developing ice cover stabilized before advancing to cover the next section of channel.

The most dynamic and variable channel for ice edge and bridge formation is Parry Channel, which has the largest variation in fast-ice cover from year to year. This is partly due to the complex process of ice edge formation, collapse and re-formation caused by winds, currents and tides.

Another critical fall and winter ice edge is in Smith Sound at the south end of Kane Basin. Once this edge/bridge develops, it stops southward movement of old ice from Nares Strait. In two out of eleven years, this ice edge formed early (before mid-November) and was stable until break-up the following year. In several other years, the edge formed, broke and re-formed several times during the winter. In other years, it did not form until mid-February.

Seasonal Ice Conditions

Western Part of the Northwest Passage

The locations of the edge of the fast-ice are not sharply defined in the Coronation Gulf and Queen Maud Gulf areas. The biological activity of terrestrial mammals in these areas is largely influenced by whether or not ice coverage allows easy passage across the bays and channels.

The geographic chapters describe the distribution of the different species and their environmental sensitivity in the biological seasons.

Eastern Part of the Northwest Passage

The area near the edge of the fast-ice is the focus of much biological activity in the eastern Canadian Arctic, particularly in the spring. For this reason, the distribution of species, and thus the environmental sensitivity of an area, depends more on the seasonal location of the ice edge than on the calendar month.

The Northwest Passage – Western Part

Wildlife Overview

Ringed seals are by far the most abundant and widespread marine mammals in the Kitikmeot region throughout the year. Their prime breeding habitat is provided by the oceanography and ice conditions that are typically found at the mouth of Prince Albert Sound.

Bearded seals are widely distributed in very low densities in summer in the Kitikmeot region, and a few overwinter in tidal cracks or in a few areas where ice cover is thin.

Migratory species such as **beluga whales** or **harp seals** are rarely seen in the Kitikmeot region.

Polar bears are uncommon or rare in Coronation Gulf and Queen Maud Gulf but are relatively abundant in Franklin Strait. The bears that use the Franklin Strait and M'Clintock Channel area number about 700 but this varies from year to year, depending on ice conditions.

Arctic foxes are found throughout the Kitikmeot region, denning in banks and eskers from late winter and early spring through late summer, sometimes near the coast. Arctic foxes are both hunters and scavengers and often roam over wide areas of the sea ice in fall and winter to scavenge on seals killed by polar bears.

Muskoxen are widely distributed in the Kitikmeot region and usually live in herds of 8-25 animals. They roam over all of the mainland to and including the Boothia Peninsula, Victoria Island, King William Island, and some of the medium-sized offshore islands (e.g. Jenny Lind Island and Gateshead Island). Based on current population estimates, muskoxen in the Kitikmeot region are about 30% of the total Canadian population of 80,000 to 90,000. Well-vegetated coastal lowlands are a major muskox habitat, particularly from mid-summer to snowfall. Muskox are otherwise not strongly associated with marine or marine-edge habitats, although crossings of ice-covered channels are apparently quite common.

Muskox tracks from the direction of Prince of Wales Island have been seen in March on the ice of M'Clintock Channel around Gateshead Island, and also crossing the sea ice from Tasmania Islands to Victoria Island.

Muskoxen reportedly make frequent crossings of the ice-covered straits between King William Island and Boothia Peninsula in mid- to late winter and have been seen crossing Melville Sound between Kent Peninsula and the mainland.

Caribou range over the entire Kitikmeot region, with the possible exception of some of the islands in Queen Maud Gulf. There are three types of caribou in the area: barren-ground caribou on the mainland, including Kent Peninsula and Adelaide Peninsula but not Boothia Peninsula; southern Arctic islands caribou on the Boothia Peninsula north of Spence Bay and on King William Island and all but the NW third of Victoria Island; and Peary caribou in the NW third of Victoria Island and sometimes around the head of Prince Albert Sound.

Although some caribou stay all winter, there are major spring and fall migrations into, out of, and within the Kitikmeot region, with the highest numbers moving between April and November. Some of the migratory routes involve major ice or water crossings. All of the known major spring movements across bays or channels are over solid ice cover but the return migration may be across open water or newly formed ice.

Grizzly bears are usually found only in the mainland part of the Kitikmeot region, east to about Chantrey Inlet. They are regularly found in the mainland coastal areas from early July to mid-September but have been seen as early as mid-May and as late as mid-October. They may also be found feeding on carrion or fish along the shoreline anywhere within this range.

Geese (snow geese, Ross' geese, white-fronted geese, Canada geese and brant) and one type of swan (tundra swan) are found in the Kitikmeot region. These species generally arrive in late May, nest in June, rear their broods and moult in July and early August, and then migrate south by mid-September. All species congregate to some extent during nesting, which may extend into mid-July.

Several lowland areas support nationally or globally significant breeding populations of geese, primarily in wet tundra areas where exposure to ship traffic would be low but where exposure to ship-based aircraft traffic could be high. Snow geese and Ross geese also nest to some extent on deltaic and coastal islands, and some Canada geese and tundra swans feed in coastal areas, including shallow salt and brackish water. Brant are the most marine-oriented species, nesting along the shore and on offshore islands and feeding in brackish water areas. Geese and swans are flightless for two or three weeks in mid-summer and are very vulnerable during this time.

Glaucous gulls, Thayer's gulls, Sabine's gulls and **arctic terns** are widespread in the area covered by this Handbook, nesting in colonies along the shore and feeding in coastal areas.

Jaegers also use the coastal and marine areas for feeding, particularly during August and early September. These birds arrive in late May and generally leave by mid-September.

Sea ducks (Pacific eiders, king eiders and **oldsquaws**) are widespread and abundant in the Kitikmeot region. Pacific eiders stage in confined open-water areas in spring, nest in colonies along coastlines, moult, raise their young in coastal waters, and may overwinter in limited numbers in open marine waters off Victoria Island. King eiders and oldsquaws are inland nesters and make less use of marine waters for spring staging, but large flocks of non-breeding and post-breeding adults and broods use coastal areas for moulting and feeding from mid-July through August and September. Some king eiders stay in the area until all waters are frozen over. Flocks of **red-breasted mergansers** also use some coastal areas for moulting and feeding.

Loons use leads and coastal areas for feeding in spring and summer.

Pintails are found in small numbers in bays along the coast in August but the proportion of the population that uses marine areas is not known.

Shorebirds (at least 16 species) nest in the area covered by this Handbook, using a wide variety of habitats from inland areas to dry tundra near coastal beaches. Shorebirds arrive in the last week of May, nest, raise their broods in June and July, and leave from August to mid-September. From late July to August, juveniles of most species move to marine beaches where they feed in small flocks prior to migration.

Phalaropes are the most marine-oriented species, making use of leads and ice edges in May to June and flocking in near-shore areas and perhaps offshore in the open-water period.

Sandhill cranes are widespread on coastal tundra, which could expose them to ship-based aircraft traffic. They make little use of the shoreline and are not found offshore.

Hunting, Fishing and Trapping

Hunting, fishing and trapping are the basis of the subsistence economy and are an important part of the cash economy through the sale of furs, hides and meat and guiding services to visitors.

The Kitikmeot region is within the range of the communities of Holman Island, Kugluktuk (Coppermine), Umingmaktok (Bay Chimo), Kinggauk (Bathurst Inlet), Ikaluktutiak (Cambridge Bay), Ursuqtuq (Gjoa Haven), Taloyoak (Spence Bay) and Arviliqjuat (Pelly Bay). Residents hunt and trap arctic fox, polar bears, ringed seals, bearded seals, waterfowl, caribou and muskox. There is also some hunting of beluga whales in the far western and eastern parts of the area. Wolves and wolverine are taken when found. Moose and grizzly bears are hunted in some mainland areas. Fishing is an important part of the resource harvest in all communities, mostly of non-marine or anadromous species although there is some marine fishing in shallow water close to shore.

Use of travel routes, hunting intensity and the species hunted vary seasonally with ice conditions and prey availability. Based on the information available, most cross-ice travel is in late winter and spring (April, May and June) but may extend into July or early August, depending on ice conditions, and resume again after freeze-up in the fall (October to November). There is boat travel in the open-water season (July or August to October) along many of the travel routes identified.

The major species harvested in marine areas include ringed and bearded seals, polar bears, arctic fox, caribou and waterfowl.

From freeze-up in October/November until break-up in July/August, ringed seals are hunted by snowmobile on fast ice and in cracks and flaw leads. During the open-water season, they are hunted from power boats in sheltered coastal waters. Bearded seals are less common but are an important part of the open-water harvest in some areas. Polar bears are hunted by snowmobile on the sea ice, mostly from January to May. Arctic fox are trapped from November to April along travel routes and on offshore islands and further inland.

During their spring and fall migrations, caribou are hunted inland as well as along the shoreline and offshore. Waterfowl are hunted mainly along the coast but also in near-shore areas during the open-water period.

The Northwest Passage – Eastern Part

Wildlife Overview

This entire region is one of intense biological activity. Lancaster Sound and Barrow Strait are important migratory corridors for marine mammals that summer in Admiralty Inlet, Prince Regent Inlet and areas to the west.

Beluga whales (18,000), **narwhal** (18,000), **harp seals** (150,000), up to 1,000 **walrus** and a few hundred **bowhead whales**, which is an endangered species, pass through Lancaster Sound on their spring and fall migration and stay for the summer in the channels of the arctic islands.

Ringed seals and **polar bears** are year-round residents. There are at least 2 million ringed seals in the Canadian arctic but the number in this part of the arctic islands is not known. There may be 3,000 polar bears in the islands and another 1,700 on the Baffin Bay pack ice.

Seabirds (hundreds of thousands) nest in colonies in Lancaster Sound and in east Barrow Strait. A few hundred thousand waterfowl use coastal areas in spring, summer and fall.

Arctic char run to the sea in the open-water season and are found in many coastal areas.

Inuit from Mittimatalik (Pond Inlet), Ikpiarjuk (Arctic Bay), Nanisivik and Qausuittuq (Resolute) hunt and fish in this region year-round. Inuit from Aujuittuq (Grise Fiord), Taloyoak (Spence Bay) and Arviliqjuat (Pelly Bay) and Iglulik (Igloolik) may hunt in the northern, SW, and southern areas. Ringed seals are hunted year-round and are the primary source of food. Polar bears are hunted mainly in spring. Other marine mammals, fish, waterfowl and caribou are harvested in spring, summer and fall.

Migratory Bird Sanctuaries

Figure 2-3: Northwest Passage West

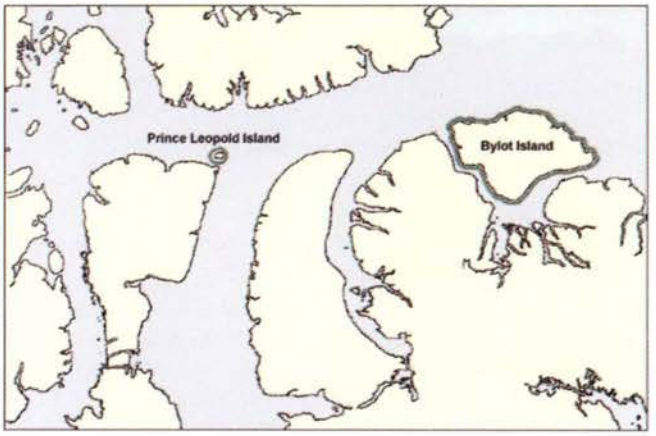


Figure 2-4: Northwest Passage East

Special Areas

Many areas in the Arctic have been designated as having special ecological significance. These areas include parks, reserves, wildlife areas and sanctuaries, some of which have legal status. In some cases, access is restricted and special care must be taken to avoid entering them.

Migratory Bird Sanctuaries

See Figures 2-3 and 2-4

There are nine Migratory Bird Sanctuaries:

- Seymour Island
- Queen Maud Gulf
- Bylot Island
- Dewey Soper
- Cape Dorset
- East Bay
- Harry Gibbons
- McConnell River
- Prince Leopold Island

The *Migratory Bird Sanctuary Regulations* of the *Migratory Birds Convention Act* control access to these areas. Beneficiaries of the *Nunavut Final Agreement* have free and unrestricted access but other persons require a permit to undertake any activity, including landing an aircraft. Aircraft that fly near the breeding cliffs should maintain an altitude of 2,000 feet and horizontal distances of 1 km inland or 5 km offshore. Where there are no cliffs, Transport Canada guidelines require aircraft to maintain a vertical distance of 1,000 feet. Ships are not allowed to enter Migratory Bird Sanctuaries except in emergencies.

National Wildlife Areas

See Figure 2-5

Polar Bear Pass, on Bathurst Island, is the only National Wildlife Area in the area covered by this Handbook. Other National Wildlife Areas will soon be established at Nirjutiqavvik, on Coburg Island, and Igalirtuuq, on Isabella Bay in Baffin Island. Access to these areas is controlled by the *Wildlife Area Regulations* under the *Canada Wildlife Act*.

Permits are required for all activity in a National Wildlife Area, including landing aircraft. Under Transport Canada guidelines on sensitive areas, aircraft must maintain a vertical distance of 1,000 feet. Ships are not permitted to enter Wildlife Areas except in emergencies.

Territorial Parks

There are no Territorial Parks in the area covered by this Handbook but it is expected that Bloody Falls, on Coppermine River 15 km upstream of the community of Kugluktuk (Coppermine), will soon be formally established. Many other parks are planned.

Wildlife Sanctuaries

There is one Wildlife Sanctuary in the area covered by this Handbook: Bowman Bay (Baffin Island), established by the *Wildlife Sanctuaries Regulations* of the Northwest Territories *Wildlife Act*. There are no restrictions on shipping or aircraft operations in Wildlife Sanctuaries.

National Park Reserves

There are no National Parks in the area covered by this Handbook but there are two National Park Reserves: Ellesmere Island and Auyuittuq, on Baffin Island. These are areas set aside for National Parks on completion of planning and approval. Under the *National Parks Act*, no aircraft landings are permitted except by permission of the park superintendent. There are no restrictions on aircraft overflights or on the passage of ships.

Other Areas

As well as the areas described above which have current legal status, other areas have been proposed for special designation or have been given other non-legal status because of their importance to wildlife. These areas are listed here.

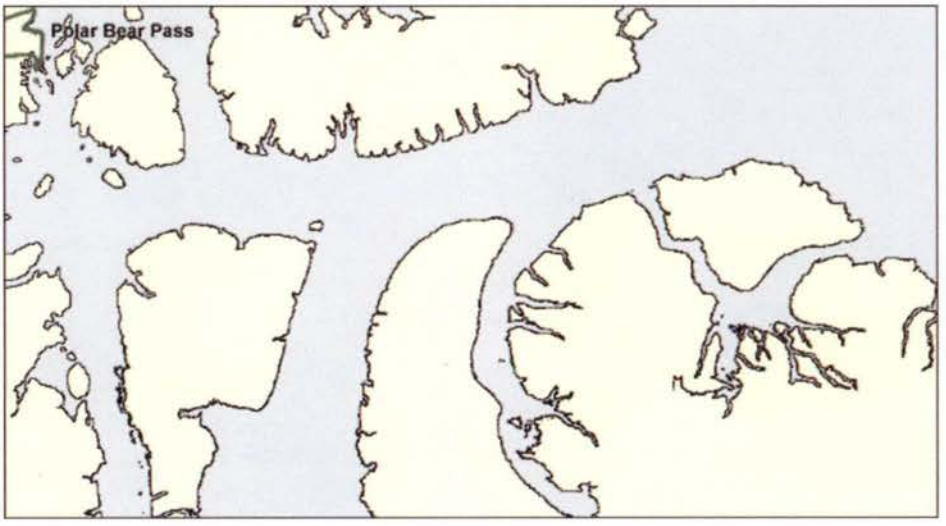


Figure 2-5: National Wildlife Area

International Biological Programme Sites

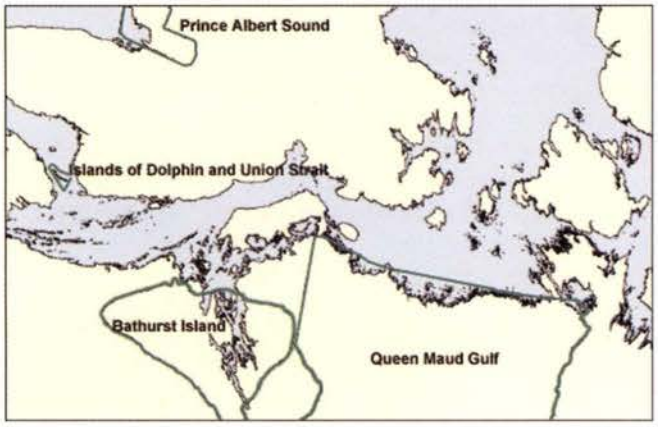


Figure 2-6: Northwest Passage West

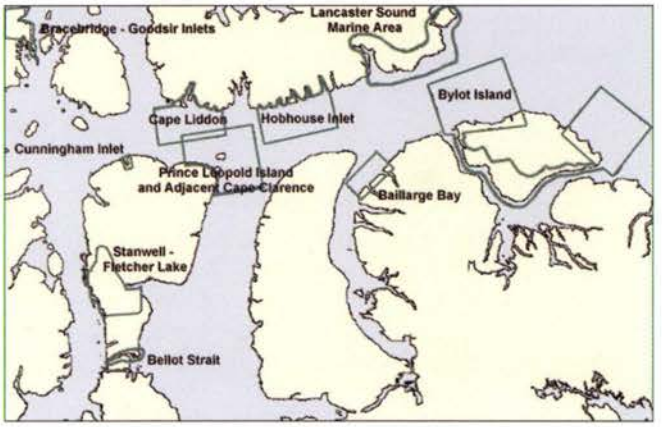


Figure 2-7: Northwest Passage East

Van Hauen Pass, Ellesmere Island	Philips Inlet, Ellesmere Island	Ayles Fiord, Ellesmere Island
Tanquary Fiord, Ellesmere Island	Foshiem Peninsula, Ellesmere I.	Lake Hazen, Ellesmere Island
Expedition Fiord, Axel Heiberg Island	Chain of 3 Lakes, Axel Heiberg I.	Surprise Fiord, Axel Island
Northern Ellef Ringnes Island	Seymore Island	Polar Bear Pass, Bathurst I.
Baillie-Hamilton Island	North Kent Island and Calf Island	Cape Vera, Devon Island
Skruis Point, Devon Island	Cape Liddon, Devon Island	Hobhouse Inlet, Devon Island
Lancaster S. Marine Area, Devon I.	Cape Sparbo, Devon Island	Coburg Island (Nirjutiqavvik)
Baillarge Bay, Baffin Island	Bylot Island	Clyde Foreland, Baffin Island
Paddle-Kingnait Fiord, Baffin Island	Buchan Gulf, Baffin Island	Scott Inlet, Baffin Island
Cape Searle, Baffin Island	Reid Bay, Baffin Island	Dewey Soper, Baffin Island
Islands of Dolphin and Union Strait	Bathurst Inlet	Queen Maud Gulf MBS
Bellot Strait	Meliadine Esker	McCornell River
Duke of York Bay, Southampton I.	Boas River	Coats Island
Digges Sound	Ogac Lake, Baffin Island	Hantzsch Island
Prince Leopold Island	Akpatok Island	Creswell Bay, Somerset I.
Cunningham Inlet, Somerset Island	Button Island	

Table 2-2: International Biological Programme Sites

Wildlife Areas of Special Interest

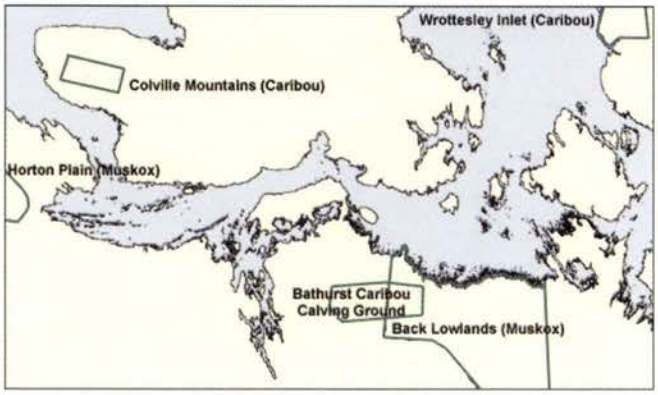


Figure 2-8: Northwest Passage West

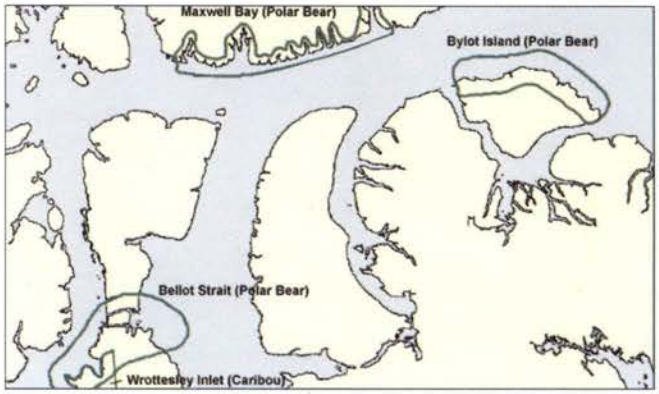


Figure 2-9: Northwest Passage East

Fosheim Peninsula, Ellesmere Island	Back Lowland, Queen Maud Gulf MBS
Mokka Fiord, Axel Heiberg Island	Bellot Strait
Truelove Lowlands, Devon Island	Wrottesley Inlet, Boothia Peninsula
Maxwell Bay, Devon Island	Ford Lake
Bylot Island	Wager Bay
Home Bay, Baffin Island	Rankin Inlet
Hoare Bay, Baffin Island	NE Keewatin caribou calving ground, Wager Bay
Dewar Lakes, Baffin Island	Gateshead Island, Larsen Sound
Coppermine River	Southampton Island
Melville Sound	Foxe Peninsula
Hadley Bay, Victoria Island	Meta Incognita Peninsula

Table 2-3: Wildlife Areas of Special Interest

Migratory Bird Terrestrial Habitat Sites

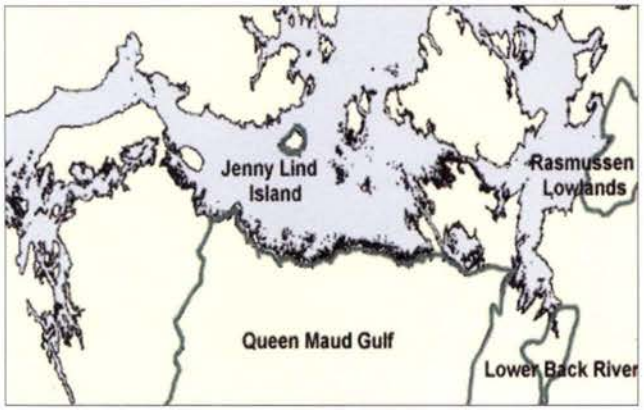


Figure 2-10: Northwest Passage West

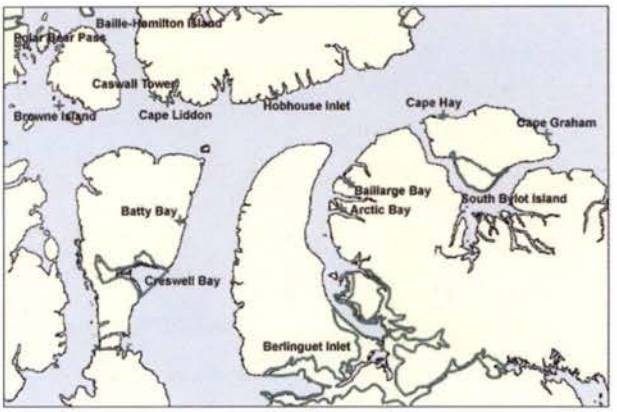


Figure 2-11: Northwest Passage East

Seymour Island	Reid Bay, Baffin Island
Polar Bear Pass, Bathurst Island	North Spicer Island, Foxe Basin
Cheyne Islands	Foxe Basin Islands
Browne Island	Great Plain of the Koukjuak, Baffin Island
Baillie-Hamilton Island	Jenny Lind Island, Queen Maud Gulf
North Kent Island and Calf Island	Queen Maud Gulf MBS
Cape Vera, Devon Island	Lower Back River, Chanterey Inlet
Skruis Point, Devon Island	Rasmussen Lowlands, Rasmussen Basin
Cape Liddon, Devon Island	McConnell River
Hobhouse Inlet, Devon Island	Turton Island, Foxe Basin
Coburg Island (Nirjutiqavvik)	Boas River
Prince Leopold Island	East Bay, Southampton Island
Batty Bay, Somerset Island	Coats Island
Creswell Bay, Somerset Island	Cape Dorset
Northwest Brodeur Peninsula	Fraser Island, Foxe Channel
Berlinguet Inlet, Brodeur Peninsula	Digges Sound
Baillarge Bay, Baffin Island	Awrey Island, NE Hudson Bay
Cape Hay, Bylot Island	Hantzsch Island
South Bylot Island	Akpatok Island
Cape Graham Moore, Bylot Island	Eider Islands, Ungava Bay
Buchan Gulf, Baffin Island	Plover and Payne Island, Ungava Bay
Scott Inlet, Baffin Island	Gyrfalcon Islands, Ungava Bay
Abbajalik and Ijuntuk Is, Baffin Island	Northeast Ungava Bay
Cape Searle, Baffin Island	Koktac River Archipelago E. Hudson Bay

Table 2-4: Migratory Bird Terrestrial Habitat Sites

Key Migratory Bird Marine Habitat Sites

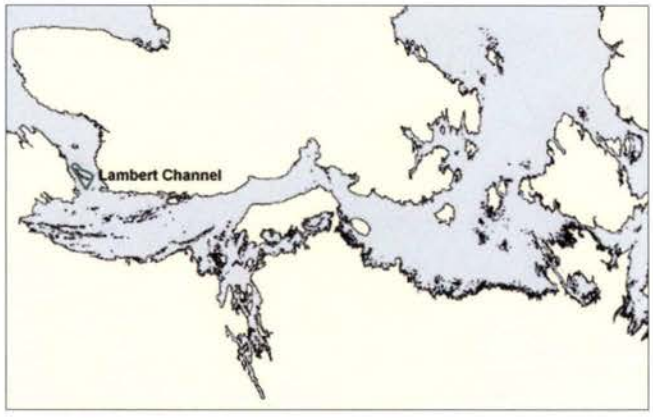


Figure 2-12: Northwest Passage West

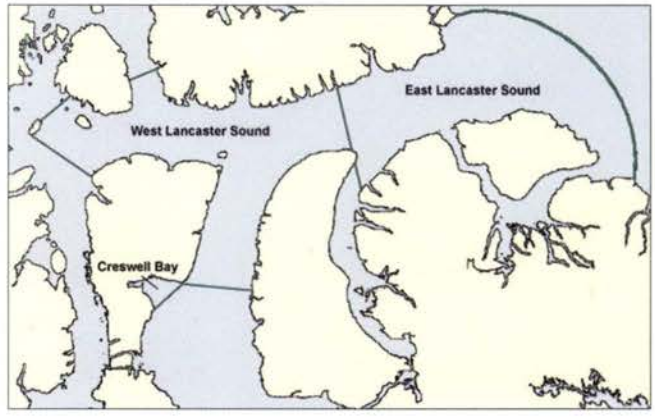


Figure 2-13: Northwest Passage East

Key Migratory Bird Marine Habitat Sites

- Cardigan Strait
- East Hudson Strait
- Creswell Bay
- Somerset Island
- East Lancaster Sound
- Cumberland Sound
- Jones Sound
- Lambert Channel
- West Hudson Strait
- Queen's Channel
- West Lancaster Sound

RAMSAR Sites

(Wetlands of International Significance)

- Dewey Soper Migratory Bird Sanctuary
- McConnell River Migratory Bird Sanctuary
- Polar Bear Pass National Wildlife Area
- Queen Maud Gulf Migratory Bird Sanctuary
- Rasmussen Lowlands

Proposed National Parks

- North Baffin Island
- Wager Bay
- Bluenose/Tuktut Nogait
- Bathurst Island

Priority Sites for Designation as Protected Areas

- Creswell Bay, Somerset Island
- Cape Searle, Baffin Island
- Reid Bay, Baffin Island
- Foxe Basin Islands
- Rasmussen Lowlands
- Coats Island
- Digges Island
- Akpatok Island

Canadian Heritage Rivers

- Soper River
- Coppermine River (proposed)

Environmental Impacts

General

This chapter describes the ship operations and related activities that are a normal part of commercial, scientific and Canadian Coast Guard activities in the Canadian Arctic. These range from the timing and conditions of a ship's passage to waste disposal and to activities external to the vessel itself such as helicopter flights and tourist on-ice travel into ecologically sensitive areas. Any or all of these activities could have an impact on the physical, ecological or socio-economic components of the Arctic way of life. The nature of these potential environmental impacts is also discussed.

Bearded Seal

Community Contacts

Hunting parties may be out on the ice at any time and at considerable distances from their home communities. Ships should contact all of the communities along their intended route for up-to-date information on hunting activities. See the list of Community contacts in Chapter 1.

Types of Potential Impacts

There are several typical potential interactions between shipping and the environment. An interaction is considered to have an impact if it causes a change:

- in the lifestyle of native peoples;
- in the health and safety of people;
- in the abundance or distribution of species that are valued ecosystem components, or in their prey species; or
- in habitats used by species that are considered to be valuable ecosystem components.

Impacts can be negative or positive. Negative impacts are those that cause a change considered to be deleterious. Examples of possible negative

impacts are interference with hunting activities on the ice or disturbance of marine mammals. A positive impact may include conducting scientific research that could be used to mitigate the effects of a negative impact.

Shipping Activities

Open Water Transit

Much of the shipping activity in the Arctic is in open water or in areas of low ice concentration. These conditions allow more flexibility in choosing routing options. The prudent operation of ships in open water or relatively ice-free water will have little detrimental effect on the water or ice. Vessels should, however, keep a safe distance from the high sensitivity areas described in the geographic chapters so as to minimize impacts.

Icebreaking Transit

When a ship passes through ice, the bow breaks pieces from the surrounding ice sheet. These pieces are pushed downwards and to the sides. As the ship progresses, much of the broken ice moves back into the wake of the ship, resulting in an accumulation of various sizes of ice fragments in the ship's track. The concentration of ice pieces along the ship's track also varies, with areas of more and less ice. The pattern of a ship's track also varies considerably with the ship's design.

The nature of the ice cover (land-fast, consolidated or unconsolidated pack) affects the ship's track. In fast ice, the track does not usually close quickly. In mobile pack ice, however, the track may close very quickly because the ice field itself is mobile and there may be some pressure. In moving pack ice, breaking floes will have little effect on the distribution of the ice or its movement. There will be less effect in more open pack ice.

Track reconsolidation depends on the time of year since this dictates ice growth rates and floe size in the track. Reconsolidation is rapid in winter. Even when temperatures rise in early spring, refreezing between ice pieces allows animals and travellers to cross safely after a short wait. In late spring, when temperatures are well above zero, the track stays open; this is when mechanical damage to the ice cover is at its greatest.

In polynyas, a ship's passage disrupts formation of the thin ice cover. The most important polynyas are the North Water Polynya, which gives access to Nares Strait, and the Cape Bathurst Polynya along the access route to the Beaufort Sea. Figure 2-2, in Chapter 2, shows the major polynyas.

Stress cracks and leads occur naturally in consolidated ice as a result of mechanical stress and temperature variation. Studies of the effect of traffic through Barrow Strait suggest that ship traffic may reduce natural cracking but could increase local cracking. This is because the ship's track relieves stress and pressure build up, resulting in larger crack-free areas.

A characteristic of the break-up and freeze-up of fast ice in the Canadian Arctic is the development and collapse of ice edges. There are concerns that ship traffic may affect the stability of ice edges, particularly during break-up and freeze-up. It is felt that the resulting ship track(s) may, in the case of break-up, cause an ice edge/bridge to collapse earlier than normal and advance the break-up of the fast ice (with its associated impacts). During freeze-up, continued transits may destroy or delay the formation of new ice edges and prevent the natural development of the fast-ice cover.

The location of critical ice edges varies with the time of year. In winter, when much of the ice cover in the Arctic consolidates, only a few ice edges or bridges are potentially significant in the sense that disruption of them could cause other changes in the regional ice regime. During winter months, the critical edges are those in Lancaster Sound and Nares Strait. In each case, ice conditions on one side of the edge are such that a break-up of the edge would permit a flow of ice into Baffin Bay. Ice bridges develop in the summer months when the ice is mobile.

Cargo Transfer

General cargo ships, bulk carriers, oil tankers, offshore supply vessels and tug/barge combinations operate in the Arctic. All of these vessels engage in some form of cargo transfer that could result in pollution of the environment. All such transfers are controlled by regulations.

General cargo ships deliver drummed oil and gasoline and a wide range of packaged freight and construction materials to communities in the eastern

and high Arctic. Such deliveries to the western and lower central Arctic are by towed barges. In both cases, lightering barges towed or pushed by workboats are often used to unload the cargo.

Bulk carriers operate to locations in the eastern Arctic and moor alongside a fixed wharf, loading the cargo from a retractable shore-mounted conveyor belt loading system.

Oil tankers deliver heating oil to various communities in the Arctic. In virtually every case, the tanker anchors offshore and delivers the fuel through a floating hose to a shore connection. The hose is monitored at all times by a workboat so that any leakage can be found quickly and the pumping stopped. This procedure is covered by the *Arctic Waters Oil Transfer Guidelines*, published by the Canadian Coast Guard.

Fuel Transfer

Separate from the delivery of oil to communities is the transfer of fuel from ship to ship. Canadian Coast Guard icebreakers, for instance, often refuel during their summer season in the Arctic. This is usually done by bringing fuel from the south by oil tanker and carrying out a ship-to-ship transfer in a sheltered location in the north.

Canadian Coast Guard publishes *Arctic Waters Oil Transfer Guidelines* for fuel transfer practices and procedures. These guidelines ensure that fuel handling practices pose minimal risk to the environment. These procedures have been followed successfully for many years. As an additional safety measure, senior officers of icebreakers are accredited Pollution Prevention Officers.

Waste Handling

The handling of waste onboard ships must conform to the regulations of the *Canada Shipping Act* and the *Arctic Waters Pollution Prevention Act*:

- *Oil Pollution Prevention Regulations;*
- *Garbage Pollution Prevention Regulations;*
- *Pollutant Substances Regulations;*
- *Air Pollution Prevention Regulations;* and
- *Arctic Shipping Pollution Prevention Regulations.*

The regulations prohibit the discharge into Arctic waters of any substance characterized as "waste" that may be detrimental to the use of waters by people or by any animal, fish or plant that may be harvested. Regulations specifically prohibit the discharge of oil and garbage. The discharge of other waste materials, such as sewage, is discouraged; these should be stored onboard for discharge in the south. The discharge of ballast water from foreign or southern locations should be minimized.

The regulations specify how the various pollutants generated by ships are to be handled. The following notes describe the major sources of shipboard pollution from normal operations and identify the regulatory position.

Grey and Black Water

Water used for cooking, cleaning and personal use is usually referred to as grey water and may be disposed of overboard. Grey and black water from drains and toilets, however, although allowed to be discharged overboard, should preferably be stored on board or processed through a system that includes aeration, settling and sterilization.

Garbage

Garbage must not be discharged overboard; it is stored on board or may be incinerated. No garbage is allowed to enter the marine system.

Oily Waste and Sludge

Oil must not be discharged overboard. An oil and water separator is usually used to separate oily waste from water; the oily wastes are held in sludge tanks or may be incinerated.

Exhaust Fumes

Exhaust emissions usually have no detectable effect on air quality or on water quality, marine life or resource harvesting.

Ballast Water

There is a possibility of contamination by ballast water carried from the south but the impacts are likely to be minor.

Environmental Sensitivity to Ships – Western Northwest Passage

Figure 3-1: Spring

Figure 3-2: Summer

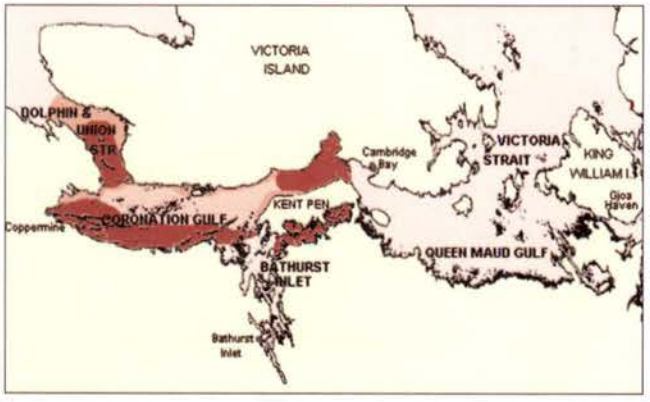


Figure 3-3: Fall

Environmental Sensitivity to Aircraft – Western Northwest Passage

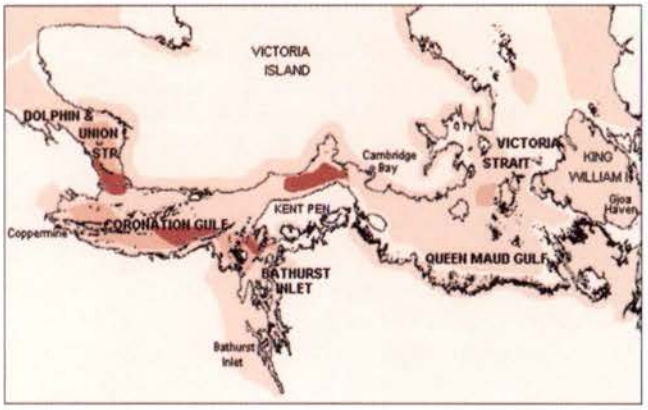


Figure 3-4: Spring

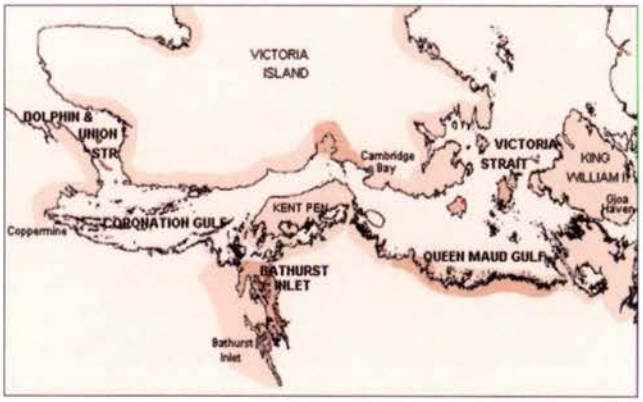
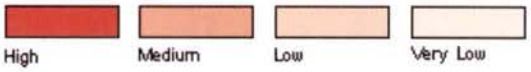


Figure 3-5: Summer

Figure 3-6: Fall

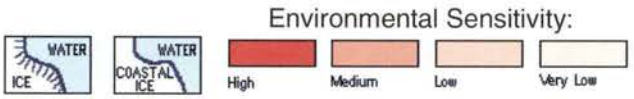
Environmental Sensitivity:



Environmental Sensitivity to Ships – Eastern Northwest Passage

In order to present environmental sensitivity maps that show the variability of the ice-edge location in the **eastern Northwest Passage**, historical data has been used to create three typical spring scenarios, a summer scenario and a fall scenario.

These show ice-edge locations that most directly influence the geographic distribution of species for which biological data exists. Note that these scenarios show general zones within which the ice edges are usually found and are not intended to define exact ice-edge location. See also Table 7-1 in Chapter 7.



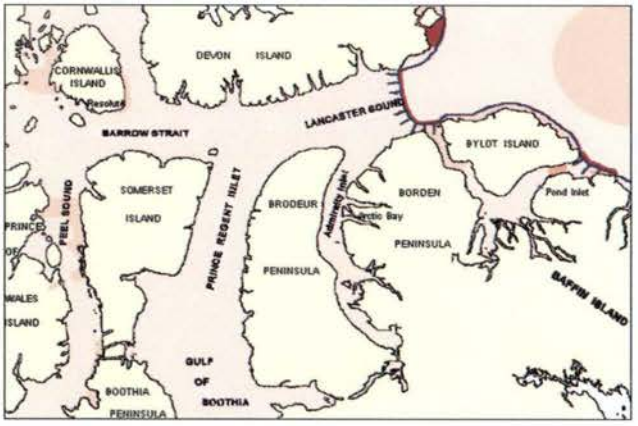


Figure 3-7: Spring Ice Scenario 1
(Ice edge at Bylot Island)

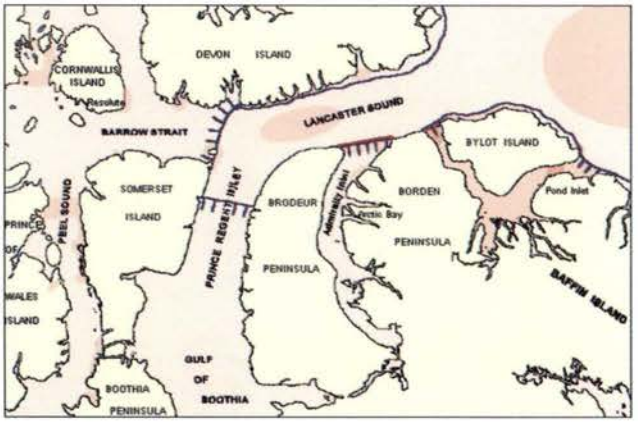


Figure 3-8: Spring Scenario 2
(Ice edge at Prince Leopold Island)

Figure 3-9: Spring Scenario 3
(Ice edge at Barrow Strait)

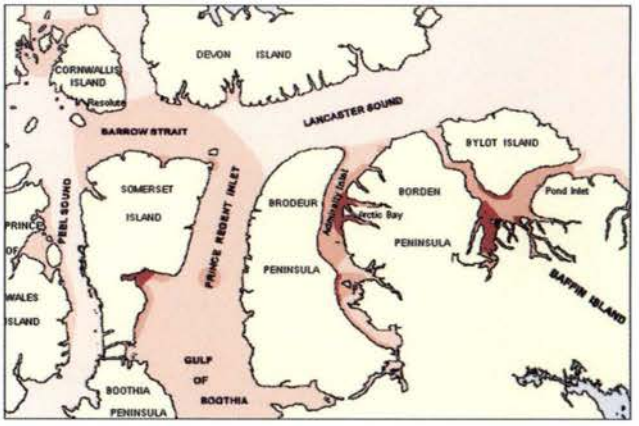


Figure 3-10: Summer Scenario

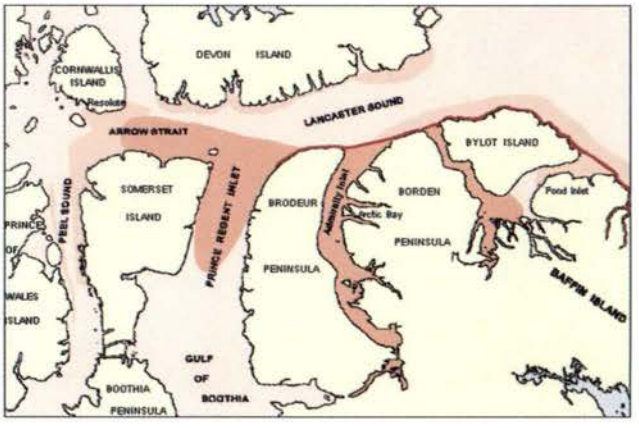


Figure 3-11: Fall Scenario

Environmental Sensitivity to Aircraft – Eastern Northwest Passage

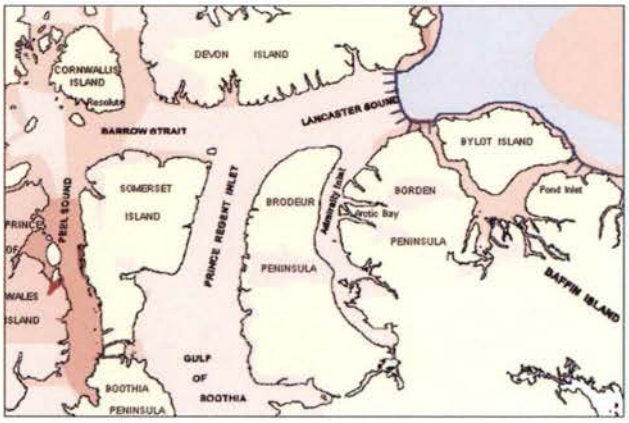


Figure 3-12: Spring Scenario 1 (Ice edge at Bylot Island)

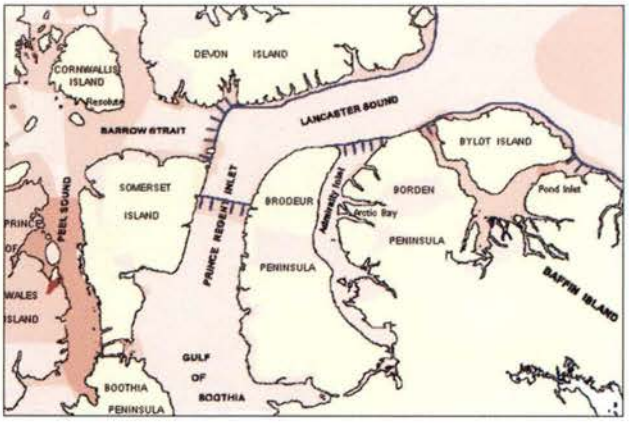


Figure 3-13: Spring Scenario 2 (Ice edge at Prince Leopold Island)

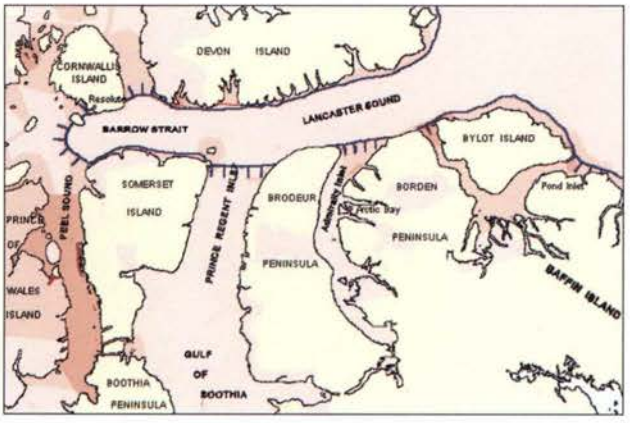


Figure 3-14: Spring Scenario 3 (Ice edge in Barrow Strait)

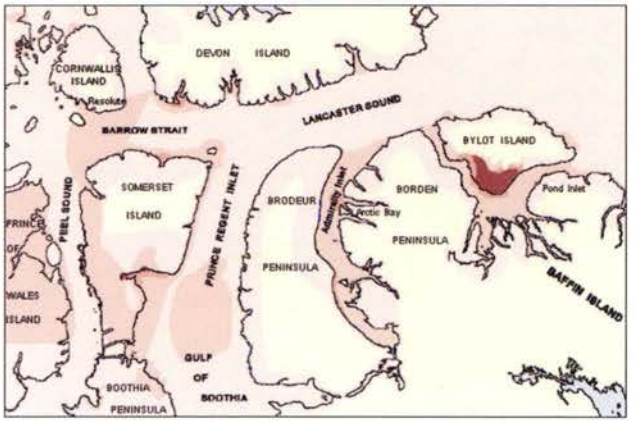
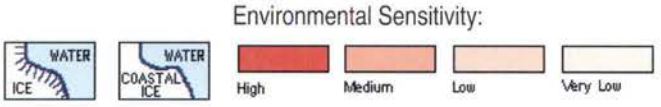


Figure 3-15: Summer Scenario



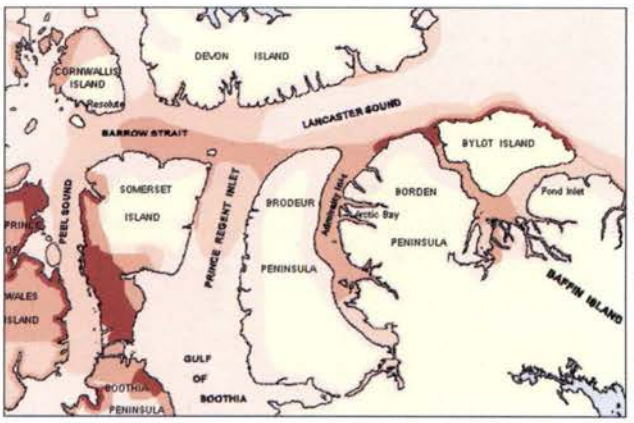


Figure 3-16: Fall Scenario

General Adverse Environmental Effects and Mitigating Measures

Ship Operations

Ships operating near hunters and trappers or wildlife may adversely affect the traditional existence activities as a result of the following:

- high water-borne noise emissions from the cavitation and ice-milling of propellers due to high power levels and ramming as well as the use of air bubbler systems during icebreaking operations;
- high air-borne noise emissions from engine exhausts and ice contact during icebreaking operations;
- disruption of the ice surface by ships' tracks;
- disruption of hunting and animal populations that congregate at ice edges;
- direct encounter with animals on the ice surface, causing them to flee; and
- direct striking of animal dens (primarily seals) during icebreaking operations.

Mitigating measures include:

- reducing noise disturbance by avoiding an area, reducing power, slowing the rate of transit, discontinuing use of noise-producing ancillary systems such as bubbler systems, or completing transit and exiting the area as soon as possible;
- suspending operations briefly when animals such as caribou are encountered on the ice surface so as to allow the animals to leave without fleeing;
- when required to transit an ice edge, doing so as quickly and as directly as possible (ships should not loiter at the ice edge); and
- avoiding visible concentrations of animal dens where possible.

Typical Mitigating Measures for Ship Operations

Potential impacts of shipping on physical, biological and social environments in the Arctic are discussed throughout this Handbook. This section describes the general changes in ship operations that can reduce the physical and biological impacts. Specific mitigation measures are also suggested in the geographic chapters for the various sites. Mitigation of socio-economic impacts, however, requires consultation with communities to learn the location of hunters on the ice. This real-time information is essential to avoid disruption of hunting and the possibility that passage of the ship may create a lead that could isolate hunting parties.

Routing

Route selection is the best way to reduce the impacts of icebreaking, noise and disturbance. There are alternate routes to most areas in the Canadian Arctic so a ship can often use different navigable channels to reach its destination, and some channels are quite wide and offer a choice of routes. When there is a conflict between the ship's planned route and the location of hunting areas or wildlife concentrations, the ship should use a less-sensitive route. The ship's master should consult the maps and the wildlife or hunting details in the appropriate geographic chapters of this Handbook when planning a passage.

This Handbook should also be used to plan and select the safest routes and operational areas for helicopters, launches and on-ice vehicles.

Routes should be selected to minimize potential interaction between the ship and valuable components of the ecosystem.

Ship Power Reduction

Power reduction is a good way to reduce the impact of ship noise. Propeller cavitation and engine noises are the main sources of ship-based noise and can be lessened by reducing power and propeller revolutions.

Where the surrounding ice cover requires high engine power, it may not be feasible to reduce these levels; alternate routing should be considered.

Oil Spill Response Plans

Shipping organizations must have oil spill response plans to help them deal with spills. These plans must include responses to all spills, large and small, and include responses to spills in open water as well as in ice-covered waters.

The risk of oil spills is reduced by following safe procedures for refuelling. However, no measures can ensure a zero risk of oil spills. A small amount of oil could be spilled during refuelling, for instance, or as a result of an accident that ruptures a fuel tank or transfer hose. The Canadian Coast Guard has pollution response equipment, personnel trained in its use, and aircraft and small craft that can be used to deploy these resources. (See the list of Emergency response organizations in Chapter 1.)

Consultation

An important part of plans to reduce negative effects and enhance positive effects is direct consultation with communities and with groups and individuals that may be affected. Ships should contact communities along the intended route prior to transit for the location of people on the ice and other issues that may be of concern. (See the list of Community contacts in Chapter 1.) By addressing the concerns of local residents, it should be possible to avoid problem situations.

Resource Harvesting

Shipping should avoid important hunting areas. These areas are identified in the geographic chapters. The areas of importance, the species of concern, the types of hunts, and the timing of hunts should be respected. This Handbook may be updated periodically in consultation with residents and community Hunters and Trappers Associations and shipping and flight agencies.

On-Ice Travel

Some operations may be in relatively severe ice conditions where a ship's track will refreeze in a few hours. In other ice conditions, a ship's track could create a lead of open water that would be a long-term problem for hunting parties. By informing Arctic communities in advance where a ship is likely to be, operators will be able to work with the communities to identify problems that might be caused by the ship's track and to develop the best approach to reduce disruption.

There are several measures that ship operators might use to facilitate track crossing and to ensure that hunters are not trapped. These measures may indicate rerouting around an area or moving astern to create an ice bridge.

Social and Cultural Effects

Consultations with communities may extend to issues such as substance abuse and ways to prevent ship traffic from introducing changes to Arctic lifestyles. Local residents should decide the extent to which a ship and the ship's personnel are welcomed socially in specific communities.

Activities by Auxiliary Craft

Small-Vessel Operations

All ships operating in Arctic waters carry onboard lifeboats and liferafts but some ships also have workboats or other independent small craft that operate from time to time away from the mother ship. Such ships include icebreakers and survey vessels with small workboats, cargo ships with lightering barges and associated workboats, offshore supply vessels with fast inflatables, and cruise ships with passenger-carrying inflatables.

The small craft would normally operate near the mother ship, except perhaps in the case of cruise ships: their passenger-carrying inflatables may venture quite far afield, visiting archaeological sites or viewing colonies of wildlife.

The high-frequency sound of the motors of small craft may disturb wildlife. Every effort should be made to keep clear of wildlife habitat where the geographic chapters indicate that harm could result.

Helicopter Operations

Some ships operating in Arctic waters carry helicopters. Such ships include icebreakers, offshore support vessels and cruise ships. Helicopters from icebreakers and offshore support vessels usually operate between the ship and a shore location such as

an airport or community or to investigate a preferred route through the ice. Those operated by cruise ships may also take passengers on sightseeing trips.

The sound of helicopters can be heard at a great distance and can disturb wildlife. Every effort should be made to keep clear of wildlife habitat where the geographic chapters indicate that harm could result. In those chapters, specific avoidance distances and flight altitudes are indicated.

Helicopters must follow strict operational procedures to ensure aircraft safety and to protect the environment. Aircraft safety must always have first priority.

A ship's helicopter should be routed to avoid important hunting areas and to avoid disturbing congregations of birds and animals. The locations of these areas, the seasons of concern and the avoidance criteria to be used in planning flight paths are given in the geographic chapters.

Copies of appropriate sections of this Handbook should be carried on board helicopters.

As well as routing considerations, helicopters should plan to operate at altitudes of at least 2,000 feet above sea or ground level. These altitudes will help reduce disturbance of individual or small groups of animals that must be overflown.

An anti-harassment policy should be implemented to prevent helicopters from approaching animals too closely.

On-Ice Vehicles

Icebreakers and cruise ships often carry on-ice vehicles. Icebreakers may carry snowmobiles to help carry out scientific experiments or tracked vehicles to allow travel through areas of mixed ice and open water. Cruise ships may carry snow-mobiles to take passengers to nearby islands or to allow them to venture out over the ice.

These vehicles are unlikely to disrupt the wildlife of the area since the noise levels are low and their use is infrequent. Nevertheless, every effort should be made to keep clear of wildlife habitat where the geographic chapters indicate that harm could result.

Aircraft Operations

Aircraft operating at low altitude near hunters and trappers or wildlife may adversely affect traditional existence activities as a result of:

- air-borne noise emissions from propellers, engines or helicopter rotors;
- direct encounters with animals on the ice or land surface, causing them to flee; or
- direct encounters with animal or bird colonies, or nesting, feeding and congregation areas, causing them to flee or disrupting their reproductive or feeding activities.

Mitigating measures include:

- keeping a horizontal distance of 4.4 miles offshore or 1.7 miles inland or an altitude of 2,000 feet from known animal or bird congregation sites;
- avoiding chasing or flying low over animals or birds; and
- avoiding other close encounters with animals and birds that might cause them to flee.

Auxiliary Vehicle Operations

Auxiliary vehicles such as boats and snow-vehicles used on-water, on-ice or on-shore near hunters or trappers or wildlife may adversely affect traditional existence activities as a result of:

- air-borne noise emissions from propellers, engines or personnel;
- direct encounters with animals on the ice or land surface, causing them to flee; or
- direct encounters with animal or bird colonies, or nesting, feeding and congregation areas, causing them to flee or disrupting their reproductive or feeding activities.

Mitigating measures include:

- reducing noise when near animals or birds;
- avoiding close encounters with known animal or bird congregation sites; and
- avoiding any chase or disruption by vehicles.

Research

Arctic shipping will continue to be a catalyst for Arctic research. To the extent that carrying out research may allow a better understanding of Arctic marine systems, this research would allow for future modifications of ship operation to further mitigate any impacts.

Glossary

- Anadromous: ascending rivers to spawn
- Benthic: living on the sea floor
- Deltaic: in or of a river delta
- Esker: long ridge of post-glacial gravel
- Pelagic: living in upper layers of the open sea

The Northwest Passage — Western Entrance

General

Refer to Chart 7000 and to Sailing Directions, Arctic Canada, Volume III.

The western entrance to the usual route through the Northwest Passage is from the Beaufort Sea into Amundsen Gulf. This route leads eastward from Amundsen Gulf, through Dolphin and Union Strait and Coronation Gulf, then through Dease Strait and Queen Maud Gulf. From there, the route leads to Larsen Sound either south and east of King William Island through Simpson Strait, Rae Strait, St. Roch Basin and James Ross Strait, or west of King William Island through Victoria Strait.

This chapter covers the areas from Amundsen Gulf to the east end of Dease Strait.

Caution — Most of the surveys through this route are of a reconnaissance nature.

Biological Seasons — Western Arctic

Biological seasons in this region do not correspond to the calendar seasons. For the western part of the Northwest Passage, biological seasons are defined as follows.

Biological spring (mid-April to mid-August): Extensive fast ice and consolidated pack ice still covers the region but begins to weaken as solar energy increases. From mid-July to early August (late biological spring), breakup usually begins in the SW reaches of the Passage and spreads eastward through Coronation Gulf, Dease Strait and into the SW parts of Queen Maud Gulf.

During this period of ice fracture, narrow open-water areas form along much of the shoreline, typically several weeks before general ice breakup. These openings are particularly evident along the south shores of Coronation Gulf and Queen Maud Gulf, in Bathurst Inlet, and where there are rivers.

The transition from general ice breakup to complete open water is generally very rapid in the SW part of the Passage; the ice has usually melted within a week or two of breakup due to puddling and deterioration in the late spring period.

The consolidated ice cover in the eastern parts of Queen Maud Gulf and the more northerly waterways leading from Victoria Strait to Peel Sound usually breaks up in the summer period.

Biological summer (mid-August to early October): The consolidated ice cover in the more easterly parts of Queen Maud Gulf and in the SW waterways leading into Victoria Strait breaks up in early summer. It is not until mid-September to early October, late biological summer, that the rest of Victoria Strait and the SE side of Larsen Sound breaks up. Parts of the more northern and western areas are often congested with old ice; it is not uncommon for ice concentrations to be 9-10/10ths all summer and fall. The area west of Gateshead Island in M'Clintock Channel seldom breaks up. Breakup dates vary greatly from year to year.

In the waters that lead from Victoria Strait to Peel Sound and in James Ross Strait, long periods of completely open water are rare. Ice concentrations of up to 4/10ths are more typical of best summer conditions. Leads and openings may be found as winds and currents drift the ice cover across the region but the open-water lasts only a few days or a week or two.

There are fewer open-water days from west to east and from south to north across the region, reflecting the general ice clearance pattern and the ice congestion usually found north of Victoria Strait.

Biological fall (early October to mid-November): Freeze-up generally begins in the more northern parts of the area in early October, spreading southwards into Queen Maud Gulf by mid-October and westwards through Dease Strait and Coronation Gulf by the end of the month. Typical ice cover in late October is 100% but freeze-up dates across the region vary greatly from year to year. The start of freeze-up is more consistent in the Coronation Gulf, Dease Strait and Queen Maud Gulf areas and much less consistent in the less open waterways north and east of Victoria Strait; ice concentrations here may not be less than 9/10ths in some years.

After general freeze-up begins, it usually takes several weeks for the ice cover to completely consolidate and become immobilized in various parts of the region. Typically, the ice takes longer to consolidate in some of the narrower channels where there are strong currents and in some of the deeper water areas that are more exposed.

In some areas, such as Cache Point Channel, Victoria Strait, James Ross Strait and the central reaches of Larsen Sound, complete consolidation may not be until a month or more after general freeze-up (mid-November). Where there is a lot of old ice, small movements can also create pressure ridging of the growing thin-ice during the freeze-up and consolidation period.

The seasonal terms *spring*, *summer* and *fall* in this Handbook refer to the biological seasons unless otherwise stated.

Western Approach to the Northwest Passage

Amundsen Gulf

Refer to Charts 7081, 7082, 7651, and to Sailing Directions, Arctic Canada, Volume III, Chapters II and III.

Amundsen Gulf is entered from the Beaufort Sea between **Cape Bathurst** *(70°34'N, 128°00'W)*, on the mainland coast, and **Cape Kellett**, 92 miles to the NNE, which is the SW end of Banks Island. **Prince of Wales Strait**, on the NE side of Amundsen Gulf, separates **Banks Island** from **Victoria Island** and leads to Parry Channel.

General Site 1:

Dolphin and Union Strait, Prince Albert Sound

Refer to Charts 7081, 7082, 7668, 7669, and to Sailing Directions, Arctic Canada, Volume III, Chapters II and III.

Dolphin and Union Strait, at the SE end of Amundsen Gulf, is entered between **Cape Baring** *(70°02′N, 117°20′W)* and **Clifton Point**, 56 miles to the SSW. The strait is 123 miles long and enters Coronation Gulf between **Lady Franklin Point**, on Victoria Island, and **Cape Krusenstern**, 15 miles to the WSW. This is the western end of the long sea route between the SW islands of the Canadian Arctic Archipelago and the mainland. This route offers a sea approach to several settlements and former DEW-Line stations.

Prince Albert Sound, north of Dolphin and Union Strait, is entered between Cape Baring and **Holman Island** *(70°39′N, 117°43′W)*, 37 miles to the NNW; it leads 120 miles into Victoria Island.

Break-up in Prince Albert Sound starts at the west end in the first week of July and reaches the east end by the third week of the month. The sound is usually clear of ice by the end of July. Freeze-up usually begins in the second week of October. Ice conditions vary from year to year.

Spring season

Virtually all of the channels in this region stay frozen in the early spring season.

Environment

See Figure 4-1

Hunting and trapping travel routes radiate out across the ice from Coppermine to traditional spring hunting areas in Dolphin and Union Strait. Residents of Coppermine and outpost camps on Victoria Island have an important hunting area in the south end of Dolphin and Union Strait for trapping arctic foxes and hunting ringed seals and bearded seals.

Ringed seals have prime breeding and feeding habitat throughout this area.

Polar bears seldom enter Coronation Gulf but have been seen near the western entrance to Prince Albert Sound, attracted by its relatively good seal-breeding, and thus bear-feeding, habitat. The northern Beaufort population is 1,200 (6.5 per 1,000 km²). Given their wide distribution on the sea ice, polar bears are not considered highly vulnerable to disturbances of ships in spring and are even less likely to be exposed to this type of disturbance in summer when they are on the pack ice along the shorelines.

Arctic foxes often roam the sea ice searching for food and scavenging on seal carcasses left by polar bears. Ice-breaking ship traffic and the resulting ship tracks may adversely affect them. The raised beach ridges and sedge meadows in a large area south and west of Dolphin and Union Strait and west of Coronation Gulf provide important denning habitat. The dens are occupied from late winter or early spring and are reused each year.

Caribou migrate across the ice between the islands and the mainland during the period of complete ice cover. Ice-breaking ship traffic and the resulting ship tracks may adversely affect them.

Grizzly bears follow caribou migrations between the mainland and Victoria Island. This could place them along the south shore of Victoria Island. They have also been seen on sea ice.

Summer season

Break-up is early July to early September.

Environment

See Figure 4-2

Hunting and trapping travel routes radiate out from Coppermine to traditional summer hunting areas in Dolphin and Union Strait. Residents of Coppermine and outpost camps on Victoria Island hunt ringed seals, bearded seals and sea ducks in south Dolphin and Union Strait. Seals and caribou are also hunted along the routes to these areas. Beluga whales may also be taken in Simpson Bay during the open-water period.

Ringed seals are found in the area.

Bearded seals are few and widespread.

Polar bears may be found near pack ice at the east entrance area of Dolphin and Union Strait but not in other areas.

Arctic foxes have important denning habitat in the raised beach ridges and sedge meadows in a large area south and west of Dolphin and Union Strait and west of Coronation Gulf. The dens are occupied through late summer and are reused each year. Frozen marine channels are a major foraging habitat for arctic foxes. Most use is in fall and winter (mid-October to mid-April) but there may also be some travel and foraging in this habitat in summer.

Muskoxen and caribou are found in small numbers in all coastal areas.

Gulls, **terns** and **jaegers** nest wherever there is suitable lowland habitat or coastal islands or cliffs. Non-breeding gulls, terns and jaegers have marine habitat anywhere in the area.

Ducks and **loons** are found wherever there is suitable lowland or island habitat.

Eiders use open offshore waters but there is little survey data. Non-breeding or post-breeding shorebirds are found in coastal waters.

Phalaropes may have habitat here but there is little survey data.

Fall season

The area does not usually freeze up until mid- to late October.

Environment

See Figure 4-3

Hunting and trapping travel routes radiate out from Coppermine through open water or over fast ice to traditional hunting areas in Dolphin and Union Strait. Residents of Coppermine and outpost camps on Victoria Island hunt ringed seals and bearded seals in the south end of Dolphin and Union Strait. Seals are also hunted along the access routes to the area.

Arctic foxes roam the sea ice for food and scavenge on seal carcasses left by polar bears.

Bearded seals are widely dispersed in very low densities throughout the area.

Caribou migrate across the ice of Dolphin and Union Strait from Victoria Island to the mainland. They move across a broad front and may use different crossing points each year.

Grizzly bears range along the mainland coast of Dolphin and Union Strait in the fall and follow caribou migrations between the mainland and Victoria Island. A few may be found along the south shore of Victoria Island.

Muskoxen are found in small numbers along the coastal areas.

Geese, **gulls**, **terns**, **jaegers**, **shorebirds** and **sea ducks** are rare after mid-September.

Eiders may stay while there is open water.

Prince Albert Sound, Dolphin and Union Strait, West Coronation Gulf

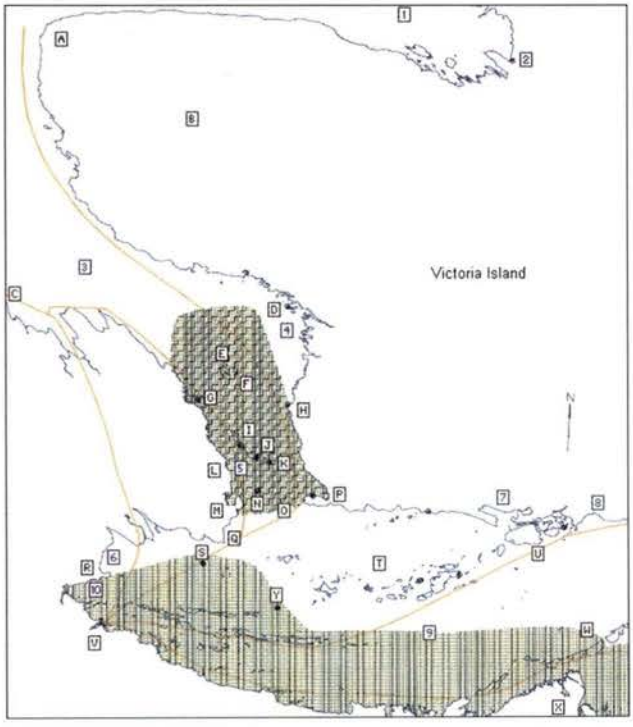


Figure 4-1: Spring

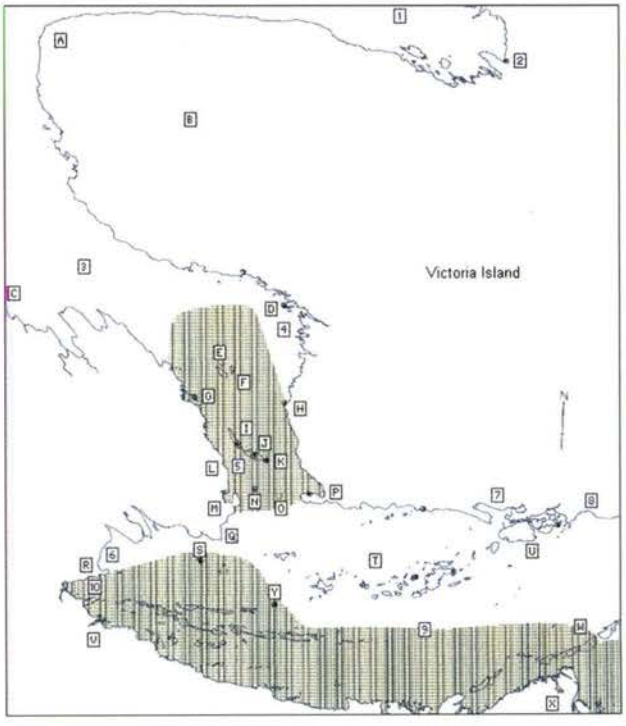


Figure 4-3: Fall

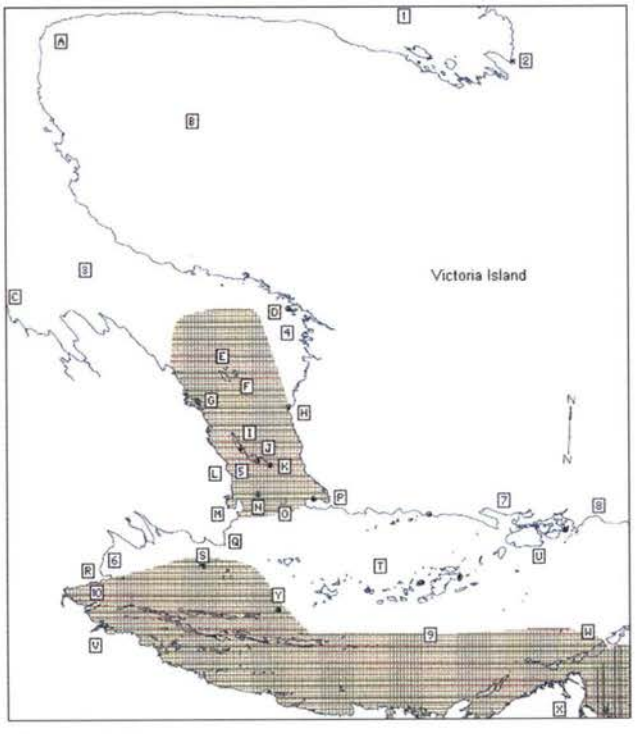


Figure 4-2: Summer

Water Legend

1 Prince Albert Sound
2 Kagloryuak River
3 Dolphin/Union Strait
4 Simpson Bay
5 Lambert Channel
6 Klegenberg Bay
7 Johansen Bay
8 Wilbank Bay
9 Coronation Gulf

Land Legend

A Cape Baring
B Wollaston Peninsula
C Cape Young
D Read Island
E Sutton Island
F Liston Island
G Chantry Island
H Ipiolik Point
I Lambert Island
J Camping Island
K Little Camping I.
L Cape Lambert
M Cape Krusenstern
N Ivonayak Island
O Douglas Island
P Lady Franklin Point
Q Locker Point
R Cape Kendall
S Deadman Islands
T Duke of York Archipelago
U Richardson Islands
V Coppermine
W Jameson Islands
X Cape Barrow
Y Haodlon Island

Bird Colonies
Travel Routes
Polar Bear – Harvest
Ringed Seal – Harvest
Caribou – Harvest
Waterfowl – Harvest

Specific Site 1A:

Victoria Island Shore, Head of Prince Albert Sound to Lady Franklin Point

See Figure 4-4

Refer to Charts 7081 7082, 7668, 7669, and to Sailing Directions, Arctic Canada, Volume III, Chapters II and III.

Lady Franklin Point, on the east side of the south entrance to Dolphin and Union Strait, is the site of a former DEW-Line station and airstrip operated by the *Department of National Defence*.

Spring season

The consolidated winter ice cover begins its breakup.

Environment

See Figure 4-1

Ringed seals are found along the outer half of Prince Albert Sound in breeding and moulting concentrations. This prime seal-breeding habitat is a traditional hunting ground called *Iluvilik*.

Bearded seals are fewer and more widely distributed in this region.

Caribou (southern Arctic islands) are believed to use the area along the south shore of Prince Albert Sound as their main calving ground.

Canada geese and **tundra swans** use the lowlands at the head of Prince Albert Sound as habitat. Canada geese, tundra swans, **snow geese**, **white-fronted geese** and **brant** are found on well-vegetated lowland areas along the south and SE shores of Victoria Island.

Canada geese, **nesting tundra swans** and **brant** are found around Lady Franklin Point.

Brant are found on islands at the mouth of Kagloryuak River and along the coast.

Glaucous gulls nest on the islands at the head of Prince Albert Sound in late May and June. Glaucous gulls and **Thayer's gulls** are also found along landfast ice edges and leads that develop in the sea ice near the west entrance to Dolphin and Union Strait, i.e. at the east end of the Amundsen Gulf Polynya.

Glaucous gulls, **sabine's gulls**, **arctic terns** and **jaegers** have very important nesting habitat in the lowland areas along the south and SE shores of Victoria Island, including some of the smaller offshore islands.

Gulls, **terns** and **jaegers** are likely to be found nesting wherever there is suitable lowland habitat or coastal islands or cliffs.

Arctic terns have a small colony near Ipiolik Point.

King eiders, **oldsquaws** and fewer **pacific eiders**, **yellow-billed loons**, **red throated loons** and **pacific loons** also have important habitat on lowlands at the head of Prince Albert Sound.

Common eiders, **king eiders** and **oldsquaws** nest on the small islands at the mouth of the Kagloryuak River. The open water at this river mouth is also important waterfowl staging habitat in June, as is the east end of the Amundsen Gulf Polynya that develops near Cape Baring.

King eiders, **pacific eiders**, **oldsquaws**, **pacific loons**, **yellow-billed loons** and **red-throated loons** have very important nesting habitat in the well-vegetated lowland areas along the south and SE shores of Victoria Island and its offshore islands.

Pacific eiders have major nesting sites on Read Island and on a small island just north of Lady Franklin Point.

Ruddy turnstones, **phalaropes** and other **shorebirds** are found along landfast ice edges and leads near Cape Baring at the east end of the Amundsen Gulf Polynya in May and June. The well-vegetated lowland areas along the south and SE shores of Victoria Island, including some of the smaller offshore islands, are also very important nesting habitat for shorebirds and sandhill cranes.

Special Status Areas

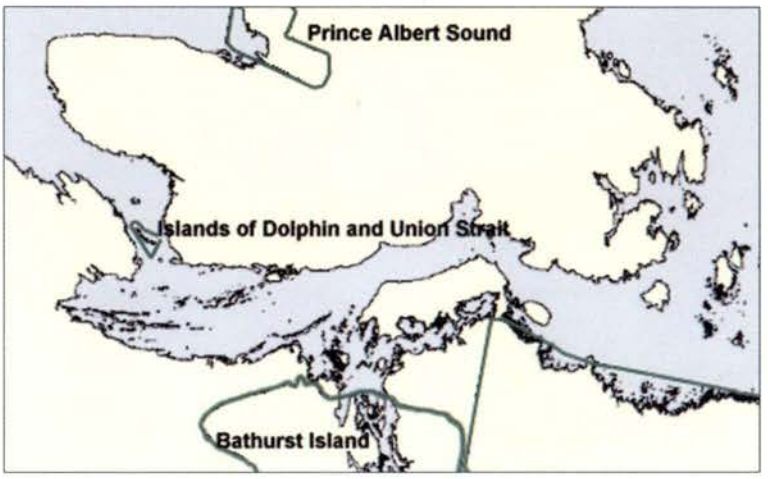


Figure 4-4: International Biological Programme Sites

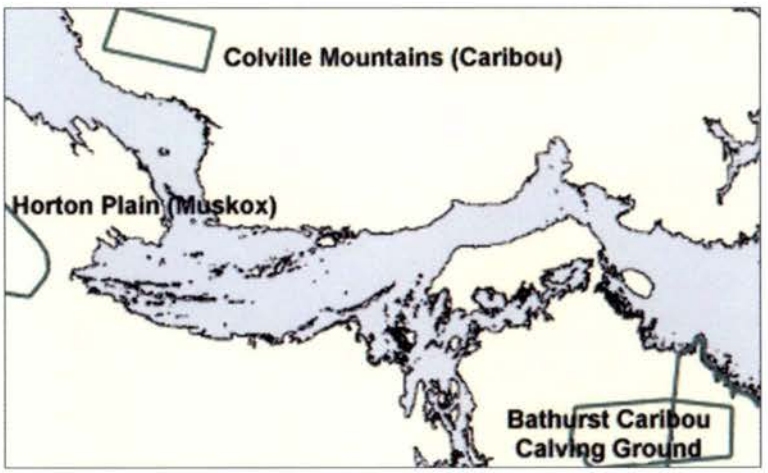


Figure 4-5: Wildlife Areas of Special Interest

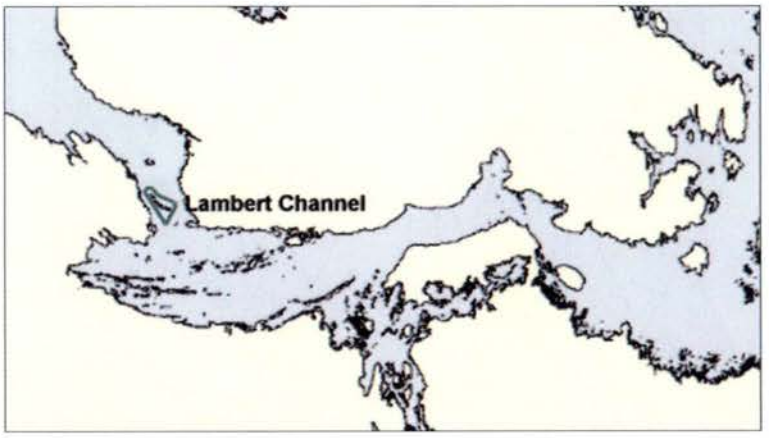


Figure 4-6: Key Migratory Bird Marine Habitat Areas

Summer season

The weakened spring ice breaks up.

Environment

See Figure 4-2

Canada geese and **tundra swans** have habitat in the lowlands at the head of Prince Albert Sound.

Brant are also found along the coast.

Canada geese and **brant** use the Lady Franklin Point area for brood rearing and moulting.

Tundra swans, **Canada geese**, **snow geese**, **white-fronted geese** and **brant** have habitat in the well-vegetated lowland areas along the south and SE shores of Victoria Island.

Glaucous gulls nest on the islands at the head of Prince Albert Sound.

Glaucous gulls, **sabine's gulls**, **arctic terns** and **jaegers** nest in the well-vegetated lowland areas along the south and SE shores of Victoria island and in some of the smaller offshore islands.

Arctic terns have a small colony near Ipiolik Point and have small colonies on the mainland at the north end of Lambert Channel, on Little Camping Island and on Camping Island.

King eiders, **pacific eiders**, **oldsquaws**, **pacific loons**, **yellow-billed loons**, **red-throated loons**, **shorebirds** and **sandhill cranes** nest in the well-vegetated lowland areas along the south and SE shores of Victoria Island.

Eiders, **oldsquaws**, and **loons** use the coastal waters for moulting and as feeding habitat.

King eiders, adult females and the young of the year, gather in large rafts in August.

Pacific eiders have a large colony on a small island just north of Lady Franklin Point. They also have a major nesting site on Read Island.

Fall season

The ice cover grows.

Environment

See Figure 4-3

Ringed seals are common in the near-shore areas of Prince Albert Sound in September/October. A few similar groups, mostly of adult animals, are also found feeding on arctic cod along near-shore areas on both sides of Dolphin and Union Strait.

Specific Site 1B:

Dolphin and Union Strait, SW shore, Cape Young to Cape Krusenstern

See Figure 4-5

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter III.

Cape Young *(68°57′N, 116°59′W)* is the north end of a peninsula rising to 15 m about 0.6 mile inland. A sand spit extends NW from the peninsula. This is the site of a former DEW-Line station and gravel airstrip operated by the *Department of National Defence*.

Cape Krusenstern *(68°24′N, 113°53′W)*, a bold rocky promontory on the west side of the south entrance to Dolphin and Union Strait, rises from low limestone cliffs to an elevation of 30 m one mile inland.

Spring season

The consolidated winter ice cover begins its breakup.

Environment

See Figure 4-1

Geese have an important nesting habitat on the mainland side of Dolphin and Union Strait.

Arctic tern colonies are found on the mainland at the north end of Lambert Channel (40 colonies in 1980).

Pacific eiders have very important nesting habitat on the mainland coast along Dolphin and Union Strait. There is a large eider colony on Chantry Island. Lambert, Camping, Little Camping and Ivonayak Islands together support one of the largest Pacific eider colonies in the western Arctic.

Ruddy turnstones, **phalaropes** and other **shorebirds** occupy landfast ice edges and leads in the sea ice near Cape Lambert in the Lambert Channel Polynya. The distribution and numbers of shorebirds using these habitats are not known.

Summer season

The weakened spring ice cover breaks up.

Environment

See Figure 4-2

Brant, **white-fronted geese** and **pacific eiders** also nest in the mainland coastal areas at the west end of Coronation Gulf and around Dolphin and Union Strait.

Eiders have a large colony on Chantry Island.

Grizzly bears range over the mainland west of Chantrey Inlet; a few may be found along the mainland shore of Dolphin and Union Strait.

Fall season

The ice cover grows.

Environment

See Figure 4-3

Ringed seals are in small groups in near-shore areas.

Specific Site 1C:

Lambert Channel Polynya and the Central Islands of Dolphin and Union Strait

See Figures 4-4 and 4-6

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter III.

Lambert Island *(68°38'N, 114°06'W)* is 15 m high along most of its length, rising to 30 m near its SE end.

Camping Island is connected to the SE end of Lambert Island by a bar and to **Little Camping Island**, to the east, by drying flats.

Lambert Channel leads between Lambert and Camping Islands and the west shore of Dolphin and Union Strait.

Spring season

The consolidated winter ice cover begins its breakup.

Environment

See Figure 4-1

Migrant pacific eiders congregate in a polynya in Lambert Channel.

Bearded seals overwinter around Lambert Island. There are few bearded seals in other fast-ice areas.

Ringed seals are found around Sutton Island and Liston Island in Dolphin and Union Strait. The *Noahognikmiut* sealing ground is south of Sutton Island.

King eiders, **oldsquaws** and **loons** also use the polynya in large numbers. This may be the single most important spring staging area for **pacific eiders**. In June 1992, more than 31,000 pacific eiders were observed, representing 31% of the total western Arctic population. This area is designated as an **International Biological Program Site**.

Glaucous gulls and **Thayer's gulls** congregate along landfast ice edges in the leads that develop in the sea ice in the Lambert Channel polynya between Douglas Island and Cape Krusenstern.

Arctic terns have small colonies on Little Camping and Camping Islands.

Brant and **white-fronted geese** also have very important nesting habitat on the islands of Dolphin and Union Strait.

Summer season

The weakened ice cover breaks up.

Environment

See Figure 4-2

Brant and **white-fronted geese** nest on the islands of Dolphin and Union Strait.

Pacific eiders have one of their largest colonies in the western Arctic on Lambert, Camping, Little Camping and Ivonayak Islands.

Glaucous gulls nest on Ivonayak Island, at the east end of Lambert Channel between Douglas Island and Cape Krusenstern.

Fall season

Freeze-up begins and the ice cover consolidates.

Environment

See Figure 4-3

Ringed seals feed in the offshore areas of Dolphin and Union Strait and in the Lambert Channel Polynya area.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Specific Adverse Effects and Mitigating Measures:

⇨ *Spring*

Ships and aircraft should avoid the Lambert Channel Polynya and the lowland coastal areas due to their sensitivity and importance to marine wildlife.

Sutton Island and Liston Island and their associated traditional seal hunting areas should also be avoided. Ships operating in ice through these areas may interfere with hunting or cause mortality of seal pups or cause pupping females to flee. During the nursing period (6-8 weeks), ringed seal pups stay near the birth lair and may be unable to avoid an icebreaking vessel.

In Dolphin and Union Strait, caribou and an occasional grizzly bear may be encountered (April-May). A through transit cannot fully avoid the caribou crossing routes or the over-ice travel routes used by hunters.

Ships should keep a good lookout for large groups of caribou on the ice and avoid crossing in front of them. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife. Caribou frightened by low-flying aircraft often injure themselves on rough ice. Such injuries usually cause death.

Before entering the area, ships and their aircraft should contact the Hunters and Trappers Association at Coppermine for the locations of on-ice hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

Seabird colonies are sensitive during the entire spring period.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over a seabird colony.

Auxiliary vehicles should stay far enough away to avoid disturbing such colonies.

Special areas to be avoided:

- a small island north of Lady Franklin Point and Chantry Island, with a large colony of Pacific eiders (319 nests in 1980);
- Lambert, Camping, Little Camping and Ivonayak Islands, with one of the largest Pacific eider colonies in the western Arctic.

⇨ *Summer*

In general, ships and aircraft should avoid lowland coastal areas. These areas are important nesting habitat for many species of waterfowl.

Prince Albert Sound, and in particular the lowlands at the head of the sound, provide important habitat for a variety of geese, tundra swans, sea ducks and gulls.

The islands of Dolphin and Union Strait provide very important habitat for nesting brant and white-fronted geese. Before entering the area, ships and their aircraft should contact the Hunters and Trappers Association at Coppermine for the location of hunting areas and support camps.

Residents of Coppermine and outpost camps on Victoria Island hunt ringed seals, bearded seals and sea ducks in their traditional areas. Ships and aircraft should avoid these areas.

Beluga whales are taken in Simpson Bay in the open-water period; this area should be avoided.

Seabird colonies are sensitive during the entire summer period. Ships should keep at least 1.7 miles from any identified seabird colonies. Aircraft should keep a distance of 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over any seabird colony.

Special areas to be avoided:

- a small island just north of Lady Franklin Point and Chantry Island, with a large colony of Pacific eiders;
- Lambert, Camping, Little Camping, and Ivonayak Islands, with one of the largest Pacific eider colonies in the western Arctic;
- Read Island, in Simpson Bay, with a major nesting site for pacific eiders.

Ships and aircraft should avoid identified sites or areas. Helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

⇨ Fall

The south end of Dolphin and Union Strait and the travel routes used by Coppermine residents to access it are sensitive. These are seal hunting areas and should be avoided by ships and aircraft.

Large numbers of caribou cross Dolphin and Union Strait from Victoria Island to wintering areas on the mainland. This migration is across a broad front and different crossing points may be used each year. This is when large numbers of caribou and an occasional grizzly bear could be encountered. Ship passing through Dolphin and Union Strait cannot entirely avoid these caribou crossing routes or the on-ice routes used by hunters.

Ships must keep a good lookout for large groups of caribou and avoid crossing in front of them.

Before entering the area, ships and aircraft should contact the Hunters and Trappers Association at Coppermine for the location of on-ice hunting areas and support camps.

Ships and aircraft should avoid identified sites or areas. Helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

General Site 2:

Coronation Gulf, Dease Strait

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapters III and IV.

Coronation Gulf leads south of Victoria Island from Dolphin and Union Strait to Dease Strait. Its eastern boundary is a line joining **Murray Point** *(68°35′N, 110°20′W)* on Victoria Island and **Cape Flinders**, 38 miles to the ESE.

Dease Strait is 15 miles wide and extends 100 miles ENE between Victoria Island and **Kent Peninsula** to its junction with Queen Maud Gulf, which is a line joining **Cape Colborne** *(68°58′N, 105°14′W)* and Trap Point, 12 miles to the WSW.

Spring season

The area is covered by consolidated ice.

Environment

See Figure 4-1

Ringed seals are pupping, breeding and moulting in offshore fast ice from April to June.

Bearded seals are rare in fast-ice areas.

Polar bears are rare in Coronation Gulf.

Arctic fox are found denning and foraging in low densities along all coastal areas. The dens are occupied from late winter or early spring and are reused each year. Foxes often roam the frozen sea-ice for food and scavenge on any seal carcasses left by polar bears. They may be affected by ice-breaking ship traffic.

Caribou in their thousands migrate across the ice of Dolphin and Union Strait, Coronation Gulf and Dease Strait from wintering areas on the mainland to their calving and summering range on Victoria island. The Victoria Island herd has 8,000 animals. Migration is across a broad front and different crossing points may be used each year. Except for a polynya at the east end of Dolphin and Union Strait, ice cover is generally complete until mid- to late July.

Grizzly bears follow caribou migrations between the mainland and Victoria Island. They also move east-west across the ice of south Bathurst Inlet. The bear crossings probably coincide with the main caribou migrations.

Muskoxen are found in small numbers in all coastal areas. They cross the ice in eastern areas in mid- to late winter and elsewhere in May and June. Ice conditions are suitable for crossing throughout the area until late in the spring or early summer period.

Geese, **swans**, **gulls**, **terns** and/or **jaegers** nest along the coast wherever there is suitable lowland habitat or coastal islands or cliffs.

Glaucous gulls and **Thayer's gulls** are found along landfast ice edges in offshore waters and in leads in the sea ice in May and June. The distribution and numbers of birds in these habitats are not known. The most intense fracturing and lead development before general breakup is in the central to NE area of Coronation Gulf and Dease Strait; this presumably gives the best habitat. Geese and swans have not been reported in the developing leads or ice edges in the offshore area.

Ducks and/or **loons** are found wherever there is suitable lowland or island habitat.

Pacific eiders, **king eiders**, **oldsquaws**, **Pacific loons** and **red-throated loons** all use offshore leads in May and June. The best habitat for ducks and loons is probably in the central to NE area of Coronation Gulf and Dease Strait.

Ruddy turnstones, **phalaropes** and other **shorebirds** are found along landfast ice edges and in the leads in the sea ice that develop in May and June. They are also found in coastal areas wherever there is suitable lowland habitat. Most other areas are ice-covered well into July or August and are unlikely to be used by large numbers of sea ducks or loons in spring, although there may be some in shore leads or around river mouths.

Summer season

Breakup is early July to early September.

Environment

See Figure 4-2

Ringed seals are found in the area.

Bearded seals are widespread but in very low densities.

Arctic foxes are found denning and foraging in all coastal areas. The dens are occupied through late summer and are reused each year. Marine channels that stay frozen are a major foraging habitat. Although this is mostly in fall and winter (mid-October to mid-April), some travel and foraging extends into summer.

Caribou are found in all coastal areas at any time. Except for the Bathurst Inlet area, no sea-ice or water crossings have been documented.

Grizzly bears are found along the mainland coastline from as early as mid-May to as late as mid-October but mostly early July to mid-September. Observed ice crossings have been when the bears were trailing caribou migrations.

Muskoxen are found in all coastal areas at any time in the summer. No ice crossings by muskoxen have been seen, although ice conditions are suitable into July and in some areas into September.

Brant, other **geese species** and **swans** have been reported in coastal waters across the area but seldom far offshore.

Glaucous gulls, **sabine's gulls**, **arctic terns** and **jaegers** nest in the well-vegetated lowlands along the south and SE shores of Victoria Island and on some of the smaller offshore islands.

Gulls, **terns** and **jaegers** (non-breeding or post-breeding) are found in marine habitats anywhere in the area.

Ducks and **loons** are found wherever there is suitable lowland or island habitat.

Eiders make some use of open offshore waters during the summer season but there is no information on numbers and location of birds.

Fall season

Freeze-up is early to late October.

Environment

See Figure 4-3

Ringed seals are widespread.

Bearded seals are widespread but in very low densities.

Polar bear sightings are rare.

Arctic foxes are found in low densities in all coastal areas. They roam the sea ice for food and scavenge on any seal carcasses left by polar bears.

Caribou in their thousands migrate across the ice of Coronation Gulf and Dease Strait from calving and summering areas on Victoria Island to wintering areas on the mainland. Migration is across a broad front and different crossing points may be used each year. Freeze-up in the area is generally not until mid- to late October but some caribou may cross even when ice cover is unstable.

Muskoxen are found in small numbers at any time. Ice crossings by muskoxen have been recorded in the eastern part of the area in mid- to late winter and elsewhere as early as October or November. Given their broad distribution, there may be groups of caribou anywhere in the area.

Geese, **gulls**, **terns**, **jaegers** or **shorebirds** are seldom seen after mid-September.

Eiders stay as long as there is open water, which may be as late as December in some areas.

Specific Site 2A:

Cape Krusenstern to Cape Barrow, South Shore and Offshore Islands

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapters III and IV.

Cape Barrow *(68°01′N, 110°06′W)*, a bold headland of red and dark granite, rises sheer from the sea to an elevation of 90 m.

Cape Flinders *(68°16′N, 108°48′W)*, the east entrance point of Bathurst Inlet and the west end of **Kent Peninsula**, rises to an elevation of 60 m one mile inland. The coast 1.5 miles SE of the cape is radar conspicuous.

Spring season

The area is covered by consolidated ice.

Environment

See Figure 4-1

Hunting and trapping cross-ice travel routes radiate out from Coppermine to a hunting ground in the Duke of York Archipelago and along the south shore of Coronation gulf, linking up with the communities of Cambridge Bay and Bay Chimo. There is fishing and hunting as well as trapping of arctic foxes, polar bears, seals and caribou from April to July. The area around Richardson Bay is a very important muskox hunting ground for residents of Coppermine. It is also part of a designated **Wildlife Area of Special Interest** for muskox.

Arctic fox, **ringed seals** and **bearded seals** are hunted in Dolphin and Union Strait and along the south shore of Coronation Gulf. This is an important hunting area; over 1,000 animals may be taken.

Ringed seals are found in the *Walliakmiut* sealing ground around **Deadman Islands**. There are few seals from Locker Point to Cape Kendall in late spring, which may be due to muddy runoff from rivers. Freshwater input and snowmobile traffic also keep seals away from the Richardson Bay area.

Caribou are hunted along the south coast of Coronation Gulf and on some of the islands. This is an important hunting ground.

Grizzly bears are found along the mainland shore from early July and possibly from as early as mid-May.

Geese nest in the Cape Barrow area and in Richardson Bay north of Locker Point. In particular, the mainland from Klengenberg Bay to north of Locker Point supports large numbers of white-fronted geese (1,900, which is more than 1% of the Canadian population), Canada geese (2,700) and tundra swans (250). This area has been nominated, but not yet designated, as a **Key Migratory Bird Terrestrial Habitat Site** by the *Canadian Wildlife Service*.

Gulls have a colony on Deadman Islands.

Sea ducks nest in the Cape Barrow area.

Pacific eiders are found along the mainland coast bordering Richardson Bay. There is also an eider colony on Haodlon Island.

Summer season

The consolidated ice cover breaks up.

Environment

See Figure 4-2

Hunting and trapping travel routes radiate out from Coppermine to summer hunting areas along the Duke of York Archipelago and along the south mainland coast of Coronation Gulf. They link up with the communities of Cambridge Bay and Bay Chimo. Seal and caribou are hunted along these routes.

Arctic fox and **caribou** are hunted along the shore and on some islands in the south part of Coronation Gulf.

Ringed seals and **bearded seals** are widely hunted in the south part of Coronation Gulf. Ringed seals have also been seen in the freshwater plume near Coppermine.

Grizzly bears are found along the shoreline from early July and possibly from as early as mid-May. A few grizzly bears follow caribou moving between the mainland and Victoria Island.

Muskox have habitat in the area around Richardson Bay.

Brant and **white-fronted geese** nest on mainland coastal areas at the west end of Coronation gulf and in parts of Dolphin and Union Strait (see Spring comment on geese for designation by the *Canadian Wildlife Service* and population details).

Pacific eiders nest on the mainland coast around Richardson Bay.

Gulls have a colony on Deadman Islands.

Eiders have a colony on Haodlon Island.

Geese nest in the Cape Barrow area.

Fall season

Freeze-up is from early to late October.

Environment

See Figure 4-3

Hunting and trapping travel routes radiate out from Coppermine to hunting areas along the south mainland coast of Coronation Gulf, linking up with the communities of Cambridge Bay and Bay Chimo. Seals are hunted along these routes.

Ringed seals and **bearded seals** are hunted in the south part of Coronation Gulf. More than 1,000 animals may be taken annually in Coronation Gulf and Dolphin and Union Strait. Ringed seals have also been seen in the freshwater plume of Coppermine River.

Caribou are hunted in the south part of Coronation gulf.

Grizzly bears are found along the shoreline until mid-September and possibly as late as mid-October. A few grizzly bears follow caribou moving between the mainland and Victoria Island.

Muskox use the area around Richardson Bay as habitat. This is an important hunting ground for Coppermine residents. It is also a designated **Wildlife Area of Special Interest** for muskox.

Specific Site 2B:

Duke of York Archipelago

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter III.

Duke of York Archipelago extends 55 miles through the central part of Coronation Gulf. In general, the islands rise in steep cliffs to moderate elevations on their south sides and slope gradually down to the water on their north sides. Little is known (1991) of the depths in or near the Archipelago.

Spring and summer seasons

The area is covered by consolidated ice. The ice cover breaks up as summer progresses.

Environment

Figures 4-1 and 4-2

Glaucous and/or **Thayer's gulls** have two small colonies on islands in the eastern part of Duke of York Archipelago (10-25 breeding pairs each).

Fall season

Median dates of freeze-up vary from early to late October.

Environment

See Figure 4-3

There is no specific information.

Specific Site 2C:

Lady Franklin Point to Sinclair Creek, Victoria Island Shore and Offshore Islands

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapters III and IV.

Lady Franklin Point, on the east side of the south entrance to Dolphin and Union Strait, is the site of a former DEW-Line station and airstrip operated by the *Department of National Defence*.

Sinclair Creek *(68°44′N, 108°58′W)* is a dry creek bed through a gorge cut in rolling tundra-covered hills. The hills rise gently to elevations of 120 m 3 miles inland. Two oil tanks west of the creek help to identify it. The **Byron Bay** former DEW-Line station and airstrip, operated by the *Department of National Defence*, is to the NW.

Spring season

Consolidated winter ice weakens.

Environment

See Figures 4-1 and 4-7

Hunting and trapping cross-ice travel routes radiate out from Coppermine to hunting areas along the Duke of York Archipelago and the coast of Victoria Island, linking up with the community of Cambridge Bay. There is fishing and hunting and trapping of arctic foxes, polar bears, seals and caribou along these routes from April to July.

Arctic foxes den in the areas bordering Johansen Bay and Wilbank Bay.

Tundra swans, **Canada geese**, **snow geese**, **white-fronted geese**, **brant**, **glaucous gulls**, **sabine's gulls**, **Arctic terns** and **jaegers** nest in the well-vegetated lowlands along the south and SE shores of Victoria Island and on some of the smaller offshore islands.

Tundra swans, **Canada geese** and **brant** are found in large numbers in the Lady Franklin Point area.

Glaucous and/or **Thayer's gulls** have a small colony on the Victoria Island coastline north of the Duke of York Archipelago. **Glaucous gulls** and **Thayer's gulls** also have a small sea-cliff gullery on one of the Richardson Islands.

King eiders, **Pacific eiders**, **oldsquaws**, **Pacific loons**, **yellow-billed loons**, **red-throated loons**, **shorebirds** and **sandhill cranes** nest in the well-vegetated lowlands along the south and SE shores of Victoria Island and on some of the offshore islands.

Summer season

The consolidated ice cover breaks up.

Environment

See Figures 4-2 and 4-8

Hunting and trapping travel routes radiate out from Coppermine to summer hunting grounds along the Duke of York Archipelago and the shores of Victoria Island. These routes link up with the community of Cambridge Bay.

Arctic foxes have an important denning area around Johansen Bay and Wilbank Bay.

Seals and **caribou** are hunted along the Coppermine/Cambridge Bay travel routes.

Canada geese (500) and **brant** (200) use the area around Lady Franklin Point for brood rearing and moulting.

Tundra swans, **Canada geese**, **snow geese**, **white-fronted geese**, **brant**, **king eiders**, **Pacific eiders**, **oldsquaws**, **Pacific loons**, **yellow-billed loons**, **red-throated loons**, several species of **shorebirds**, and **sandhill cranes** have a very important nesting habitat in the well-vegetated lowlands along the south and SE shores of Victoria Island and on some of the smaller offshore islands.

Glaucous and/or **Thayer's gulls** have a breeding colony of 10-25 pairs on the Victoria Island coast north of Duke of York Archipelago. There is a sea-cliff gullery with 35 pairs of these birds on one of the Richardson Islands.

Eiders and **oldsquaws** have important moulting areas in the coastal waters.

King eiders, adult females and their young, gather in large rafts in August. Non-breeding or post-breeding shorebirds are found in coastal waters anywhere along the shore.

Phalaropes may use offshore habitats.

Fall season

Freeze-up and consolidation of ice cover begins.

Environment

See Figures 4-3 and 4-9

Hunting and trapping travel routes radiate out from Coppermine to hunting areas along the Duke of York Archipelago, the coast of Victoria Island, and along the south mainland coast of Coronation Gulf. These routes link up with the communities of Cambridge Bay and Bay Chimo.

Seals are hunted along these routes.

Caribou, **ringed seals** and **bearded seals** are hunted in an important area in the south part of Coronation Gulf. More than 1,000 seals are taken annually in Coronation Gulf and Dolphin and Union Strait.

Specific Site 2D:

Dease Strait, Sinclair Creek to Cape Enterprise (North Side), Cape Flinders to Cape Alexander (South Side)

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Cape Alexander *(68°57′N, 106°12′W)*, 120 m in elevation, is the end of a rounded rocky ridge with red sandstone visible where streams have formed ravines. Shoal rocks lie offshore. A depth of 15.8 m is reported (1984) 2.5 miles north of it.

Cape Enterprise, elevation 45 m, is the east entrance point of **Wellington Bay**. The cape consists of large blocks of red sandstone; these are prominent from offshore.

Spring season

A solid sheet of non-moving first-year ice covers Dease Strait. Break-up, usually a matter of the ice melting in place, begins in the west and spreads to the east.

Environment

See Figure 4-7

Hunting, fishing and trapping is mostly along major over-ice travel routes linking Cambridge Bay with the Coppermine, Bathurst Inlet and Perry River areas. An important hunting area west of Cambridge Bay is used in late spring and summer by hunters from the community.

Arctic fox denning areas are found along the west side of Wellington Bay and the west shore of Kent Peninsula.

Muskox habitat is found in the coastal lowlands around outer Cambridge Bay to Wellington Bay. The area is also used by tourists and for guided sports hunts.

Brant, white-fronted geese, eiders, oldsquaws and **loons** nest around Kent Peninsula.

Summer season

The consolidated ice cover breaks up.

Environment

See Figure 4-8

Hunting and trapping areas are mostly along major travel routes linking Cambridge Bay with the Coppermine, Bathurst Inlet and Perry River areas. An important hunting area west of Cambridge Bay is used in late spring and summer by hunters from the community.

Arctic foxes have an important denning area along the west side of Wellington Bay. There are also many of them along the west shore of Kent Peninsula. The dens are occupied through late summer and are reused each year.

Muskox have habitat in the lowlands around outer Cambridge Bay to Wellington Bay. This area is also used by tourists and for guided sports hunts.

Seals (mostly ringed seals) are hunted from motorboats along the coast.

Sea ducks are hunted along the coast.

Tundra swans, Canada geese, snow geese, white-fronted geese, brant, glaucous gulls, sabine's gulls, arctic terns, jaegers, king eiders, Pacific eiders, oldsquaws, Pacific loons, yellow-billed loons, red-throated loons, shorebirds and **sandhill cranes** use the well-vegetated lowlands along the south and SE shores of Victoria Island and some of the smaller offshore islands as habitat.

Brant, white-fronted geese, eiders, oldsquaws and **loons** nest on the coastal areas of Kent Peninsula and the adjacent mainland and Melbourne Island.

King eiders and **oldsquaws** have important moulting and brood-rearing habitat in the coastal waters.

Loons feed in the area.

King eiders (adult female and their young) gather in large rafts in August.

Oldsquaws may use Wellington Bay as an important moulting and fall staging area.

East Coronation Gulf, West Queen Maud Gulf

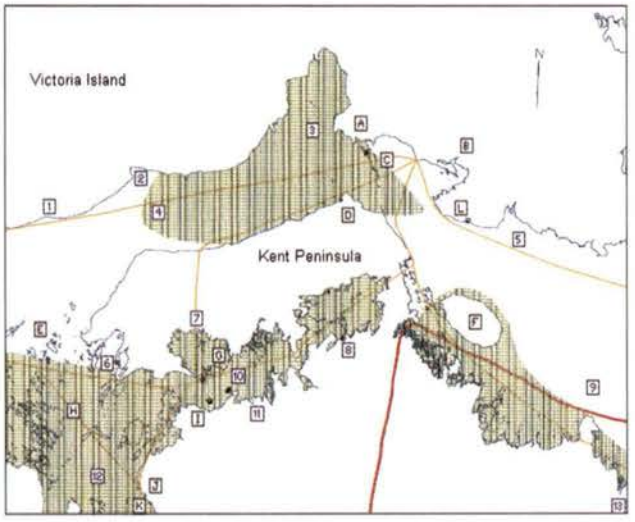


Figure 4-7: Spring Scenario

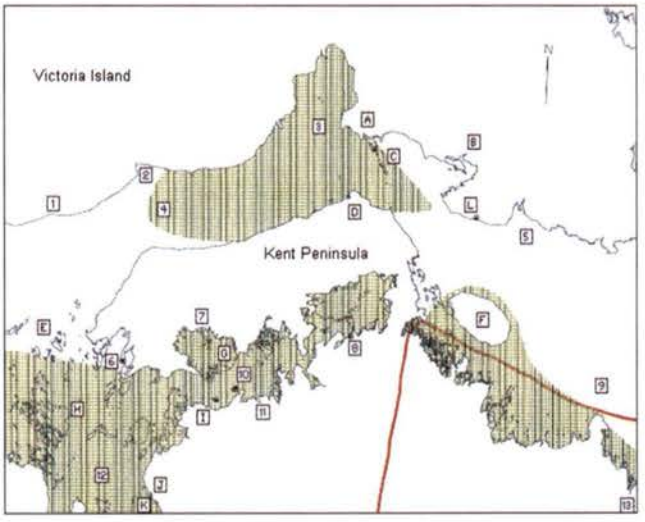


Figure 4-9: Fall Scenario

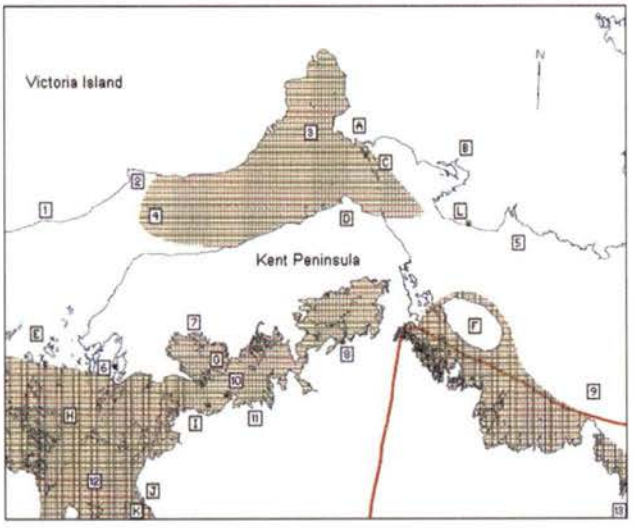


Figure 4-8: Summer Scenario

Travel Routes
Exclusion Zone
Bird Colonies
Ringed Seal – Harvest
Caribou – Harvest

Water Legend

1 Sinclair Creek
2 Byron Bay
3 Wellington Bay
4 Dease Strait
5 Anderson Bay
6 Walker Bay
7 Parry Bay
8 Elu Inlet
9 Queen Maud Gulf
10 Melville Sound
11 Hope Bay
12 Bathurst Inlet
13 Atkinson Point River

Land Legend

A Cape Enterprise
B Cambridge Bay
C Finlayson Islands
D Cape Alexander
E Wilmot Islands
F Melbourne Island
G Hurd Islands
H Lewes Island
I Cape Croker
J Bay Chimo
K Ekalulia Island

Fall season

Freeze-up is from early to late October.

Environment

See Figure 4-9

Hunting and trapping areas are mostly in the lowlands around outer Cambridge Bay to Wellington Bay. The area is used for sports hunting and by tourists. There is also hunting along the major travel routes linking Cambridge Bay with the Coppermine, Bathurst Inlet and Perry River areas. There is also an important hunting area west of Cambridge Bay.

Sea ducks and **seals** (mostly ringed) are hunted along the coast from motorboats.

Specific Site 2E:

Bathurst Inlet, Jameson Islands to the Head

See Figure 4-10

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter III.

Bathurst Inlet, entered between **Cape Barrow** (68°01′N, 110°06′W) and **Cape Flinders**, 32 miles to the ENE, penetrates the mainland for 120 miles. It has irregular shores and many offshore islands, islets and rocks.

Spring season

Consolidated first-year ice covers Bathurst Inlet until June. Break-up is usually in the second and third weeks of July but may be delayed until the first two weeks of August.

Environment

See Figure 4-11

Hunting, fishing and trapping are mostly along major over-ice travel routes linking Bay Chimo and Burnside with the Coppermine, Cambridge Bay and Perry River areas. Two important hunting areas in Bathurst Inlet are used from April to July. Residents of Coppermine, Cambridge Bay and Bathurst Inlet/Bay Chimo trap foxes and hunt seals in north Bathurst Inlet.

Arctic foxes are hunted in north and south Bathurst Inlet. They have an important denning area in the regions along the south (mainland) shore of Melville Sound.

Seals are hunted in north and south Bathurst Inlet.

Caribou (barren-ground) of the Bathurst herd of 150,000 animals migrate eastwards across the ice of Bathurst Inlet in mid-May to early June on their way to calving grounds on the east side of the inlet. They are hunted during this migration across the inlet and its islands. In some years, significant numbers of caribou may fail to cross Bathurst Inlet; these calve in the lowlands of the Banks Peninsula. The area along the south end of Bathurst Inlet is believed to be an important calving area and is a designated **International Biological Programme Site**.

Grizzly bears den along the west side of Parry Bay from mid-November through April. They are likely to be found along the shoreline from early July and possibly from as early as mid-May. Some of them follow caribou moving east-west across the ice of the south part of Bathurst Inlet.

Muskoxen are common on the mainland along the west side of Bathurst Inlet but have not been seen on the islands. From April to July, they are calving, post-calving and feeding.

Brant and **white-fronted geese** have nesting habitat in the coastal areas of the SW Kent Peninsula and the adjacent mainland.

Canada geese, **snow geese** and **white-fronted geese** stage on the Burnside River delta.

Glaucous gulls and other breeding and non-breeding birds live in the lowlands and coastal waters along the SW part of Kent Peninsula.

Glaucous and/or **Thayer's gulls** have a colony at the mouth of Walker Bay, on Kent Peninsula. There are also gull colonies on Algak and Ekalulia Islands and the small islands off the coast of Arctic Sound.

Eiders, **oldsquaws**, **loons** and **breeding** and **non-breeding shorebirds** nest in the lowland coastal areas of SW Kent Peninsula and the adjacent mainland.

Pacific eiders are especially abundant in the north part of Bathurst Inlet. There is important nesting habitat on Wilmot Islands.

Sea ducks nest in the Cape Barrow area.

Special Status Areas

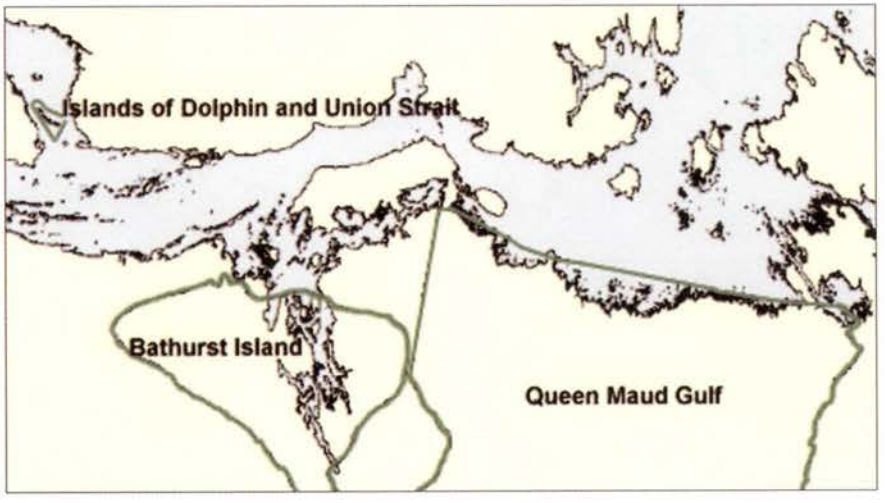


Figure 4-10: International Biological Programme Sites

South Coronation Gulf, Bathurst Inlet

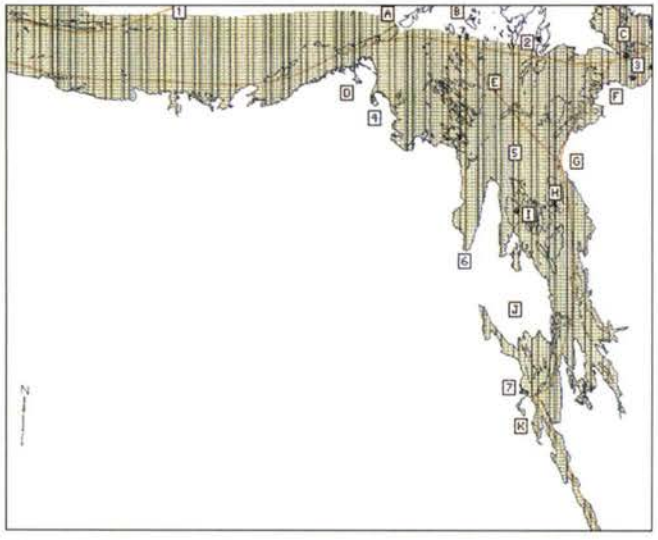


Figure 4-11: Spring Scenario

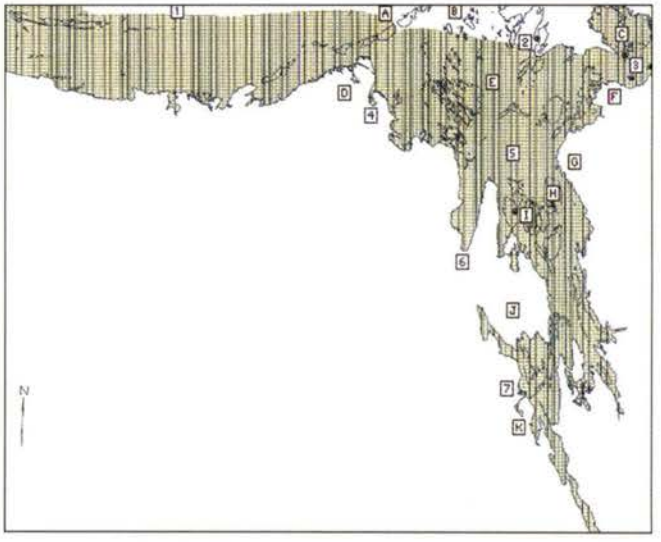


Figure 4-13: Fall Scenario

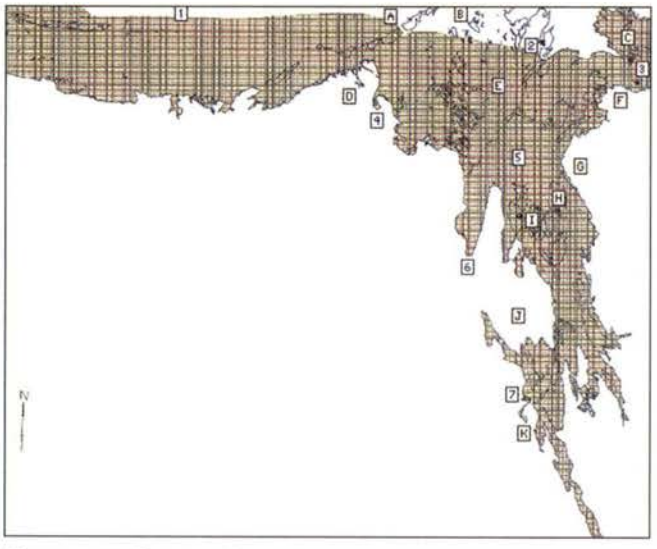


Figure 4-12: Summer Scenario

Ringed Seal – Harvest

Caribou – Harvest

Waterfowl – Harvest

Bird Colonies

Travel Routes

Water Legend

1 Coronation Gulf
2 Walker Bay
3 Melville Sound
4 Detention Harbour
5 Bathurst Inlet
6 Arctic Sound
7 Burnside River

Land Legend

A Jameson Islands
B Wilmot Islands
C Hurd Islands
D Cape Barrow
E Lewes Island
F Cape Croker
G Bay Chimo
H Ekalulia Island
I Algak Island
J Banks Peninsula
K Bathurst Inlet (Burnside)

Summer season

There is open water after mid-August.

Environment

See Figure 4-12

Hunting for seals and caribou is concentrated along travel routes linking Bay Chimo and Burnside with the Coppermine, Cambridge Bay and Perry River areas. Two important hunting areas in Bathurst Inlet are used from August to September. Residents of Coppermine, Cambridge Bay and Bathurst Inlet/Bay Chimo hunt seals, caribou, geese and other waterfowl in north Bathurst Inlet. Inuit camp here to harvest seals, caribou, geese and other waterfowl in south Bathurst Inlet.

Arctic fox have an important denning area along the south mainland shore of Melville Sound. The dens are occupied through late summer and are reused each year.

Ringed seals have been seen in the outer Bathurst Inlet area and in deep inlets to the south.

Caribou that have calved east of Bathurst Inlet return westward to feed in lowland areas around the inlet in mid-July. In late August to mid-September, they move back across the inlet to their wintering areas. Some caribou from the Bathurst herd regularly use the islands in Bathurst Inlet during the summer.

Grizzly bears are found along the shores from early July to mid-September and possibly as late as mid-October.

Muskoxen are common on the mainland along the west side of Bathurst Inlet but have not been seen on the islands in the inlet. Ice conditions into July, and in some areas into September, are suitable for animal crossing but none have been documented.

Brant, **white-fronted geese**, **eiders**, **oldsquaws** and **loons** nest in the coastal areas of Kent Peninsula and the adjacent mainland.

King eiders and **oldsquaws** have particularly important habitat in these areas for moulting and brood rearing.

Geese nest in the Cape Barrow area and use the Detention Harbour area as a staging site.

Glaucous gulls and other breeding and non-breeding birds have habitat in the lowlands and coastal waters along the SW part of Kent Peninsula.

Glaucous and/or **Thayer's gulls** are found on Kent Peninsula at the mouth of Walker Bay. Gull colonies are also found on Algak and Ekalulia Islands and on small islands off the coast of Arctic Sound.

Eiders, **oldsquaws**, **loons**, **shorebirds** and several hundred **sandhill cranes** live in the coastal areas of Kent Peninsula and the adjacent mainland.

King eiders, **oldsquaws** and other waterfowl have particularly important habitat in this area for moulting and brood rearing.

Pacific eiders are abundant in northern Bathurst Inlet and have an important nesting habitat on Wilmot Islands.

Sea ducks nest in the Cape Barrow area.

Mergansers use the coastal waters around Razor Top Point as moulting habitat.

Red-breasted mergansers use the coastal areas west of the Tinney Hills as moulting habitat.

Fall season

Freeze-up is usually in the third week of October.

Environment

See Figure 4-13

Hunting for seals and caribou is mostly along major travel routes linking Bay Chimo and Burnside with the Coppermine, Cambridge Bay and Perry River areas. Two important hunting areas are used in the fall. Residents of Coppermine, Cambridge Bay, and Bathurst Inlet/Bay Chimo fish and hunt seals and caribou in north Bathurst Inlet. Inuit camp here to hunt caribou in south Bathurst Inlet during the fall migration.

Ringed seals have been seen in the deep inlets.

Caribou have been seen crossing the ice of Melville Sound.

Grizzly bears den along the west side of Parry Bay from mid-November to April. They are found along the coastline until mid-September and possibly as late as mid-October.

Muskoxen are common on the mainland along the west side of Bathurst Inlet but have not been seen on the islands in the inlet.

Specific Site 2F:

Melville Sound, Elu Inlet (Cape Croker to the Head of Elu Inlet)

Refer to Chart 7082 and to Sailing Directions, Arctic Canada, Volume III, Chapter III.

Melville Sound *(68°08′N, 107°52′W)* extends 60 miles along the south side of Kent Peninsula.

Elu Inlet, which is the inner part of Melville Sound, is generally low and is fed by many streams and rivers. The south side is rocky and mountainous, backed by Gloucester Hills.

Cape Croker *(68°07′N, 107°49′W)*, the north end of an unnamed island, is the south entrance point of Melville Sound. Islets lie offshore and up to 2 miles off the cape; hills rise close inland.

Spring season

There is consolidated first-year ice cover.

Environment

See Figure 4-7

Hunting, fishing and trapping are mostly along major cross-ice travel routes linking Cambridge Bay with the Coppermine and Bathurst Inlet areas. The Melville Sound/Elu Inlet area is an important hunting ground from April to July for residents of Bathurst Inlet and many residents of Cambridge Bay. Foxes, caribou and seals are taken.

Arctic foxes have an important denning area in the region bordering the SW (mainland) shore of Melville Sound and the east end of Kent Peninsula, from the north shore of Elu Inlet to the shore of Queen Maud Gulf.

Caribou have been seen crossing the ice of Melville Sound. Ice cover is generally complete until mid-July.

Grizzly bears den along the west side of Parry Bay from mid-November through April. They are most likely to be found along the shoreline from early July and possibly from as early as mid-May.

Brant, **white-fronted geese** and **glaucous gulls** nest on the lowland coastal areas of south Kent Peninsula and the adjacent mainland.

White-fronted geese, (3,800) **Canada geese** (4,700) and **tundra swans** (1,200) occupy the south part of Kent Peninsula between the head of Elu Inlet and Parry Bay. This is more than 1% of the Canadian population. The area has been nominated, but not yet designated, as a **Key Migratory Bird Terrestrial Habitat Site** by the *Canadian Wildlife Service*.

Geese nest on small-unnamed islands off the mainland coast of Melville Bay.

Gull colonies are found on the Hurd Islands and in Elu Inlet. The birds nest on several small-unnamed islands off the mainland coast of Melville Bay.

Eiders, **oldsquaws**, **loons**, **sandhill cranes** and several breeding and non-breeding **shorebirds** nest on the lowland coastal areas of SW Kent Peninsula and the nearby mainland.

Pacific eiders are especially abundant in Parry Bay.

Summer season

There is open water until after fall freeze-up begins in mid-October.

Environment

See Figure 4-8

Hunting is concentrated along major travel routes linking Cambridge Bay with the Coppermine and Bathurst Inlet areas. The Melville Sound/Elu Inlet area is an important hunting ground from July to September for residents of Bathurst Inlet and many residents of Cambridge Bay. Seals, ducks and geese are taken.

Arctic foxes have denning habitat on the east end of Kent Peninsula, from the north shore of Elu Inlet to the shore of Queen Maud Gulf. The dens are occupied until late summer and are reused each year.

Ringed seals have been seen in deep inlets in this area.

Grizzly bears are found along the mainland shore from early July to mid-September and possibly from as early as mid-May to as late as mid-October.

White-fronted geese, **Canada geese** and **tundra swans** are found in significant numbers on the south part of Kent Peninsula between Elu Inlet and Parry Bay. This area has been nominated as a **Key Migratory Bird Terrestrial Habitat Site** by the *Canadian Wildlife Service*.

Brant, **glaucous gulls**, **eiders**, **oldsquaws**, **loons** and **shorebirds**, including several hundred **sandhill**

cranes, live in the lowlands and coastal waters along the SW part of Kent Peninsula.

Gull colonies are found on the Hurd Islands and in Elu Inlet. Nesting birds are also found on small unnamed islands off the mainland coast of Melville Sound.

King eiders, **oldsquaws** and other moulting and brood-rearing **waterfowl** live in the coastal areas.

Pacific eiders are abundant in Parry Bay.

Waterfowl also use the bays on the west side of Elu Inlet in August for brood-rearing, moulting and fall staging.

Fall season

Freeze-up is usually in the third week of October.

Environment

See Figure 4-9

Hunting fishing and trapping is concentrated along the major travel routes linking the Cambridge Bay, Bathurst Inlet, and Perry River areas. The Melville Sound/Elu Inlet area is an important hunting ground for residents of Bathurst Inlet and Cambridge Bay.

Ringed seals have been seen in the inlets in the area.

Caribou have been seen crossing the ice of Melville Sound.

Grizzly bears den along the west side of Parry Bay from mid-November through April. They are found along the shoreline until mid-September, and possibly to as late as mid-October.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Specific Adverse Effects and Mitigating Measures:

⇨ *Spring*

In general, ships and aircraft should avoid lowland coastal areas in the late spring because of their sensitivity and importance to wildlife.

Deadman Islands (*Walliakmiut* and *Nagyuktomiut*) and the associated traditional ringed seal hunting areas should be avoided by ships and aircraft. Icebreaking ships operating through these areas could interfere with hunting and also cause direct mortality of pups or noise-related flight of pupping females. During the nursing period (6-8 weeks), ringed seal pups are unable to avoid an approaching vessel and could be crushed by vessels passing through the birth lair.

Small numbers of muskox may cross the ice surface and should be avoided. Ice conditions are suitable for crossing throughout the area until late in the spring or early summer. Some starving muskox may cross the ice-covered channels seeking food. These animals are weak and particularly susceptible to the additional stresses of aircraft disturbance or icebreaking ship traffic.

Coronation Gulf and **Dease Strait** to **Victoria Island** see thousands of caribou migrating across the ice in April and May. Migration is usually across a broad front and different crossing points may be used each year.

From mid-May to early June, caribou of the Bathurst herd also migrate eastward across the ice of **Bathurst Inlet** to their calving grounds on the east side of the inlet. Large numbers of caribou and an occasional grizzly bear may be encountered by ship or aircraft traffic. A route through these areas cannot totally avoid the caribou crossing routes or the on-ice travel routes used by hunters.

Ships should keep a good lookout for large groups of caribou on the ice and avoid crossing in front of them.

Hunting and trapping cross-ice travel routes radiate out from Coppermine to hunting areas throughout the Coronation Gulf, linking up with the Cambridge Bay, Bathurst Inlet, and Perry River areas. Before entering the region, ships and aircraft should contact the Hunters and Trappers Associations at Coppermine, Cambridge Bay, Bay Chimo and Burnside for locations of on-ice hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas.

Cambridge Bay is an important traditional hunting area west of the community. This area is used by more than half of the Cambridge Bay seal and waterfowl hunters in late spring and summer. About 400 seals (mostly ringed seals) are taken annually from this area.

The Melville Sound/Elu Inlet region is an important hunting area used from April to July by residents of Bathurst Inlet and of Cambridge Bay hunting arctic foxes, caribou and seals.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife. Caribou, for example, are frightened by low-flying aircraft and are prone to injuring themselves on rough ice. Such injuries usually cause death.

There are two nominated **Key Migratory Bird Terrestrial Habitat Sites**:

- Klengenberg Bay to north of Locker Point along the mainland coast supports large numbers of white-fronted geese (1,900), Canada geese (2,700) and tundra swans (250). It is also an important area for hunting caribou, arctic fox, ringed seals and bearded seals.
- Kent Peninsula (south part) between Elu Inlet and Parry Bay supports large numbers of white-fronted geese (3,800), Canada geese (4,700) and tundra swans (1,200).

Seabird colonies are sensitive during the entire spring period.

Ships should stay at least 1.7 miles from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over any colony.

Notable seabird colony areas:

- Lady Franklin Point, with large numbers of nesting tundra swans, 500 Canada geese and 200 brant;
- Victoria Island coastline north of Duke of York Archipelago, with 10-25 breeding pairs of glaucous and/or Thayer's gulls;
- Richardson Bay area, with a very important nesting habitat for Pacific eiders;
- Richardson Islands, with a sea-cliff gullery of 15 pairs of glaucous gulls and 20 pairs of Thayer's gulls;
- Haodlon Island, with an eider colony;
- Point (Cape) Barrow area, with important sea-duck nesting habitat;
- Walker Bay, on Kent Peninsula, with a colony of 10-25 breeding pairs of glaucous and/or Thayer's gulls at its mouth;
- Algak Island, Ekalulia Island and small islands off the coast of Arctic Sound, with several small gull colonies;
- Bathurst Inlet, on the Wilmot Islands, with a nesting area for Pacific eider;
- small unnamed islands off the coast of Melville Sound, with nesting areas for geese;
- Hurd Islands, in Elu Inlet, with small gull colonies;
- small unnamed islands off the mainland coast of Melville Bay, with small gull colonies;
- Parry Bay, with nesting areas for large numbers of Pacific eiders.

⇨ Summer

The two nominated **Key Migratory Bird Terrestrial Habitat Sites** should be avoided by ships and aircraft:

- Klengenberg Bay to north of Locker Point along the mainland coast supports large numbers of white-fronted geese (1,900), Canada geese (2,700) and tundra swans (250). It is also an important area for hunting caribou, arctic fox, ringed seals and bearded seals.
- Kent Peninsula (south part) between Elu Inlet and Parry Bay supports large numbers of white-fronted geese (3,800), Canada geese (4,700) and tundra swans (1,200).

In general, ships and aircraft should avoid lowland coastal areas. These areas have important nesting, moulting, brood-rearing and feeding habitat for many species of waterfowl and shorebirds.

Some caribou from the Bathurst herd of 150,000 regularly use the Bathurst Inlet islands in summer.

Ships should keep a good lookout for groups of caribou swimming between the islands and/or the mainland.

Hunting and trapping travel routes radiate out from Coppermine to hunting areas throughout Coronation Gulf and link up with the Cambridge Bay, Bathurst Inlet and Perry River region. Before entering the area, ships and aircraft should contact the Hunters and Trappers Association at Coppermine, Cambridge Bay, Bay Chimo and Burnside for locations of hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

Important resource harvest areas:

- south coast of Coronation Gulf, used for hunting caribou (along the shore and on some islands), arctic fox, ringed seals and bearded seals;
- an area west of Cambridge Bay, used by more than half of the Cambridge Bay seal and waterfowl hunters;
- north Bathurst Inlet, used by residents of Coppermine, Cambridge Bay and Bathurst Inlet/Bay Chimo for hunting seals, caribou, geese and other waterfowl;
- south Bathurst Inlet, used by local Inuit for harvesting seals, caribou, geese and other waterfowl;
- Melville Sound/Elu Inlet area, used by residents of Bathurst Inlet and Cambridge Bay to harvest seals, ducks and geese.

Seabird colonies are sensitive all summer.

Ships should stay at least 1.7 miles from any identified seabird colonies. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over any colony.

Areas with notable seabird colonies:

- Lady Franklin Point, used for brood rearing and moulting by 500 Canada geese and 200 brant;
- Victoria Island coastline north of Duke of York Archipelago, with 10-25 breeding pairs of glaucous and/or Thayer's gulls;
- Richardson Islands, with a sea-cliff gullery of 15 pairs of glaucous gulls and 20 pairs of Thayer's gulls;
- Deadman Islands, with a small gull colony;
- Haodlon Island, with an eider colony;
- Duke of York Archipelago, with two small colonies of glaucous and/or Thayer's gulls (10-25 pairs each) on islands in its eastern part;
- Walker Bay, on Kent Peninsula, with a colony at its mouth of 10-25 breeding pairs of glaucous and/or Thayer's gulls;
- Algak Island, Ekalulia Island, small islands off the coast of Arctic Sound, the Hurd Islands and in Elu Inlet, with several small gull colonies.

⇨ Fall

In general, ships and aircraft should avoid lowland coastal areas because of their sensitivity and importance to wildlife.

Coronation Gulf and Dease Strait see thousands of caribou migrating across the ice from calving and summering areas on Victoria Island to wintering areas on the mainland. Migration is usually across a broad front and different crossing points may be used each year. Freeze-up is usually not until mid- to late October but some caribou may try to cross even when ice cover is still unstable. Large numbers of caribou and an occasional grizzly bear may be encountered. A route through these areas cannot totally avoid the caribou crossing routes or the on-ice travel routes used by hunters.

Ships should keep a good lookout for large groups of caribou on the ice and avoid crossing in front of them.

Caribou have also been seen crossing the ice of Melville Sound.

Hunting, fishing and trapping is concentrated along major travel routes linking Coppermine with the Cambridge Bay, Bathurst Inlet and Perry River region and with several hunting grounds. Before entering these areas, ships and aircraft should contact the Hunters and Trappers Associations at Coppermine, Cambridge Bay, Bay Chimo and Burnside for locations of hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

Hunting areas of special note:

- south coast of Coronation Gulf, used for hunting caribou (along the shore and on some islands), ringed seals and bearded seals;
- an area west of Cambridge Bay, used by more than half of the Cambridge Bay seal and waterfowl hunters in late summer or early fall;
- northern Bathurst Inlet, used by residents of Coppermine, Cambridge Bay and Bathurst Inlet/ Bay Chimo for hunting seals and caribou and fishing in the fall;
- southern Bathurst Inlet, used by local Inuit for hunting caribou in the fall migration;
- Melville Sound/Elu Inlet, used by residents of Bathurst Inlet and many residents of Cambridge Bay.

The Northwest Passage — West Central Part

General

Refer to Chart 7000 and to Sailing Directions, Arctic Canada, Volume III.

The usual route through the Northwest Passage leads from Dease Strait and Queen Maud Gulf to Larsen Sound and M'Clintock Channel, either south and east of King William Island through Simpson Strait, Rae Strait and James Ross Strait, or west of King William Island through Victoria Strait.

This chapter covers the areas from Queen Maud Gulf to M'Clintock Channel.

Caution — Most of the surveys through this route are of a reconnaissance nature.

Biological seasons

Biological seasons in this region do not correspond to the calendar seasons. For this part of the Northwest Passage, biological seasons are defined in Chapter 4.

General Site 1:

Queen Maud Gulf, Simpson Strait, Victoria Strait, Larsen Sound

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapters IV, V and VI.

Queen Maud Gulf is entered from Dease Strait between **Cape Colborne** *(68°58′N, 105°15′W)*, on Victoria Island, and **Trap Point**, 12 miles to the WSW on Kent Peninsula. The Gulf extends 170 miles east to its junction with Simpson Strait, which is a line joining **Cape John Herschel** *(68°41′N, 98°02′W)*, on King William Island, to **Cape Geddes**, 8 miles to the south.

Storis Passage, lying SW of King William Island, is the east end of Queen Maud Gulf.

Simpson Strait *(68°30′N, 97°00′W)* separates **King William Island**, to the north, from **Adelaide Peninsula**, on the mainland to the south. It is entered from the west between Cape John Herschel, on King William Island, and Cape Geddes, 8 miles to the SSE, and extends 45 miles ESE to its boundary with Rasmussen Basin, which is a line joining Booth Point on King William Island to Ogle Point on the mainland.

At its narrowest part, 16 miles inside the west entrance, Simpson Strait is 2 miles wide but islands and shoals reduce the width of the navigable channel to 0.5 mile in places. Because of the many shoals, narrow channels and strong tidal streams, the passage through Simpson Strait probably presents the greatest navigational hazard in the whole mainland passage.

Victoria Strait *(69°30′N, 100°00′W)* lies between Victoria Island and King William Island and leads from Queen Maud Gulf to Larsen Sound. The south limit of the strait is a line joining **De Haven Point**, on Victoria Island, to **Cape Davidson**, the SW end of Royal Geographical Society Islands, to **Fitzjames Island**, off the SW part of King William Island. The north limit is a line from **Pelly Point**, on Victoria Island, to **Cape Felix**.

Larsen Sound *(70°30′N, 98°30′W)* lies north of Victoria Strait and west of Boothia Peninsula. The NW boundary is a line from Pelly Point to **Cape Swinburne**, at the south end of Prince of Wales Island. The NE boundary continues to **Andreasen Head**, which is on the west side of Boothia Peninsula.

Spring season

The area is covered with consolidated ice that may include a lot of old ice.

Environment

Ringed seals are abundant. The shoal waters and multi-year ice around King William Island provide some habitat. The shoal waters in south Queen Maud Gulf offer poorer habitat.

Bearded seals are rare in fast-ice areas.

Polar bears are rare in Coronation Gulf.

Arctic foxes are found in low densities in all coastal areas. The dens are occupied from late winter or early spring and are reused each year. Virtually all of the channels in the area stay frozen and foxes often roam the sea ice in search of food. They may be affected by ice-breaking ship traffic.

Caribou in large numbers cross the ice near Dease Strait and between the mainland and south Victoria Island. A few have been seen in areas such as Larsen Sound.

Grizzly bears range over the mainland west of Chantrey Inlet and may be found anywhere along the coast. Bears are not known on the mainland north of Chantry Inlet nor on the main islands or smaller offshore islands. Grizzly bears have been seen trailing major caribou migrations between the mainland and Victoria Island. They have not been seen in the Queen Maud Gulf area.

Muskoxen are found in all coastal areas. Ice crossings have been recorded in the eastern part of the Queen Maud Gulf/Victoria Strait Region in mid- to late winter and other places in May and June.

Tundra swans and **Canada geese** nest in the well-vegetated lowlands of King William Island, Adelaide Peninsula and adjacent small islands. Tundra swans use King William Island (3,000-4,000) and Adelaide Peninsula (1,000-2,000) for breeding, brood rearing and moulting.

Tundra swans, **Canada geese**, **snow geese**, **white-fronted geese**, **brant**, **glaucous gulls**, **sabine's gulls**, **arctic terns** and **jaegers** have nesting and feeding habitat on Victoria Island and some of the smaller offshore islands.

Gulls, **terns** and **jaegers** nest wherever there is suitable lowland habitat or coastal islands or cliffs.

Glaucous gulls and **Thayer's gulls** are found along landfast ice edges and leads in the sea ice and other open-water areas in May and June.

Ducks, loons and **shorebirds** are found wherever there is suitable lowland or island habitat.

Pacific eiders, king eiders, oldsquaws, Pacific loons and **red-throated loons** stage in some of the offshore leads and other open-water areas that develop in May and June.

Ruddy turnstones, phalaropes and **other shorebirds** are found along the landfast ice edges. The north half of Queen Maud Gulf and the south part of Victoria Strait near Jenny Lind Island are the most likely congregating areas due to fracturing and lead development in the ice cover. Most of the other offshore areas are ice covered well into July or August. It is unlikely that large numbers of sea ducks, loons or shorebirds use these areas in the spring; the birds may be in or near shore leads or around river mouths.

Summer season

Break-up dates vary from early July to early September but there may be patches of ice with old ice inclusions. The more northerly sections may stay ice covered.

Environment

Bearded seals are widely dispersed in small numbers.

Ringed seals are also found in the area but details are not known.

Arctic foxes may have denning and foraging habitat in all coastal areas. The dens are occupied through late summer and are reused each year. Marine channels that stay frozen are a major foraging habitat. There is some on-ice travel and foraging in summer.

Caribou are found in small numbers in all coastal areas. Some sea-ice or water crossings in Queen Maud Gulf have been documented.

Grizzly bears range over the mainland west of Chantrey Inlet and are found anywhere along the coast. Ice crossings by grizzly bears usually relate to caribou migrations and are rare in the summer.

Muskoxen may be found in all coastal areas. Although ice conditions are suitable into July and in some areas into September, no ice crossings have been seen in the summer.

Brant, other **geese species** and **swans** may be found in coastal waters anywhere in the area but rarely in offshore areas.

Gulls, terns, jaegers, ducks and **loons** nest wherever there is suitable lowland habitat or coastal islands or cliffs.

Gulls, terns and **jaegers** (non-breeding or post-breeding) may be found in marine habitats anywhere in the area.

Eiders make some use of open offshore waters.

Sandhill cranes and several species of shorebirds nest in the well-vegetated coastal lowlands on Adelaide Peninsula and the mainland coast bordering on Queen Maud Gulf.

Phalaropes may use pelagic habitats during this period but there is little survey data.

Fall season

Freeze-up begins in early October.

Environment

Ringed seals are widely dispersed in small numbers.

Bearded seals are widely dispersed in very small numbers.

Polar bears (the M'Clintock Channel population is 700) roam the pack-ice areas in Victoria Strait and Larsen Sound. Sightings are rare in other areas.

Arctic foxes are found in all coastal areas. They are most active on ice-covered areas in fall and winter (mid-October to mid-April).

Caribou move south from Victoria Island across the ice near the entrance to Dease Strait. This move is from their calving and summer habitat to their wintering areas on the mainland. Different crossing points may be used each year. Freeze-up is usually not until mid- to late October but some caribou may try to cross even when the ice cover is still unstable. All coastal areas may have a few caribou in the fall. Caribou and other animals have been reported crossing ice-covered channels in other areas but there is little data.

Grizzly bears range over the entire mainland area west of Chantrey Inlet. There have been recent reports of grizzlies following the caribou between Victoria Island and the mainland. Bears are not seen on the mainland north of Chantrey Inlet or on the main islands or smaller offshore islands.

Muskoxen are found in small numbers in coastal areas. Some ice crossings have been recorded, mostly in the eastern part of the area in mid- to late winter. Some starving muskox may cross the ice-covered channels seeking food. These animals may be weak and particularly susceptible to the additional stresses of aircraft disturbance or icebreaking ship traffic.

Geese, gulls, terns, jaegers or **shorebirds** are rare after mid-September but some **eiders** will stay as long as there is open water. Freeze-up is usually by the second half of October but some areas may stay open into December or later.

Specific Site 1A :

Melbourne Island

Refer to Chart 7782 and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Melbourne Island, the largest island in the west end of the gulf, has sandy beaches and a few hills between which stretch almost impassable quagmires. The hills, rising to 60 m, are reported to be radar conspicuous. The island appears flat when seen from the north. A rock with less than 2 m over it (existence doubtful) is charted off the NE shore.

Spring season

The area is covered with consolidated ice that may include a lot of old ice.

Environment

See Figure 5-1

Brant, white-fronted geese, eiders, oldsquaws and **loons** nest in the coastal areas.

Summer season

Break-up is in late July or mid-August. There may be patches of ice with old ice inclusions all summer.

Environment

See Figure 5-2

Brant, white-fronted geese, eiders, oldsquaws and **loons** nest in coastal areas. These are particularly important for moulting and brood-rearing birds, especially king eiders and oldsquaws.

Fall season

Freeze-up begins in early October.

Environment

See Figure 5-3

Ringed seals are found in the coastal shoal waters along the south side of Queen Maud Gulf.

East Coronation Gulf, West Queen Maud Gulf

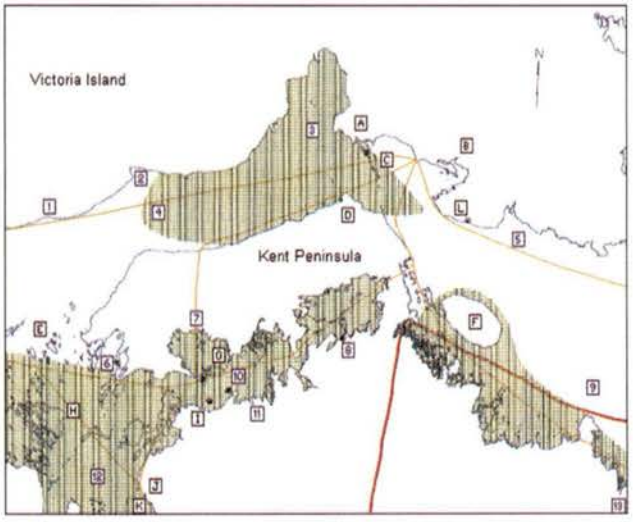


Figure 5-1: Spring Scenario

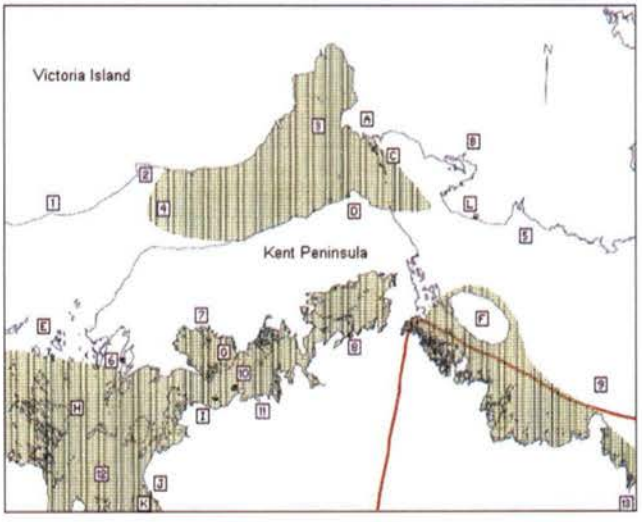


Figure 5-3: Fall Scenario

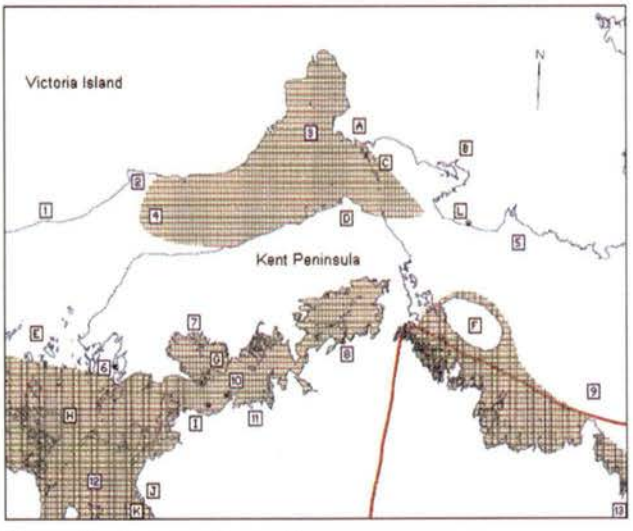


Figure 5-2: Summer Scenario

Travel Routes
Exclusion Zone
Bird Colonies
Ringed Seal – Harvest
Caribou – Harvest

Land Legend

- A Cape Enterprise
- B Cambridge Bay
- C Finlayson Islands
- D Cape Alexander
- E Wilmot Islands
- F Melbourne Island
- G Hurd Islands
- H Lewes Island
- I Cape Croker
- J Bay Chimo
- K Ekalulia Island

Water Legend

- 1 Sinclair Creek
- 2 Byron Bay
- 3 Wellington Bay
- 4 Dease Strait
- 5 Anderson Bay
- 6 Walker Bay
- 7 Parry Bay
- 8 Elu Inlet
- 9 Queen Maud Gulf
- 10 Melville Sound
- 11 Hope Bay
- 12 Bathurst Inlet
- 13 Atkinson Point River

Specific Site 1B:

Queen Maud Gulf, North Shore, Cape Enterprise to Kean Point

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Cape Enterprise, the east entrance point of **Wellington Bay**, consists of blocks of red sandstone, elevation 45 m; these are prominent.

Kean Point *(68°52′N, 102°27′W)* is a low stony point fronted by low limestone rocks.

Spring season

The area is covered by consolidated ice that may include a lot of old ice.

Environment

See Figures 5-1 and 5-6

Hunting, fishing and trapping is mostly along the major cross-ice travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. There is also an important hunting area around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands; residents of Cambridge Bay and Gjoa Haven hunt polar bears and seals there from April to June. Hunters from Gjoa Haven also take up to half of their quota of polar bears here. Hunters from Cambridge Bay take a third or more of their bear quota from this area and from Victoria Strait.

Arctic foxes have denning habitat in the area bordering the east side of Anderson Bay. The fox dens are occupied from late winter or early spring and are reused each year.

Muskox have habitat in the lowlands around outer Cambridge Bay to Wellington Bay. Tourists and guided sports hunts also use them.

Glaucous gulls and **arctic terns** nest on a small island in the Finlayson Islands group. There is also a gull colony on the Ippiugaq cliffs.

King eiders, Pacific eiders, oldsquaws, Pacific loons, yellow-billed loons, red-throated loons, shorebirds and **sandhill cranes** nest in the well-vegetated lowlands along the south and SE shores of Victoria Island, including Jenny Lind and some of the smaller offshore islands.

Summer season

Break-up is in late July or mid-August but there may be mobile patches of ice all summer. Patches of ice with old ice inclusions may be found all summer. The more northerly sections may stay ice covered.

Environment

See Figures 5-2 and 5-7

Hunting activities are mostly along the major travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. There is also an important hunting area around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands. Residents of Cambridge Bay and Gjoa Haven hunt seals and sea ducks here.

Ringed seals are found near Cambridge Bay but boat traffic often displaces them.

Arctic foxes have denning habitat in the area along the east side of Anderson Bay. The dens are occupied through late summer and are reused each year.

Muskox have habitat in the lowlands around outer Cambridge Bay to Wellington Bay. Guided sports hunts and tourists use the area.

Tundra swans, Canada geese, snow geese, white-fronted geese, brant, glaucous gulls, sabine's gulls, arctic terns, jaegers, king eiders, Pacific eiders, oldsquaws, Pacific loons, yellow-billed loons, red-throated loons, shorebirds and sandhill cranes have nesting and breeding habitat in the well-vegetated lowlands along the south and SE shores of Victoria Island, including some of the smaller offshore islands.

Glaucous gulls in a colony of 10 breeding pairs and an **arctic tern** colony of 50 breeding pairs use a small island in the Finlayson Islands group as nesting and breeding habitat.

Gulls have a colony on the Ippiugaq cliffs.

Eiders, oldsquaws and **other moulting waterfowl** have particularly important habitat in the coastal waters.

Loons feed in the coastal waters.

Female king eiders and young of the year gather in large rafts on coastal waters in August.

Pacific eiders use Stromness Bay as a fall staging area.

Special Status Areas

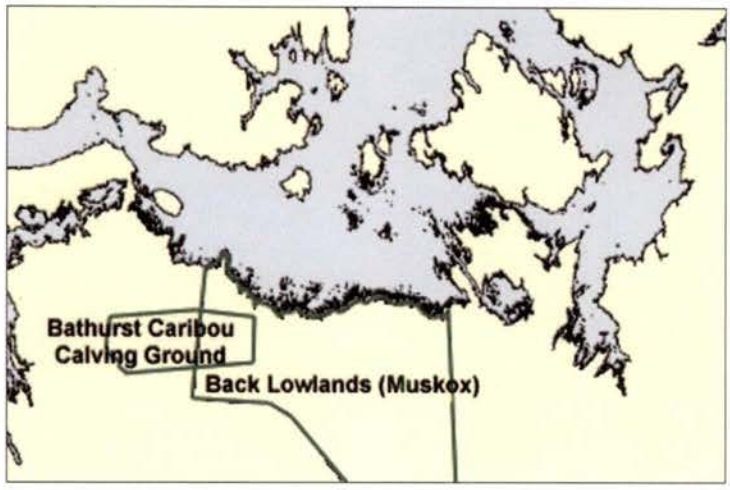


Figure 5-4: Wildlife Areas of Special Interest

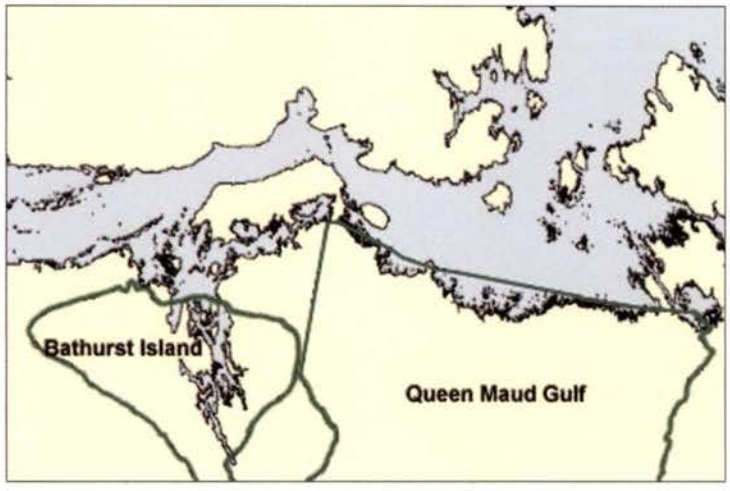


Figure 5-5: International Biological Programme Sites

Fall season

Freeze-up begins in early October.

Environment

See Figures 5-3 and 5-8

Hunting activities are concentrated along major travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. There is also an important seal hunting area around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands.

Ringed seals feed in coastal waters along SE Victoria Island, in Edward Bay, around Jenny Lind Island, Royal Geographical Society Islands, Nordenskiold Islands, Hat Island and Cambridge Bay, and in shoal coastal waters and around ice. Seals are often hunted in these areas, and particularly in Cambridge Bay.

Muskox have habitat in the lowlands around outer Cambridge Bay to Wellington Bay. Guided sports hunts and tourists use the area.

Specific Site 1C:

Queen Maud Gulf, South Shore, Cape Alexander to O'Reilly Island

See Figures 5-4 and 5-5

Refer to Charts 7082, 7083, and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Cape Alexander *(68°57′N, 106°12′W)* is the end of a rounded rocky ridge, elevation 120 m, with red sandstone visible where streams have cut ravines. Shoal rocks lie close off the cape and a depth of 15.8 m is reported 2.5 miles north of it.

O'Reilly Island, on the north side of the entrance to **McLoughlin Bay**, is the largest of the islands lying NW of the peninsula. It has elevations of 30 m near its north end.

Spring season

The area is covered with consolidated ice. There may be a large amount of old ice.

Environment

See Figures 5-1 and 5-6

Hunting, fishing and trapping activities are concentrated along major over-ice travel routes linking Cambridge Bay with Bay Chimo and the Perry River areas. The SW shore of Queen Maud Gulf is an especially productive area used from April to July by residents of Cambridge Bay and the Perry River outpost camp for trapping arctic fox, hunting seals and caribou, and for fishing.

Arctic foxes have denning habitat at the east end of Kent Peninsula, from the north shore of Elu Inlet to the shore of Queen Maud Gulf. The dens are occupied from late winter or early spring and are reused each year.

Caribou (10,000) are found in the lowlands around Queen Maud Gulf. Areas near the coast are busiest in spring and summer. Migration from wintering areas begins in late March and peaks by mid-May. Caribou calf on the coastal lowlands and the many offshore islands in June. The sea ice does not usually break up until August.

Muskox are found in large numbers on the south shore of Queen Maud Gulf, which is the northern boundary of the **Back Lowland**. The Government of the Northwest Territories has identified this as a **Wildlife Area of Special Interest**.

Snow geese (15% of Canadian population) and Ross' geese (99% of world population) are found along the mainland shore from Sherman Basin to the base of Kent Peninsula. This is part of the *Queen Maud Gulf Bird Sanctuary*. There are 274,000 snow geese, 176,000 Ross' geese, 103,000 white-fronted geese, 88,000 Canada geese, 14,000 tundra swans and 9,000 brant. Most are found inland but nest in the deltaic and coastal islands.

Ross' geese and **snow geese** have colonies on an island at the mouth of McNaughton River and on islands at the mouth of Atkinson Point River.

Brant are common on rocky islands throughout Labyrinth Bay.

Brant and **snow geese** use coastal islands on the south side of Queen Maud Gulf, half way between McLoughlin Bay and Ogden Bay.

Geese, in large numbers, feed in the mouth of the river draining into Ogden Bay.

Canada geese are found in large numbers in the Tingmeak River Delta.

Glaucous gulls, sabine's gulls, arctic terns, jaegers, ducks, loons, several species of shorebirds and **sandhill cranes** nest in the *Queen Maud Gulf Bird Sanctuary*. In the north half of the sanctuary there are 30,000 **northern pintails**, 17,000 **oldsquaws**, 15,000 **king eiders** and 13,000 **sandhill cranes**.

Summer season

Break-up is in late July or mid-August. There are patches of ice with old ice inclusions all summer.

Environment

See Figures 5-2 and 5-7

Hunting in summer is concentrated along major travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. The SW shore of Queen Maud Gulf is an especially productive area used from July to September by residents of Cambridge Bay and the Perry River outpost camp for hunting seals, ducks, geese and caribou.

Ringed seals are found in shoal waters in south and east Queen Maud Gulf but in some areas boat traffic displaces the seals.

Arctic foxes have denning habitat at the east end of Kent Peninsula, from the north shore of Elu Inlet to the shore of Queen Maud Gulf. The dens are occupied through late summer and are reused each year.

Caribou are supported by the Queen Maud Gulf Lowlands. Those animals that stay on offshore islands after calving in June migrate southward in late August and early September. They swim from island to island or cross directly to the mainland on newly formed sea ice.

Muskox in large numbers live on the south shore of Queen Maud Gulf, which is the north boundary of the **Back Lowland**, an area identified as a **Wildlife Area of Special Interest** by the Government of the Northwest Territories.

Snow geese, Ross' geese, white-fronted geese, Canada geese, tundra swans and **brant** are found along the mainland coast from Sherman Basin to the base of Kent Peninsula. This is part of the *Queen Maud Gulf Bird Sanctuary*.

Glaucous gulls, sabine's gulls, arctic terns and **jaegers** nest on the mainland coast along Queen Maud Gulf.

Sea ducks and **loons**, more than 60,000 of them, nest here.

Eiders, oldsquaws and **loons** nest in the Melbourne Island area.

King eiders, oldsquaws and **other waterfowl** use coastal areas as brood-rearing and moulting habitat. The use of near-shore marine and shoreline areas probably peaks in August, when large numbers of waterfowl sometimes congregate in Ogden Bay.

Eiders, oldsquaws and **loons** congregate in Conolly, Foggy and Labyrinth Bays in August.

Sandhill cranes and many other **shorebirds** are found on the mainland coast from Sherman Basin to the base of Kent Peninsula.

Fall season

Freeze-up begins in early October.

Environment

See Figures 5-3 and 5-8

Hunting activities are mostly along major travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. The SW shore of Queen Maud Gulf is an especially productive area used from July to September by residents of Cambridge Bay and the Perry River outpost camp for hunting caribou.

Ringed seals are found in coastal shoal waters and in inner bays along south Queen Maud Gulf, Storis Passage and Victoria Island.

Muskox use the south shore of Queen Maud Gulf, which is the north boundary of the **Back Lowland**, an area identified as a **Wildlife Area of Special Interest** by the Government of the Northwest Territories. There are guided hunts in the area around the mouth of Ellice River.

Specific Site 1D:

Jenny Lind Island

See Figure 5-9

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Jenny Lind Island *(68°42'N, 101°57'W)* is rolling tundra with many small lakes and streams. It is generally low, rising gently northward to rolling hills 60 m high. **Clestrain Point**, at the south end of the island, is low. Shoal water extends 0.5 miles off the point. The most prominent part of the south coast is the west part, where the land rises more sharply and gives a better radar picture. Approaching from the west, Jenny Lind Island has been seen at 10 miles, appearing as low tan-coloured hills well before the small island off the south coast, looking much darker, comes into view.

Spring season

Breakup usually begins at Jenny Lind Bay in the last week of June.

Environment

See Figure 5-6

Hunting, fishing and trapping is mostly along the major cross-ice travel route that passes around Jenny Lind Island. This is an important hunting area; residents of Cambridge Bay, Gjoa Haven and Cambridge Bay hunt polar bears and seals here from April to July.

Muskoxen are abundant.

Snow geese, Canada geese, Ross' geese and **tundra swans** use the island for nesting, brood rearing and moulting. The snow geese population is 3% of the total Canadian breeding population.

Glaucous gulls, arctic terns, jaegers, king eiders, Pacific eiders, oldsquaws, Pacific loons, yellow-billed loons, red-throated loons, shorebirds and **sandhill cranes** have important nesting habitat here.

Pacific eiders use a lead between Jenny Lind Island and Stromness Bay on Victoria Island for their spring migration,

Glaucous gulls have a small colony on sandspits off the NE coast of Jenny Lind Island.

Summer season

Ice progresses to open-water conditions by the second week of August. South or SE winds, however, can fill the harbour on the SE side of the island with ice at any time. There may be patches of ice, with old ice inclusions, all summer.

Environment

See Figure 5-7

Hunting activities are mostly along the major travel routes. There is an important hunting area around the island; residents of Cambridge Bay and Gjoa Haven hunt seals and sea ducks here.

Muskoxen are abundant.

Snow geese, Canada geese, Ross' geese and **tundra swans** use the island for nesting, brood rearing and moulting. The island's snow geese population is 3% of the total Canadian breeding population.

Glaucous gulls, arctic terns, jaegers, shorebirds and **sandhill cranes** have important nesting habitat on Jenny Lind Island and some of the smaller offshore islands.

Glaucous gulls have a small colony on sandspits off the NE coast of Jenny Lind Island.

Fall season

Freeze-up is in early to late October; consolidation is in the first week of November.

Environment

See Figure 5-8

Hunting activities are mostly along major travel routes linking Cambridge Bay with the Gjoa Haven and Spence Bay areas. There is an important hunting area around the island: residents of Cambridge Bay and Gjoa Haven hunt seals here.

Ringed seals are found in the unstable ice around the island.

Muskoxen are abundant.

East Queen Maud Gulf and South Victoria Strait

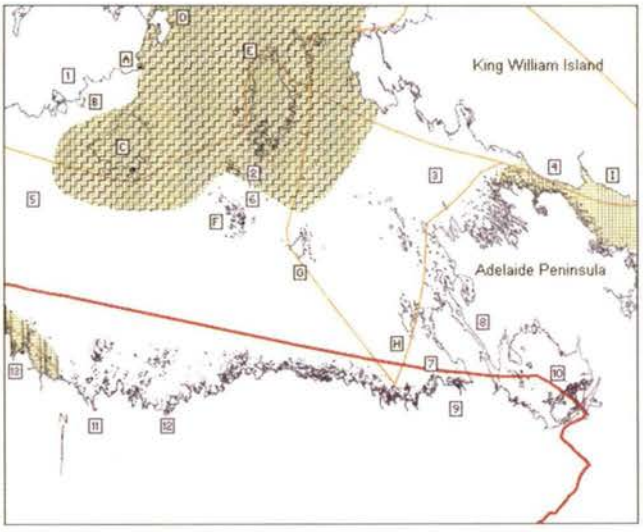


Figure 5-6: Spring Scenario

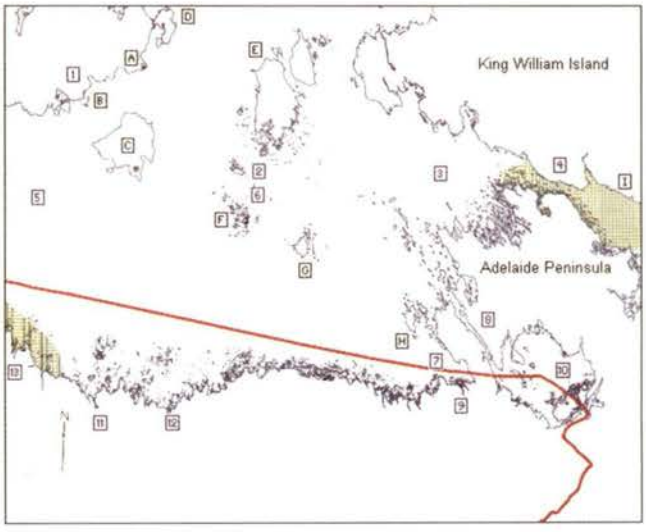


Figure 5-8: Fall Scenario

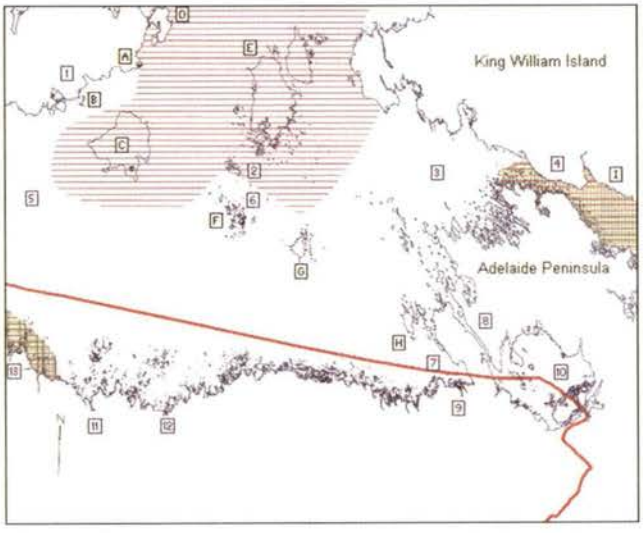


Figure 5-7: Summer Scenario

- Bird Colonies
- Exclusion Zone
- Travel Routes
- Ringed Seal – Harvest
- Caribou – Harvest
- Polar Bear – Harvest
- Waterfowl – Harvest

Water Legend

1. Stromness Bay
2. Markham Strait
3. Storis Passage
4. Simpson Strait
5. Queen Maud Gulf
6. Palander Strait
7. McLoughlin Bay
8. Sherman Inlet
9. McNaughton River
10. Sherman Basin
11. Perry River
12. Ogden Bay

Land Legend

- A De Haven Point
- B Kean Point
- C Jenny Lind Island
- D Taylor Island
- E Royal Geographical Society Islands
- F Nordenskiold Islands
- G Hat Island
- H O'Reilly Island

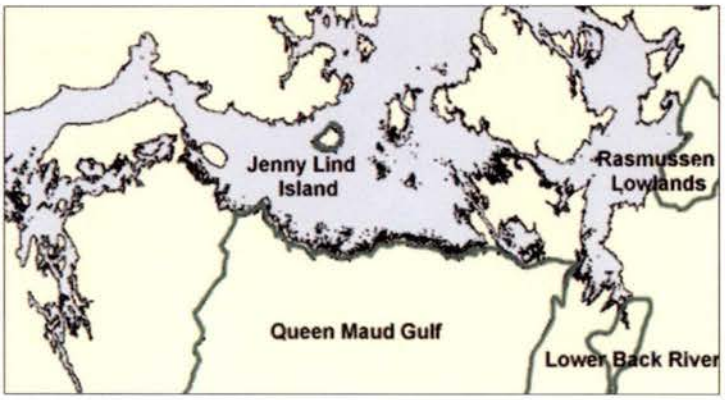


Figure 5-9: Migratory Bird Terrestrial Habitat Sites

Specific Site 1E:

Sherman Inlet and Basin

See Figure 5-10

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter IV.

Sherman Inlet leads between **Klutschak Peninsula** and **Adelaide Peninsula**, which rise fairly steeply to 45 and 60 m. Shoals are reported off the entrance but the inlet itself is believed to be deep enough for vessels drawing 3 m.

Sherman Basin *(67°49′N, 97°35′W)*, bordered to the north by Adelaide Peninsula and to the east by **McCrary Isthmus**, has many islands, islets and rocks, particularly in its SE part.

Spring season

The area is covered with consolidated ice.

Environment

See Figure 5-6

Tundra swans, Canada geese, glaucous gulls, sabine's gulls, arctic terns, jaegers, king eiders, oldsquaws, Pacific loons, red-throated loons and **yellow-billed loons**, several species of shorebirds and sandhill cranes nest in the extensive well-vegetated lowlands along Sherman Inlet and Sherman Basin.

Nesting ducks and **loons** are widespread in the southern half of Sherman Basin, which is part of the *Queen Maud Gulf Bird Sanctuary*.

Summer season

Breakup is usually in mid-August.

Environment

See Figure 5-7

Ringed seals use coastal shoal waters.

Tundra swans (4,000-6,000) use King William Island and Adelaide Peninsula and inshore areas for breeding, brood rearing and moulting.

Snow geese, Canada geese, white-fronted geese and **brant** (non-breeding) are found in large populations.

Tundra swans, Canada geese, glaucous gulls, sabine's gulls, arctic terns, jaegers, king eiders, oldsquaws, Pacific loons, red-throated loons, yellow-billed loons, several species of **shorebirds** and **sandhill cranes** nest in the southern part of Sherman Basin. This is part of the *Queen Maud Gulf Bird Sanctuary*.

Ducks and **loons** make wide use of the area for nesting and moulting.

Waterfowl congregate in bays and near-shore marine and shoreline areas.

Fall season

Freeze-up is early to late October.

Environment

See Figure 5-8

No specific information is available.

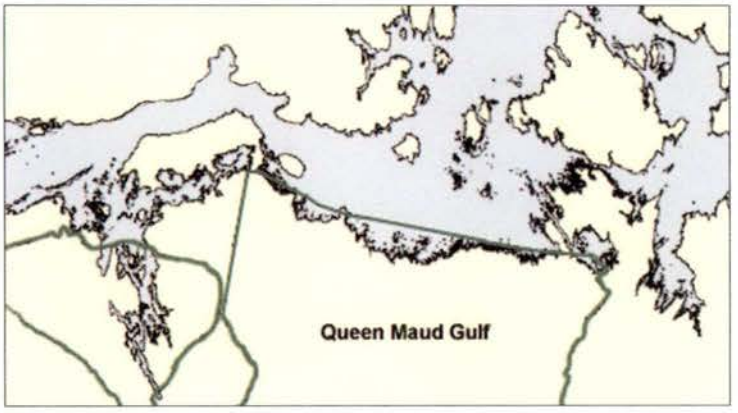


Figure 5-10: International Biological Programme (IBP) Sites

Specific Site 1F:

Storis Passage, Simpson Strait

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapters IV and V.

Spring season

A solid even layer of fast ice covers the area. Puddling begins in mid-June and breakup is in late July.

Environment

See Figure 5-11

Hunting fishing and trapping is concentrated along over-ice travel routes linking Gjoa Haven with Spence Bay, Pelly Bay, and surrounding hunting areas. There are important hunting areas in Simpson Strait and around Royal Geographical Society Islands. Simpson Strait is used April to July as a travel route and for hunting ringed seals. Half of Gjoa Haven's annual harvest of polar bears and ringed seals may come from Simpson Strait near the settlement. Residents of Cambridge Bay and Gjoa Haven hunt polar bears and seals in Royal Geographical Society Islands area from April to July.

Polar bear denning areas are found on Royal Geographical Society Islands. Females with cubs hunt in the spring on nearby fast ice.

Caribou in small numbers cross the ice of Simpson Strait. Details are not known.

Tundra swans, Canada geese, glaucous gulls, sabine's gulls, arctic terns and **jaegers** nest in the well-vegetated lowlands on King William Island, the Adelaide Peninsula and adjacent small islands. Tundra swans use King William Island (3,000-4,000) and Adelaide Peninsula (1,000-2,000) for breeding, brood rearing and moulting.

Gulls and **arctic terns** nest on a small island in the Nordenskiold group.

Tundra swans, Canada geese, brant, glaucous gulls, arctic terns, jaegers, king eiders, oldsquaws and **loons** use Royal Geographical Society Islands, Nordenskiold Islands and the Hat Island group as habitat.

King eiders, Pacific eiders, oldsquaws, Pacific loons, Yellow-billed loons and **red-throated loons** nest on the well-vegetated lowlands all along the coast of Adelaide Peninsula, King William Island and adjacent small islands.

Eiders use the open water in Simpson Strait that occurs early due to strong currents.

Sandhill cranes and several species of shorebirds nest in the well-vegetated lowlands along Adelaide Peninsula.

St. Roch Basin / Rasmussen Basin / Chantrey Inlet

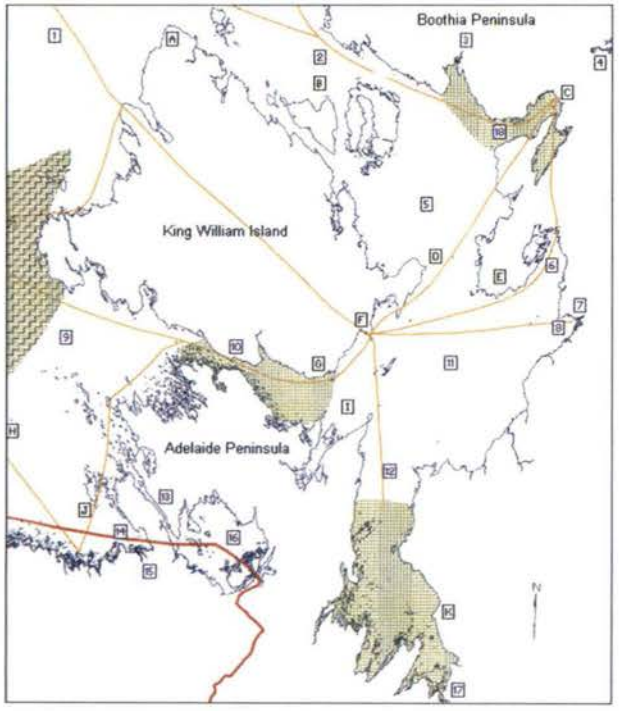


Figure 5-11: Spring Scenario

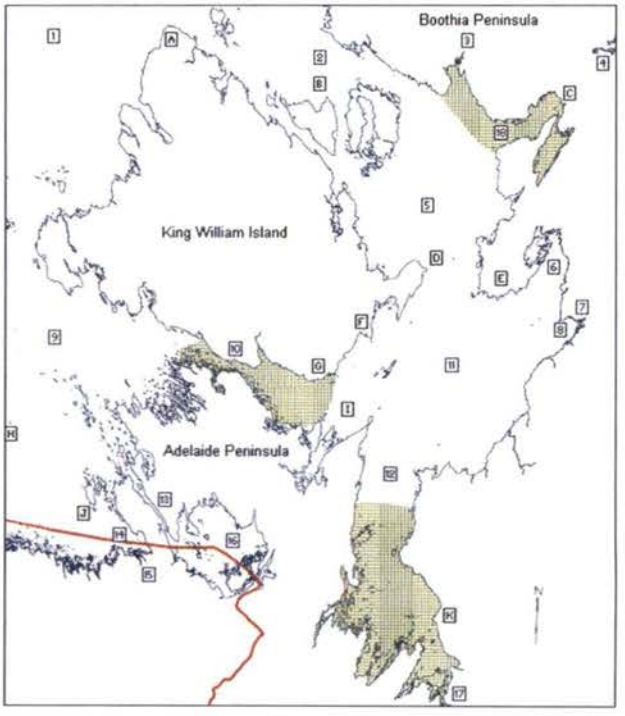


Figure 5-13: Fall Scenario

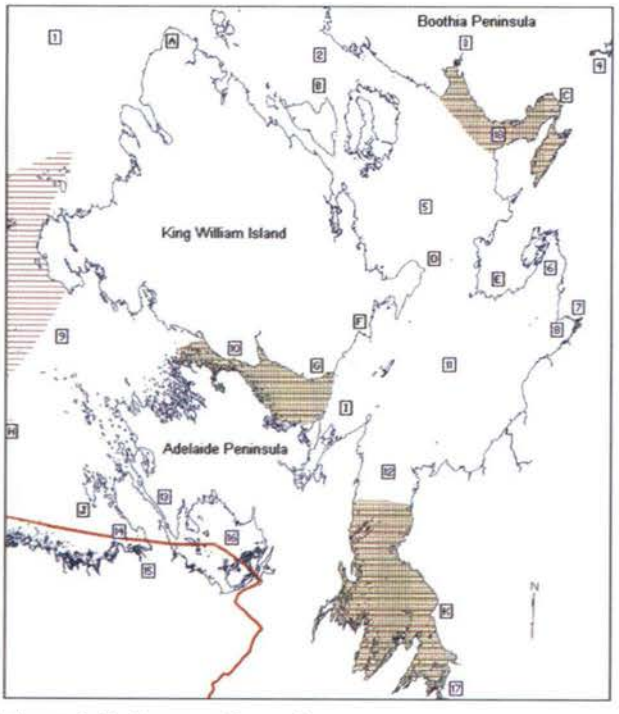


Figure 5-12: Summer Scenario

- Bird Colonies
- Exclusion Zone
- Travel Routes
- Ringed Seal – Harvest
- Caribou – Harvest
- Polar Bear – Harvest
- Waterfowl – Harvest

Water Legend

1 Victoria Strait
2 James Ross Strait
3 Garry River
4 Sagvak Inlet
5 St. Roch Basin
6 Shephard Bay
7 Inglis River
8 Inglis Bay
9 Storis Passage
10 Simpson Strait
11 Rasmussen Basin
12 Chantrey Inlet
13 Sherman Inlet
14 McLoughlin Bay
15 McNaughton River
16 Sherman Basin
17 Back River
18 Spence Bay

Land Legend

A Cape Felix
B Tennent Islands
C Spence Bay
D Matheson Point
E Cape Colville
F Gjoa Haven
G Booth Point
H Hat Island
I Richardson Point
J O'Reilly Island
K Backhouse Point

Summer season

Simpson Strait is usually clear of ice by the second week of August.

Environment

See Figure 5-12

Hunting is mostly along cross-ice/open-water travel routes linking Gjoa Haven with Spence Bay, Pelly Bay, and surrounding hunting areas. Caribou are hunted when found. There are important hunting areas in Simpson Strait and Royal Geographical Society Islands. Simpson Strait is used from July to September as a travel route and to hunt ringed seals. Half of Gjoa Haven's annual harvest of 150 ringed seals may come from Simpson Strait near the settlement. Residents of Cambridge Bay and Gjoa Haven hunt seals and sea ducks in the Royal Geographical Society Islands area.

Ringed seals are found in the shoal waters on the east side of Storis Passage.

Tundra swans have habitat in the coastal areas of Storis Passage and Simpson Strait. An estimated 4,000 - 6,000 birds use King William Island and the Adelaide Peninsula, including inland areas, for breeding, brood-rearing and moulting.

Non-breeding geese populations in the area are 7,000-14,000 snow geese, 5,000-10,000 Canada geese, 500-1,000 white-fronted geese, and 750-1,500 brant. Numbers vary year to year.

Moulting geese, mostly from the Queen Maud Gulf and Rasmussen Basin populations, also use the area.

Tundra swans, Canada geese, brant, glaucous gulls, arctic terns, jaegers, king eiders, oldsquaws and **loons** have habitat in Royal Geographical Society Islands, Nordenskiold Islands and the Hat Island group.

Glaucous gulls, sabine's gulls, arctic terns, jaegers, king eiders, oldsquaws, Pacific loons, red-throated loons, yellow-billed loons, shorebirds and **sandhill cranes** nest in the extensive, well-vegetated lowlands of King William Island and adjacent smaller islands and Adelaide Peninsula.

Gulls and **arctic terns** nest on a small island in the Nordenskiold group.

Eiders, oldsquaws and **other moulting waterfowl** use coastal waters as habitat. **Loons** feed in the waters.

King eider adult females and the young of the year gather in large rafts in August.

Moulting ducks are found in coastal areas, mainly in large ice-free inlets.

Fall Season

Freeze-up usually begins in early October and ice cover is complete by the end of the month.

Environment

See Figure 5-13

Hunting activities are mostly along cross-ice/open-water travel routes linking Gjoa Haven with Spence Bay, Pelly Bay, and the surrounding hunting areas. Caribou are hunted when found. There are important hunting areas in Simpson Strait and Royal Geographical Society Islands. Simpson Strait is used in the fall as a travel route and to hunt seals. Residents of Cambridge Bay and Gjoa Haven hunt seals on Royal Geographical Society Islands. Half of Gjoa Haven's annual harvest of 150 seals may come from Simpson Strait near the settlement.

Ringed seals are found in pack ice around Royal Geographical Society Islands, Nordenskiold Islands and Hat Island. They are also found in shoal waters and inner bays along Storis Passage.

Caribou cross the ice of Simpson Strait. Small numbers may cross ice-covered channels.

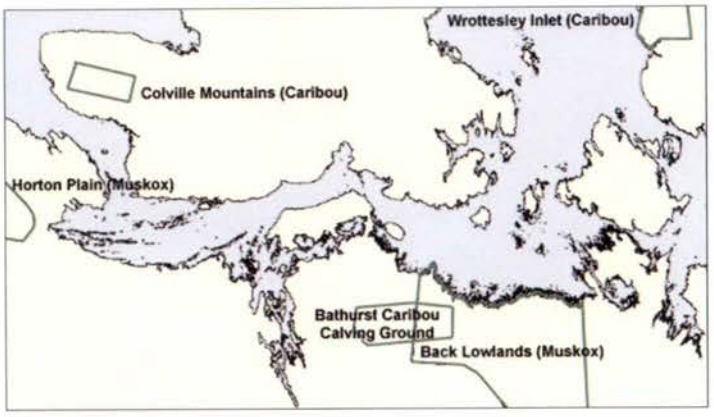


Figure 5-14: Wildlife Areas of Special Interest

Specific Site 1G:

Victoria Strait, Larsen Sound

See Figure 5-14

Refer to Charts 7083, 7740, and to Sailing Directions, Arctic Canada, Volume III, Chapter VI.

Spring season

Victoria Strait is covered with very rough ice. As well as locally formed ice, the strait can be congested with heavy polar ice and occasional ice islands. There is evidence of heavy pressure on all the salient points of King William Island that face the strait. Larsen Sound usually breaks up in late July; the area clears of ice by the end of August.

Environment

See Figures 5-6, 5-15 and 5-18

Hunting, fishing and trapping are concentrated along over-ice travel routes linking Gjoa Haven, Spence Bay, Pelly Bay and Cambridge Bay with several hunting areas. There are important hunting areas in the Gateshead Island/Victoria Strait area; around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands; and along the NW side of Boothia Peninsula. Residents of Cambridge Bay and Gjoa Haven hunt polar bears from April to May in the Gateshead Island/Victoria Strait area. In a good year, the total Cambridge Bay quota of 14 bears is taken here. Residents of Cambridge Bay and Gjoa Haven hunt polar bears and seals from April to July in the Jenny Lind and Royal Geographical Society Islands area. Hunters from Gjoa Haven take up to half of their annual quota of polar bears here. Hunters from Spence Bay and Gjoa Haven also hunt Polar bears, ringed seals and bearded seals on the Boothia Peninsula coast. There is an important polar bear hunting area between Pasley Bay and Tasmania Islands.

Bearded seals overwinter in Markham and Palander Straits.

Polar bear denning areas are found on Gateshead Island, Admiralty Island and Royal Geographical Society Islands. Females with cubs often hunt on fast ice around these denning areas.

Caribou have an important calving area in the lowlands bordering northern Albert Edward Bay. The area between Wrottesley Inlet (see Figure 5-14) and Pasley Bay is believed to be the major calving area for caribou on the Boothia Peninsula. This area and the area immediately south of Pasley Bay also has important post-calving habitat. Small numbers of caribou cross the ice in Larsen Sound.

Muskox tracks from the direction of Prince of Wales Island have been seen in March on the ice of M'Clintock Channel around Gateshead Island and crossing the sea ice from Tasmania Islands toward Victoria Island.

Tundra swans, Canada geese, snow geese, white-fronted geese and **brant** have habitat in the well-vegetated lowlands along the SE shores of Victoria Island.

Tundra swans and **Canada geese** also nest in the extensive well-vegetated lowlands on King William Island, Adelaide Peninsula and nearby small islands.

Tundra swans use King William Island (3,000-4,000) and Adelaide Peninsula (1,000-2,000) for breeding, brood rearing and moulting.

White-fronted geese (3,800) and large numbers of **Canada geese** (3,700) and **tundra swans** (700) are supported by the area around Albert Edward Bay. This area has been nominated, but not yet designated, as a **Key Migratory Bird Terrestrial Habitat Site** by the Canadian Wildlife Service.

Glaucous gulls, arctic terns and **jaegers** have habitat on Jenny Lind Island, Royal Geographical Society Islands and Nordenskiold Islands.

King eiders, oldsquaws and **loons** have habitat on Royal Geographical Society Islands and Nordenskiold Islands.

Glaucous gulls, Sabine's gulls, arctic terns, jaegers, king eiders, Pacific eiders, oldsquaws, Pacific loons, red-throated loons and **yellow-billed loons** nest in the lowlands along King William Island, adjacent smaller islands, and the south and SE shores of Victoria Island, including some of the smaller offshore islands.

Glaucous gulls, arctic terns, jaegers, king eiders, oldsquaws and **loons** nest in Royal Geographical Society Islands. Gulls nests are also reported near De Haven Point on Victoria Island.

Glaucous gulls and **Thayer's gull**s use areas off Victoria Island along landfast ice edges and leads that develop in May and June.

Glaucous gulls congregate in the south part of Pasley Bay, off Boothia Peninsula. There are two colonies here: a colony of 100 pairs on an island in the inner southern arm and 50 pairs on an island in the outer southern arm.

Pacific eiders are found in early spring in open-water areas between Taylor Island and Victoria Island and in a lead SW of Taylor Island.

Shorebirds and **sandhill cranes** nest in the well-vegetated lowlands all along the south and SE shores of Victoria Island, including some of the smaller offshore islands.

Ruddy turnstones, phalaropes and possibly other **shorebirds** are found along landfast ice edges and leads in the sea ice in May and June.

Summer season

Victoria Strait may stay covered with very rough ice and be congested with heavy polar ice and occasional ice islands as well as locally formed ice. There is heavy pressure on all the salient points of King William Island that face the strait. Breakup in the south and east parts of the area is usually in August, and in the NW part in September. Larsen Sound clears of ice by the end of August.

Environment

See Figures 5-7, 5-16 and 5-19

Hunting is mostly along cross-ice/open-water travel routes linking Gjoa Haven, Spence Bay, Pelly Bay and Cambridge Bay. Caribou are hunted when found. There are important hunting areas around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands, and along the NW side of Boothia Peninsula. Residents of Cambridge Bay and Gjoa Haven hunt seals and sea ducks in the Jenny Lind Island and Royal Geographical Society Islands area. The Boothia Peninsula coast is used by hunters from Spence Bay who travel by boat to summer camps at Pasley Bay and further north, if ice conditions permit. Ringed seals and bearded seals are taken year-round, and belugas and narwhals are hunted in coastal areas in the open-water season. Three or four Spence Bay families have summer camps at Pasley Bay each year to hunt whales, seals, waterfowl and caribou, to gather eggs and to fish for arctic char.

Ringed seals have been seen in shoal waters off the north end of King William Island.

Tundra swans, **Canada geese**, **snow geese**, **white-fronted geese**, **brant**, **king eiders**, **Pacific eiders**, **oldsquaws**, **Pacific loons**, **yellow-billed loons** and **red-throated loons** use the well-vegetated lowlands along the shores of SE Victoria Island as habitat.

White-fronted geese (3,800), **Canada geese** (3,700) and **tundra swans** (700) have habitat in the area around Albert Edward Bay. This has been nominated, but not yet designated, as a **Key Migratory Bird Terrestrial Habitat Site** by the Canadian Wildlife Service.

Some of the **Tundra swans** that use King William Island and Adelaide Peninsula for breeding, brood rearing and moulting also use the Victoria Strait and Larsen Sound coastal areas.

North Victoria Strait, M'Clintock Channel, West Larsen Sound

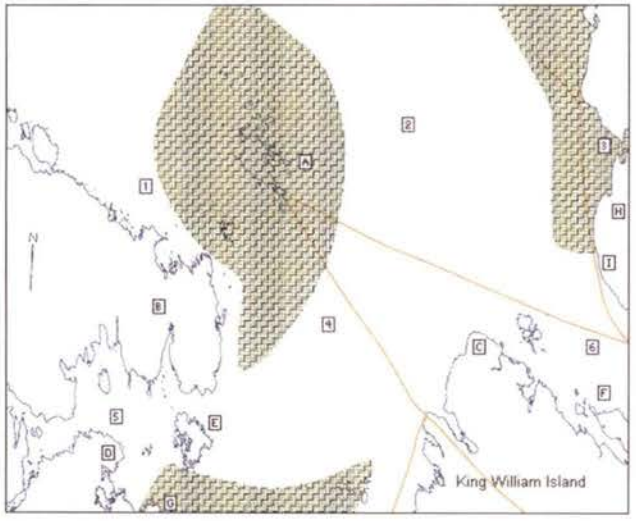


Figure 5-15: Spring Scenario

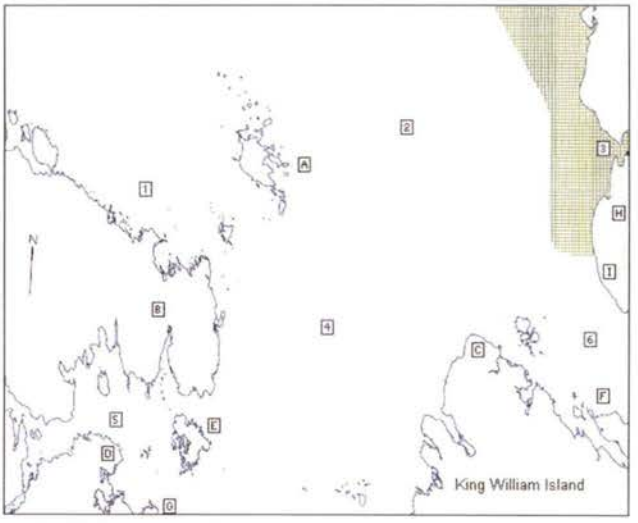


Figure 5-17: Fall Scenario

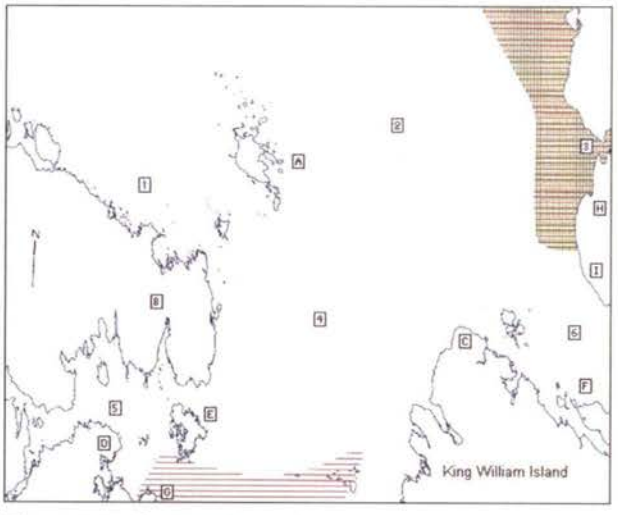


Figure 5-16: Summer Scenario

Bird Colonies
Travel Routes
Ringed Seal – Harvest
Polar Bear – Harvest
Waterfowl – Harvest

Water Legend

1 M'Clintock Channel
2 Larsen Sound
3 Pasley Bay
4 Victoria Strait
5 Albert Edward Bay
6 James Ross Strait

Land Legend

A Gateshead Island
B Colinson Peninsula
C Cape Felix
D Cape Adelaide
E Admiralty Island
F Tennent Islands
G Taylor Island
H Boothia Peninsula
I Cape Adelaide Regina

East Larsen Sound, James Ross Strait, Boothia Peninsula

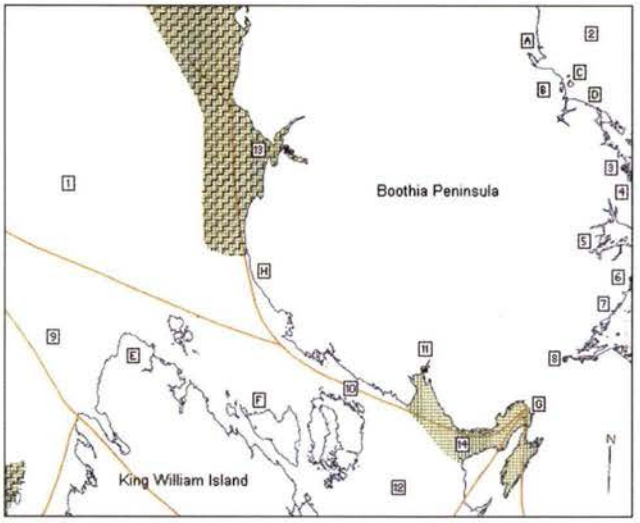


Figure 5-18: Spring Scenario

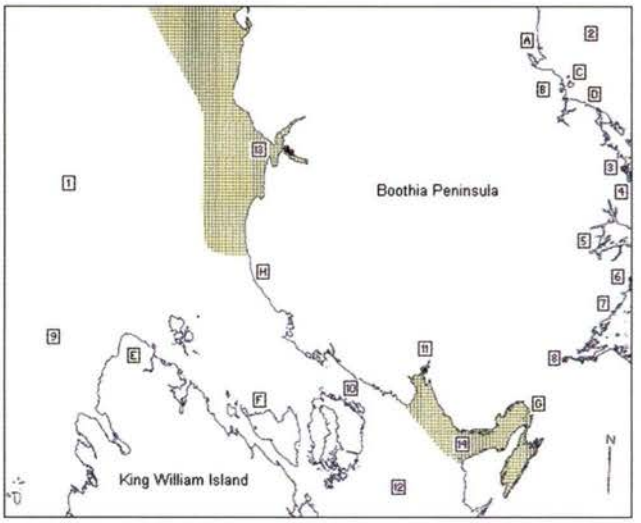


Figure 5-20: Fall Scenario

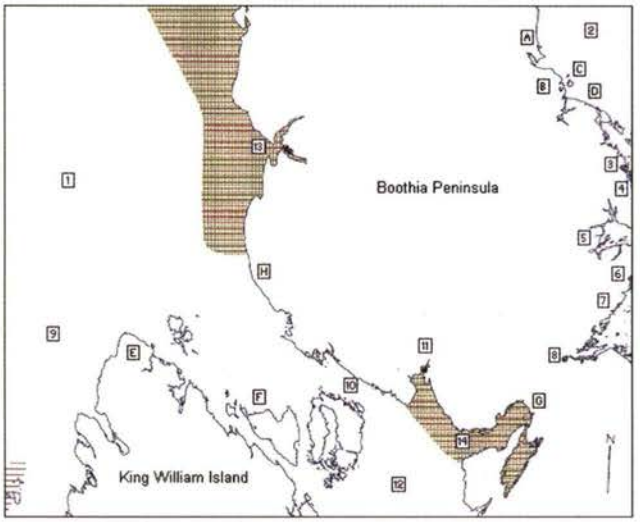


Figure 5-19: Summer Scenario

Bird Colonies
Travel Routes
Ringed Seal – Harvest
Polar Bear – Harvest
Waterfowl – Harvest

Water Legend

1 Larsen Sound
2 Gulf of Boothia
3 Mary Jones Bay
4 Mundy Harbour
5 Thom Bay
6 Sheriff Harbour
7 Lord Mayor Bay
8 Sagvak Inlet
9 Victoria Strait
10 James Ross Strait
11 Garry River
12 St. Roch Basin
13 Pasley Bay
14 Spence Bay

Land Legend

A Boothia Isthmus
B Cape Palmerston
C Arbuthnot Island
D Cape Manson
E Cape Felix
F Tennent Islands
G Spence Bay
H Cape Adelaide Regina

Snow geese (7,000-14,000), **Canada geese** (5,000-10,000), **white-fronted geese** (500-1,000) and **brant** (750-1,500) also use the area.

Glaucous gulls, Sabine's gulls, arctic terns and **jaegers** nest in the coastal areas of King William Island, Royal Geographical Society Islands, and SE Victoria Island, including some of the smaller offshore islands.

Glaucous gulls nest near De Haven Point. There is a colony of 100 pairs on an island in the inner south arm of Pasley Bay and 50 pairs on an island in the outer south arm of Pasley Bay.

King eiders, oldsquaws, Pacific loons, red-throated loons and **yellow-billed loons** nest in the well-vegetated lowland areas on Adelaide Peninsula, King William Island and other islands.

Moulting ducks are found in coastal areas, mainly in large ice-free inlets.

Moulting waterfowl, primarily **eiders oldsquaws,** and **loons** use the coastal waters on SE Victoria Island as feeding habitat.

King eiders, adult females and the young of the year, congregate in large rafts in August.

Oldsquaws are common in shallow bays along this part of the Victoria Island coast. They gather in Pasley Bay off Boothia Peninsula in July and August.

King eiders, oldsquaws and **loons** have habitat in Royal Geographical Society Islands and Nordenskiold Islands.

Shorebirds and **sandhill cranes** nest in areas of well-vegetated lowlands on King William Island, Jenny Lind Island, SE Victoria Island and some of the smaller offshore islands.

Fall season

Freeze-up in Victoria Strait and Larsen Sound begins in the second half of September. The ice cover consolidates by the last week of October.

Environment

See Figures 5-8, 5-17 and 5-20

Hunting is mostly along cross-ice/open-water travel routes linking Gjoa Haven, Spence Bay, Pelly Bay and Cambridge Bay. Caribou are hunted when found. There are important hunting areas around Jenny Lind Island, Taylor Island and Royal Geographical Society Islands and along the NW side of Boothia Peninsula. Residents of Cambridge Bay and Gjoa Haven hunt seals in part of the Jenny Lind Island and Royal Geographical Society Islands area. The Boothia Peninsula coast is used by hunters from Spence Bay who travel by boat to summer and fall camps at Pasley Bay and further north if ice conditions permit. Ringed seals and bearded seals are taken year-round. Belugas and narwhal are hunted in coastal areas in the open-water season. Three or four Spence Bay families make summer and fall camps at Pasley Bay each year to hunt whales, seals, waterfowl and caribou, to gather eggs and to fish for arctic char.

Ringed seals are found along SE Victoria Island and in Edward Bay; in shoals and multi-year ice in coastal areas of M'Clintock Channel; in shoal waters and pack ice around Royal Geographical Society Islands and Nordenskiold Islands; and in shoal waters off SW Boothia Peninsula.

Polar bears, 700 animals of the M'Clintock Channel population, use pack ice areas of Victoria Strait and Larsen Sound. Sightings are rare elsewhere.

Caribou cross the ice of Larsen Sound. Small numbers of caribou may be found crossing other ice-covered channels.

Pacific eiders in small numbers may winter in open water around Taylor Island.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied when appropriate.

Specific Adverse Effects and Mitigating Measures:

⇨ *Spring*

In general, ships and aircraft should avoid lowland coastal areas in late spring because of their sensitivity and importance to wildlife.

Caribou may be found in April and May in the eastern parts of Queen Maud Gulf and Dease Strait, crossing the ice to Victoria Island. A few also cross the ice in areas such as Simpson Strait and Larsen Sound. Different crossing points may be used each year. This is when ships or aircraft could encounter caribou and an occasional grizzly bear. A route through these areas cannot totally avoid the caribou crossing routes or the on-ice travel routes used by hunters.

Lowland areas near the south Queen Maud Gulf area support a resident population of 10,000 caribou. Migration from wintering areas begins in late March and peaks by mid-May. Calving is in June on the coastal lowlands and the many offshore islands.

Ships should keep a good lookout for larger groups of caribou on the ice and avoid crossing in front of them.

There are polar bear denning areas on Gateshead Island, Admiralty Island and Royal Geographical Society Islands. Females with cubs hunt in the spring on fast ice around the denning areas. Ships and aircraft should avoid these areas.

Hunting, fishing and trapping is concentrated along major over-ice travel routes linking main harvest areas. Before entering these areas, ships and aircraft should contact the Hunters and Trappers Association at Cambridge Bay, Umingmatok, Perry River, Gjoa Haven, Spence Bay and Pelly Bay for locations of on-ice hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should stay at an altitude of 2,000 feet and not chase or fly low over any wildlife. Caribou frightened by low-flying aircraft often injure themselves on rough ice. Such injuries usually cause death.

Hunting areas of special note:

- Jenny Lind Island, Taylor Island and Royal Geographical Society Islands, used April to July by residents of Cambridge Bay and Gjoa Haven for hunting polar bears and seals;
- Queen Maud Gulf, SW shore, used April to July by residents of Cambridge Bay and the Perry River outpost camp for trapping arctic foxes, hunting seals and caribou, and fishing;
- Simpson Strait, used April to July as a travel route and to hunt ringed seals;
- Gateshead Island/Victoria Strait area and the NW side of Boothia Peninsula, used April to May by residents of Cambridge Bay, Gjoa Haven and Spence Bay to hunt polar bears, ringed seals and bearded seals;
- Pasley Bay and Tasmania Islands, an important polar bear hunting area. A few muskox may cross the ice surface and should be avoided;
- Queen Maud Gulf, south shore, is the northern boundary of the Back Lowland, an area of high muskox density that has been identified as a **Wildlife Area of Special Interest**. Some starving muskox may cross the ice-covered channels seeking food. These animals may be weak and particularly susceptible to the additional stresses of aircraft disturbance or icebreaking ship traffic. Such animals should be avoided.

The *Queen Maud Gulf Bird Sanctuary* is along the mainland coast from Sherman Basin to the base of Kent Peninsula. Colonies of snow geese (15% of the Canadian population) and Ross' geese (99% of the world population) are found throughout the sanctuary, as are large numbers of white-fronted geese, Canada geese, tundra swans, brant, sea ducks and shorebirds. These birds are most common inland but also nest in the deltaic and coastal islands. Ships and aircraft must avoid the Sanctuary.

There is a **Key Migratory Bird Terrestrial Habitat Site,** nominated but not yet designated, at **Albert Edward Bay**. This area supports large numbers (more than 1% of the total Canadian population) of white-fronted geese and large numbers of Canada geese and tundra swans. Ships and aircraft should avoid it.

Seabird colonies are sensitive during the entire spring period.

Ships should keep at 1.7 miles from any identified seabird colony. Aircraft should keep a distance of 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over a seabird colony.

Seabird colony areas of special note:

- McNaughton River, with a colony of 10,000 pairs of Ross' and snow geese on a deltaic island at its mouth;
- coastal islands on the south side of Queen Maud Gulf between McLoughlin Bay and Ogden Bay, with a large colony of Ross' and snow geese (1,000-10,000 pairs) and a smaller colony of 10-100 pairs;
- islands at the mouth of Atkinson Point River, with a colony of up to 10,000 pairs of Ross' and snow geese;
- the Tingmeak River delta, with a colony of over 1% of the Canadian breeding population of Canada geese;
- Jenny Lind Island, with a colony of over 3% of the total Canadian breeding population of snow geese;
- the Pasley Bay area, with several small colonies of glaucous gulls;
- a small island in the Finlayson Islands group, with small colonies of Arctic terns and glaucous gulls.

⇨ Summer

Albert Edward Bay, with its nominated **Key Migratory Bird Terrestrial Habitat Site**, supports significant numbers (more than 1% of the Canadian population) of white-fronted geese and large numbers of Canada geese and tundra swans. Ships and aircraft should avoid the site.

Aircraft should avoid the south shore of Queen Maud Gulf and its **Wildlife Area of Special Interest,** where muskox are common.

The *Queen Maud Gulf Bird Sanctuary* includes the mainland coast from Sherman Basin to the base of Kent Peninsula. Colonies of snow geese (15% of the Canadian population) and Ross' geese (99% of the total world population) are scattered throughout, as are large numbers of Ross' geese, white-fronted geese, Canada geese, tundra swans, brant, sea ducks and shorebirds. Most populations are inland but use of deltaic and coastal islands for nesting is growing. Ships and aircraft must avoid the sanctuary.

In general, ships and aircraft should avoid lowland coastal areas. These areas provide important nesting, moulting, brood-rearing, feeding and staging habitat for many species of waterfowl and shorebirds.

Ogden Bay supports large congregations of waterfowl in August.

Conolly, Foggy, and Labyrinth Bays support large congregations of eiders, oldsquaws and loons.

Storis Passage and Simpson Strait and their coastal areas provide especially important habitat for tundra swans, geese and brant.

Stromness Bay is a fall staging area for Pacific eiders.

The Queen Maud Gulf lowlands also support 10,000 caribou. Those that stay on offshore islands after calving in June migrate southward in late August to early September, swimming from island to island or crossing directly to the mainland on newly formed sea ice.

Ships should keep a good lookout for groups of caribou swimming between the islands or to the mainland and avoid crossing in front of them.

There is hunting along summer travel routes that radiate out from Cambridge Bay to hunting areas throughout Queen Maud Gulf and Victoria Strait and link up with the Cambridge Bay, Bathurst Inlet, Spence Bay, Gjoa Haven and Perry River areas. Ships and aircraft should avoid these routes and the adjacent traditional hunting areas. Before entering these areas, ships and aircraft should contact the Hunters and Trappers Associations at Coppermine, Cambridge Bay, Bay Chimo, and Burnside for locations of support camps and hunting areas.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should keep an altitude of 2,000 feet and not chase or fly low over any wildlife.

Hunting areas of special note:

- Jenny Lind Island, Taylor Island and Royal Geographical Society Islands, used by residents of Cambridge Bay and Gjoa Haven for hunting seals and sea ducks;
- Queen Maud Gulf and its SW shore, used from July to September by residents of Cambridge Bay and the Perry River outpost camp for hunting seals, ducks, geese and caribou;

- Simpson Strait, used from July to September as a travel route and for hunting ringed seals;
- the Boothia Peninsula coast, used by hunters from Spence Bay who travel by boat to summer camps at Pasley Bay and further north if ice conditions permit. Three or four Spence Bay families also make summer camps at Pasley Bay each year.

Seabird colonies are sensitive during the entire summer period. Ships should keep at least 1.7 miles from any identified seabird colonies. Aircraft should keep a distance of 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over any colony.

Seabird colony areas of special note:

- McNaughton River, with a colony of 10,000 pairs of Ross' and snow geese on a deltaic island at its mouth;
- coastal islands on the south side of Queen Maud Gulf between McLoughlin Bay and Ogden Bay, with a large colony of Ross' and snow geese (1,000-10,000 pairs) and a smaller colony of 10-100 pairs;
- islands at the mouth of Atkinson Point River, with a colony of up to 10,000 pairs of Ross' and snow geese;
- the Tingmeak River delta, with a colony of over 1% of the Canadian breeding population of Canada geese;
- Jenny Lind Island, with more than 3% of the Canadian breeding population of snow geese;
- the Pasley Bay area, with several small colonies of glaucous gulls;
- an island in the Finlayson Islands group, with colonies of Arctic terns and glaucous gulls.

⇨ *Fall*

Ships and aircraft should avoid the south Queen Maud Gulf coastline and its **Wildlife Area of Special Interest** for muskox.

Victoria Island caribou (8,000) head south across the ice near the entrance to Dease Strait, from calving and summering areas on Victoria Island to wintering areas on the mainland. A few also cross the ice of Melville Sound, Simpson Strait and Larsen Sound; this is when they may be encountered. A route through these areas cannot totally avoid the caribou crossing routes or the on-ice travel routes used by hunters.

Ships should keep a good lookout for larger groups of caribou on the ice at any time and avoid crossing in front of them.

Hunting, fishing and trapping is mostly along major travel routes linking Cambridge Bay with Bathurst Inlet, Perry River, Gjoa Haven, Spence Bay, Pelly Bay and other hunting areas. Ships and aircraft should contact the Hunters and Trappers Associations at Coppermine, Cambridge Bay, Burnside and Bay Chimo for locations of hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife. Caribou frightened by low-flying aircraft are prone to injuring themselves on rough ice. Such injuries usually cause death.

Hunting areas of special note:

- Jenny Lind Island, Taylor Island and Royal Geographical Society Islands, for a seal hunt by Cambridge Bay and Gjoa Haven residents;
- Queen Maud Gulf and its SW shore, used by residents of Cambridge Bay and the Perry River outpost camp for hunting caribou;
- Simpson Strait, used as a travel route and for hunting ringed seals;
- the Boothia Peninsula coast, used by hunters from Spence Bay who travel by boat to camps at Pasley Bay and further north if ice conditions permit. Three or four Spence Bay families also camp at Pasley Bay each year.

General Site 2:

James Ross Strait, St. Roch Basin, Rasmussen Basin, Chantrey Inlet

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter V, and Sailing Directions, Arctic Canada, Volume II, Chapter III.

James Ross Strait *(69°40′N, 96°00′W)* lies SE of Larsen Sound and SW of Boothia Peninsula. The south and narrow part of James Ross Strait leads between the NE side of **Matty Island** and Boothia Peninsula. **Wellington Strait** and **Humboldt Channel** lead from the south side of the strait. **Clarence Islands** lie inside the north entrance of the strait, which is a line between Cape Felix and Cape Francis.

St. Roch Basin, between King William Island and the south part of Boothia Peninsula, is entered from the NW through James Ross Strait and from the south through **Rae Strait**. The west side of the basin is low with no prominent features but on the east side, some distance inland, hills rise to 300 m. On the NE side, in the approaches to Spence Bay, moderately high hills reach the coast.

Rasmussen Basin *(68°30′N, 95°00′W)* is bounded to the west by King William Island, Simpson Strait and Adelaide Peninsula, to the north by Rae Strait, and to the east by the base of Boothia Peninsula.

Chantrey Inlet, SSW of Rasmussen Basin, is entered between **Ogle Point** *(68°18′N, 95°53′W)* and **Cape Britannia**, 17 miles to the SSE. The west side of the inlet is low and flat with few elevations of more than 30 m within 3 or 4 miles of shore. The east side is mainly bold and mountainous red granite.

Spring season

Puddling of the ice surface in Rasmussen Basin begins in mid-June.

Environment

Arctic foxes are found in all coastal areas. The dens are occupied from late winter or early spring and are reused each year. Most channels in the area stay frozen and the foxes roam the sea ice searching for food and scavenge on any seal carcasses left by polar bears. They can be affected by icebreaking ship traffic.

Bearded seals are rare in fast ice. **Ringed seal** habitat is poor in the shoal waters and multi-year ice around King William Island.

Grizzly bears are not known on the mainland north of Chantrey Inlet nor on the main islands or smaller offshore islands.

Tundra swans, Canada geese, glaucous gulls, sabine's gulls, arctic terns and **jaegers** nest on the extensive well-vegetated lowlands of King William Island, Adelaide Peninsula and nearby small islands.

Tundra swans use King William Island (3,000-4,000) and Adelaide Peninsula (1,000-2,000) for breeding, brood-rearing and moulting.

Geese and **swans** are found wherever there is suitable lowland habitat.

Glaucous, Thayer's and **Sabine's gulls, arctic terns** and **jaegers** have critical habitat in the Rasmussen Basin lowlands and adjacent areas.

Gulls, terns and **jaegers** nest wherever they find suitable coastal lowland habitat or coastal islands or cliffs.

Glaucous gulls and **Thayer's gulls** are found along landfast ice edges and in leads in the sea-ice and other open-water areas that develop in May and June.

King eiders, oldsquaws, Pacific loons, red-throated loons, yellow-billed loons, several species of **shorebirds** and **sandhill cranes** have very important nesting habitat on the extensive well-vegetated lowlands on Adelaide Peninsula, King William Island and nearby small islands.

Ducks, loons and **shorebirds** are found wherever there is suitable coastal, lowland or island habitat.

Pacific eiders, king eiders, oldsquaws, Pacific loons, red-throated loons, ruddy turnstones, phalaropes and **other shorebirds** feed in offshore leads and other open-water areas in May and June. Some of the birds are found in shore leads or around river mouths but there are no large numbers very far offshore since most of the area is ice-covered until well into July or August.

Summer season

Rasmussen Basin breaks up in the second half of July and usually clears by mid-August. Break-up of James Ross Strait is generally later, clearing in the early days of September. During a difficult summer when NW winds prevail, old drift ice from M'Clintock

Channel and Larsen Sound congests James Ross Strait.

Environment

Arctic foxes den and forage in coastal areas. The dens are occupied through late summer and are reused each year. Sea channels that stay frozen are a major foraging habitat for arctic foxes. Although their use is mostly in fall and winter (mid-October to mid-April), there is some travel and foraging in summer.

Bearded seals are widely dispersed in small numbers.

Ringed seals are found in shoal waters.

Muskoxen and **caribou** are found in small numbers in all coastal areas. Although ice conditions are suitable into July and in some areas into September, muskoxen and caribou are not known to cross the ice in summer.

Brant, other **geese species** and **swans** are found in coastal waters but rarely offshore.

Glaucous gulls, Sabine's gulls, arctic terns and **jaegers** nest in the well-vegetated lowlands and cliffs of King William Island and nearby smaller islands.

Gulls, terns and **jaegers** (non-breeding or post-breeding) are found in marine habitats anywhere in the area.

King eiders and **oldsquaws** are found in the good lowland habitat that characterizes much of Boothia Peninsula and which makes it an especially productive area for nesting.

Ducks find the coastal areas of particular importance for moulting.

King eiders, oldsquaws, Pacific loons, red-throated loons, yellow-billed loons, several species of **shorebirds** and **sandhill cranes** nest in the well-vegetated lowland areas of Adelaide Peninsula, King William Island and nearby small islands.

Moulting ducks are found in groups in some coastal areas, mainly in large ice-free inlets.

Eiders make some use of open offshore waters.

Shore birds (non-breeding or post-breeding) are found in coastal waters anywhere in the area.

Phalaropes may use pelagic habitats but there is little survey data.

Fall season

Rasmussen Basin begins to freeze up in the first week of October with a complete ice cover by mid-month. In James Ross Strait, freeze-up begins in the last week of September, with complete ice cover by the last week of October.

Environment

Arctic foxes may be found foraging in low densities in all coastal areas. In fall and winter (mid-October to mid-April), arctic foxes roam the sea ice searching for food and scavenge on seal carcasses left by polar bears.

Bearded seals are widely dispersed in small numbers.

Ringed seals are found in first-year fast ice in the coastal and offshore areas of Larsen Sound and northern James Ross Strait. They are also found in shoal waters and inner bays of coastal waters around Victoria Island, Roch Basin, Rasmussen Basin and Chantrey Inlet. In Spence Bay they are often disturbed by settlement traffic.

Polar bears, 700 animals of the M'Clintock Channel population, use pack ice areas of north James Ross Strait. They are rare elsewhere.

Grizzly bears have not been seen on the mainland north of Chantrey Inlet nor on the main islands or smaller offshore islands. No ice crossings have been reported.

Caribou may be found in small numbers in all coastal areas.

Muskoxen are found in small numbers in coastal areas. Ice crossings have been recorded in a few areas in mid- to late winter, beginning as early as October.

Geese, **gulls**, **terns**, **jaegers** and **shorebirds** are rare after mid-September.

Eiders may stay as long as there is open water. Marine areas usually freeze-up by mid-October but some areas are open into December.

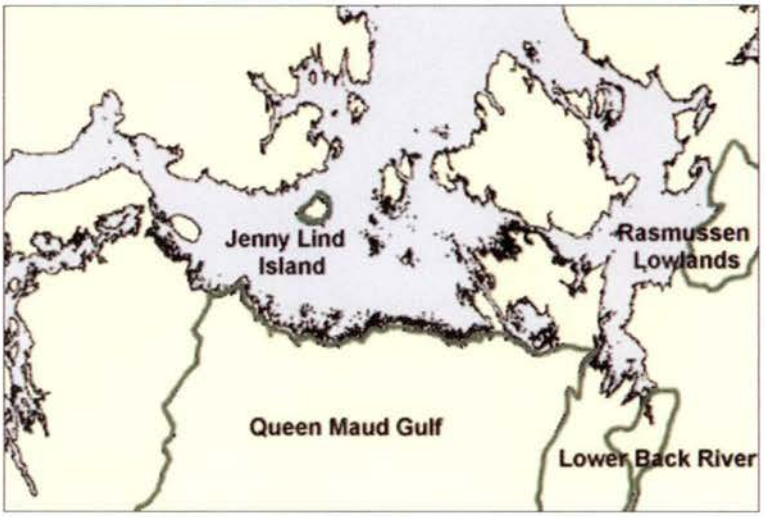


Figure 5-21: Migratory Bird Terrestrial Habitat Sites

Specific Site 2A:

James Ross Strait, St. Roch Basin (West Shore, Cape Felix to Matheson Point; East Shore, Cape Adelaide Regina to Cape Colville)

See Figure 5-21

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter V.

Cape Felix *(69°55′N, 98°05′W)*, the NE entrance point of Victoria Strait, is low but reported to be radar conspicuous.

Matheson Point, the east end of King William Island, is in the western part of Rae Strait.

Cape Adelaide Regina is on west Boothia Peninsula in the NE part of James Ross Strait.

Cape Colville *(68°45′N, 94°37′W)*, in the west approach to **Shepherd Bay**, is a low point. A sand bar and below-water rocks extend 300 feet (91 m) offshore.

Spring season

Break-up in James Ross Strait varies from year to year.

Environment

See Figures 5-11 and 5-18

Hunting, fishing and trapping are mostly along cross-ice travel routes linking Gjoa Haven with Spence Bay and Pelly Bay and adjacent hunting areas. Seals and polar bears are hunted on the ice from mid-April to July and caribou are taken when found. Spence Bay residents use the Josephine and Spence Bay area year-round for arctic char fishing and ringed seal hunting.

Arctic foxes have prime denning habitat in eskers and other sandy areas in the coastal lowlands of the Rasmussen Basin. The dens are occupied from late winter or early spring and are reused each year.

Polar bears with cubs may sometimes be seen on fast ice, spreading out from denning areas in the northern parts of James Ross Strait. A migrant part of the M'Clintock Channel population of 700 bears feed in the northern James Ross Strait area from April to June.

Caribou cross the ice of James Ross Strait. Small numbers cross ice-covered channels here and elsewhere.

Muskoxen range includes parts of the northern shores of James Ross Strait where coastal areas may support small numbers of the animals. The area south of Pasley Bay on Boothia Peninsula and extending into the northern part of James Ross Strait are important post-calving habitat. Muskoxen also make frequent crossings of the ice-covered straits between King William Island and Boothia Peninsula in mid- to late winter.

Tundra swans, snow geese and **Canada geese** have nesting, brood-rearing and moulting habitat in the well-vegetated lowlands along the Boothia coast.

Snow geese congregate around the head of Spence Bay. The Rasmussen Basin lowlands, from Spence Bay to Backhouse Point in Chantrey Inlet, are a **Key Migratory Bird Terrestrial Habitat Area**. They have important habitat for 4,000-6,000 **tundra swans**, 16,000-23,000 **white-fronted geese**, 41,000 **snow geese**, 4,000-7,000 **Canada geese** and some **brant**. The tundra swan and white-fronted goose populations are 4% and 10%, respectively, of the Canadian populations.

Gulls (probably glaucous gulls) have a colony of 25-50 breeding pairs on a cliff near the mouth of Garry River.

King eiders and oldsquaws nest in the good lowland habitat in this part of Boothia Peninsula. This is an especially productive area.

King eiders (30,000-35,000), **oldsquaws** (10,000-15,000) and populations of **Pacific** and **red-throated loons** have important habitat in the Rasmussen Basin lowlands. The king eider population is more than 1% of the Canadian total.

Red phalaropes, **lesser golden plovers**, **black-bellied plovers**, **pectoral**, **white-rumped** and **semipalmated sandpipers**, and **sandhill cranes**, in large numbers, also have critical habitat in these lowlands.

Summer season

Break-up in James Ross Strait varies from year to year but it is usually clear by early September. In a difficult year, when NW winds prevail, old drift ice from M'Clintock Channel and Larsen Sound congests James Ross Strait

Environment

See Figures 5-12 and 5-19

Hunting for seals and waterfowl is mostly along cross-ice/open-water travel routes linking Gjoa Haven with Spence Bay, Pelly Bay, and hunting areas. Caribou are hunted when found. Hunters from Spence Bay travel by boat to camps at Pasley Bay and further north, if ice conditions permit. Ringed seals and bearded seals are taken year-round; belugas and narwhals are hunted in coastal areas in the open-water season. An important hunting area in the Josephine Bay and Spence Bay area is used by Spence Bay residents year-round for Arctic char fishing and ringed seal hunting.

Arctic foxes have prime denning habitat in eskers and other sandy areas in the coastal lowlands of the Rasmussen Basin. The dens are occupied through late summer and are reused each year.

Ringed seals are found in Spence Bay, although settlement traffic often displaces them.

Tundra swans have important habitat in the coastal areas of James Ross Strait and St. Roch Basin. These are part of the 4,000-6,000 that use King William Island and Adelaide Peninsula, including inland areas, for breeding, brood-rearing and moulting.

Geese populations (non-breeding) in the area are 7,000-14,000 snow geese, 5,000-10,000 Canada geese, 500-1,000 white-fronted geese and 750-1,500 brant, with large fluctuations year to year. Moulting geese, mainly from the Rasmussen Basin populations, also use the area.

Gulls (probably glaucous gulls) have a colony of 25-50 breeding pairs on a cliff near the mouth of the Garry River.

King eiders (30,000-35,000), **oldsquaws,** (10,000-15,000) and populations of **Pacific loons** and **red-throated loons** use the Rasmussen Basin lowlands and coastal areas of James Ross Strait and St. Roch Basin as habitat. The king eider population in the Rasmussen Basin is 1% of the Canadian total.

Ducks (moulting) have particularly important habitat in the coastal waters.

Red phalaropes, lesser golden plovers, black-bellied plovers, pectoral, white-rumped and **semipalmated sandpipers, sandhill cranes** and an estimated 500,000 **shorebirds** have critical habitat in the Rasmussen Basin lowlands and adjacent areas, including inland areas.

Fall season

Freeze-up in James Ross Strait begins in the last week of September, with complete ice cover by the last week of October.

Environment

See Figure 5-13

Hunting for seals and waterfowl is mostly along cross-ice/open-water travel routes linking Gjoa Haven with Spence Bay and Pelly Bay and with hunting areas. Caribou are hunted when found. Hunters from Spence Bay travel by boat to summer and fall camps at Pasley Bay and further north if ice conditions permit. Ringed and bearded seals are taken year-round; belugas and narwhals are hunted in coastal areas in the open-water season. An important hunting area in the Josephine Bay and Spence Bay area is used by Spence Bay residents year-round for Arctic char fishing and seal hunting.

Polar bears, some of the M'Clintock Channel population of 700 animals, use pack ice areas of northern James Ross Strait. They are rare elsewhere.

Caribou cross the ice of James Ross Strait. Small numbers may cross ice-covered channels here and possibly elsewhere.

Specific Site 2B:

Rasmussen Basin, Chantrey Inlet (West Shore, Matheson Point to Booth Point to Richardson Point to Back River; East Shore, Cape Colville to Back River)

See Figure 5-21

Refer to Chart 7083 and to Sailing Directions, Arctic Canada, Volume III, Chapter V.

Booth Point *(68°29'N, 96°16'W),* the NE entrance point of Simpson Strait, is a low spit projecting from a stony headland.

Richardson Point is on the south side of Simpson Strait, SSW of Booth Point.

Back River enters Chantrey Inlet from the south.

Spring season

Puddling of the ice surface in Rasmussen Basin begins in mid-June and is extensive before break-up in the second half of July.

Environment

See Figure 5-11

Hunting and trapping cross-ice travel routes link Gjoa Haven with Spence Bay and Pelly Bay and with several adjacent hunting areas. The route south to Chantrey Inlet is used year-round. Simpson Strait is an important hunting area in April to July for hunting ringed seals. Chantrey Inlet is an important hunting and trapping area for residents of Gjoa Haven. Species harvested are caribou, arctic foxes, wolves, wolverines, and ringed seals.

Arctic foxes have prime denning habitat in eskers and other sandy areas in the coastal lowlands of the Rasmussen Basin. The dens are occupied from late winter or early spring and are reused from year to year.

Tundra swans (4,000-6,000), **white-fronted geese** (16,000-23,000), **snow geese** (41,000), **Canada geese** (4,000-7,000) and some **brant** use the Rasmussen Basin lowlands (from Spence Bay to Backhouse Point in Chantrey Inlet) as habitat. These lowlands are a **Key Migratory Bird Terrestrial Habitat Area**. The tundra swan and white-fronted goose populations are 4% and 10%, respectively, of the Canadian totals.

Snow geese have a colony on islands at the mouth of the Inglis River. This colony had more than 5,900 nesting pairs in 1994.

King eiders (30,000-35,000), **oldsquaws** (10,000-15,000) and populations of **Pacific loons** and **red-throated loons** have important habitat in the lowlands. The king eider population in the area is probably more than 1% of the Canadian total.

Red phalaropes, lesser golden plovers, black-bellied plovers, pectoral, white-rumped and **semipalmated sandpipers** and **sandhill cranes** are found here in large numbers

Summer season

Extensive break-up in Rasmussen Basin is in the last half of July. The area usually clears by mid-August.

Environment

See Figure 5-12

Hunting and trapping cross-ice/open-water travel routes link Gjoa Haven with Spence Bay and Pelly Bay and several hunting areas. The route south to Chantrey Inlet is used year-round. The Simpson Strait area is an important hunting area for hunting ringed seals. Chantrey Inlet is an important hunting and trapping area for residents of Gjoa Haven. The main species harvested are caribou, ringed seals, sea ducks and geese.

Arctic foxes have prime denning habitat in the eskers and other sandy areas of the coastal lowlands of the Rasmussen Basin. The dens are occupied through late summer and are reused each year.

Grizzly bears range includes the mainland west of Chantrey Inlet; they are found anywhere along the coast.

Tundra swans (4,000-6,000) that use King William Island and Adelaide Peninsula, including inland areas, for breeding, brood-rearing and moulting also have important habitat in the coastal areas of Rasmussen Basin and Chantrey Inlet.

Geese populations (non-breeding) in the area are 7,000-14,000 snow geese, 5,000-10,000 Canada geese, 500-1,000 white-fronted geese and 750-1,500 brant, with large fluctuations year to year. Moulting geese from the Queen Maud Gulf populations also use the area.

The Rasmussen Basin lowlands are listed as a **Key Migratory Bird Terrestrial Habitat Area** and are important and critical habitat for many bird species:

- **tundra swans** 4,000-6,000, **white-fronted geese** 16,000-23,000, **snow geese** 41,000, **Canada geese** 4,000-7,000 and some **brant**. The tundra swan and white-fronted goose populations are 4% and 10%, respectively, of the Canadian total;
- **Glaucous gulls, Thayer's gulls** and **Sabine's gulls, arctic terns** and **jaegers**;
- **king eiders** 30,000-35,000, **oldsquaws** 10,000-15,000, and populations of **Pacific loons** and **red-throated loons**. The king eider population is more than 1% of the Canadian total. Coastal waters are particular important for moulting ducks;
- **Red phalaropes, lesser golden plovers, black-bellied plovers, pectoral, white-rumped** and **semipalmated sandpipers**, and **sandhill cranes**. Large numbers of **shorebirds** summer throughout the lowlands and particularly in coastal areas.

Fall season

Rasmussen Basin begins to freeze-up in the first week of October, with complete ice cover by the middle of the month.

Environment

See Figure 5-13

Hunting and trapping cross-ice and open-water travel routes link Gjoa Haven with Spence Bay, Pelly Bay and several hunting areas. The route south to Chantrey Inlet is used year-round. The Simpson Strait area is important for hunting ringed seals. Chantrey Inlet is an important hunting and trapping area for residents of Gjoa Haven. The main species is caribou.

Grizzly bears are found along the mainland coast of Chantrey Inlet but not on the main islands or smaller offshore islands. No ice crossings by grizzly bears have been reported.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Specific Adverse Effects and Mitigating Measures:

⇨ Spring

The Rasmussen Basin **Key Migratory Bird Terrestrial Habitat Area** (from Spence Bay to Backhouse Point in Chantrey Inlet) is especially sensitive and should be avoided by ships and aircraft. This coastline area has important habitat for large numbers of waterfowl.

A few caribou cross James Ross Strait. Ships should keep a good lookout for groups of caribou on the ice and avoid crossing in front of them.

Muskoxen often cross the ice-covered straits between King William Island and Boothia Peninsula in mid- to late winter. Some starving muskox may cross the ice-covered channels seeking food. These animals may be weak and particularly susceptible to the additional stresses of aircraft disturbance or icebreaking ship traffic.

Hunting, fishing and trapping is concentrated along major cross-ice travel routes linking Gjoa Haven with Spence Bay and Pelly Bay; these are communities with several adjacent hunting areas. Ships and aircraft should avoid the more important areas along these routes.

Before entering these areas, ships and aircraft should contact the Hunters and Trappers Associations at Gjoa Haven, Spence Bay and Pelly Bay for locations of on-ice hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife. Caribou, for example, are often frightened by low flying aircraft and are prone to injuring themselves on rough ice. Such injuries usually cause death.

Hunting areas of special note:

- the Spence Bay area, heavily used year-round by most Spence Bay residents for arctic char fishing and ringed seal hunting;
- the Simpson Strait area, used from April to July for hunting ringed seals;
- the Chantrey Inlet hunting and trapping area, used by residents of Gjoa Haven.

Seabird colonies are sensitive during the entire spring period. A snow goose colony on islands at the mouth of Inglis River had more than 5,900 nesting pairs in 1994.

Notable colonies of seabirds:

- 200 pairs on a coastal cliff on the west side of Mary Jones Bay;
- 150-325 pairs on mainland coastal cliffs west of Martin Island;
- 150 pairs on coastal cliffs SW of Sheriff Harbour;
- 100 pairs on cliffs along Sagvak Inlet.

Ships should stay at least 1.7 miles away from any identified seabird colonies. Aircraft should keep at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over a colony.

⇨ Summer

The Rasmussen Basin **Key Migratory Bird Terrestrial Habitat Area** (from Spence Bay to Backhouse Point in Chantrey Inlet) is especially sensitive and should be avoided by ships and aircraft in late spring/early summer. This coastline area is important habitat for large numbers of waterfowl.

Hunting, fishing and trapping is concentrated along major travel routes linking Gjoa Haven with Spence Bay, Pelly Bay and several hunting areas. Ships and aircraft should avoid the hunting areas along these routes. Hunters from Spence Bay travel by boat to summer camps at Pasley Bay and further north, if ice conditions permit. Most Spence Bay residents use the Josephine Bay and Spence Bay area year-round for Arctic char fishing and ringed seal hunting. The Simpson Strait area is also used from April to July for hunting ringed seals. Chantrey Inlet is an important hunting and trapping area for residents of Gjoa Haven.

Before entering these areas, ships and aircraft should contact the Hunters and Trappers Associations at Gjoa Haven, Spence Bay and Pelly Bay for locations of hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

Seabird colonies are sensitive during the entire summer period.

Ships should keep at least 1.7 miles from any identified seabird colonies. Aircraft should keep at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet above any colony.

A snow goose colony on islands at the mouth of the Inglis River had more than 5,900 nesting pairs in 1994. There is a colony of 25-50 breeding pairs of gulls (probably glaucous gulls) on a cliff near the mouth of Garry River.

⇨ *Fall*

James Ross Strait is the site of ice crossings by small numbers of caribou. Muskox crossings of ice-covered channels have also been reported. A ship route through these areas cannot totally avoid the caribou and muskox crossing routes or the on-ice travel routes used by hunters.

Ships should keep a good lookout for groups of caribou on the ice at any time and avoid crossing in front of them.

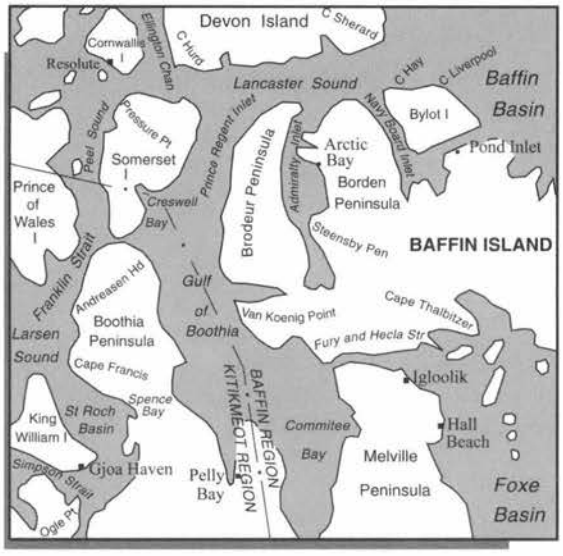
Hunting, fishing and trapping is concentrated along major travel routes linking Gjoa Haven with the Spence Bay and Pelly Bay areas and with several hunting grounds. Before entering these areas, ships and aircraft should contact the Hunters and Trappers Associations at Gjoa Haven, Spence Bay and Pelly Bay for locations of hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas. To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

Hunting areas of special note:

- the Josephine Bay and Spence Bay area, heavily used year-round by Spence Bay residents for arctic char fishing and ringed seal hunting;
- Simpson Strait, used for fall hunting of ringed seals;
- Chantrey Inlet, used by residents of Gjoa Haven for fall hunting and trapping.

The Northwest Passage — East Central Part



General

Refer to Chart 7000 and to Sailing Directions, Arctic Canada, Volume II.

The usual route through the east central part of the Northwest Passage is through Peel Sound and Barrow Strait and Lancaster Sound.

This chapter covers Peel Sound and Barrow Strait. Prince Regent Inlet and Gulf of Boothia are also included.

Caution — Most of the surveys through this route are of a reconnaissance nature.

Biological seasons

Biological seasons in this region do not correspond to the calendar seasons. For the eastern part of the Northwest Passage, biological seasons are defined in Chapter 7.

General Site 1:

Peel Sound and Barrow Strait

Refer to Charts 7575, 7830, and to Sailing Directions, Arctic Canada, Volume III, Chapters IV, V and VI.

Peel Sound *(72°50′N, 96°10′W),* between **Somerset Island** to the east and **Prince of Wales Island** to the west, connects Franklin Strait and Barrow Strait. Its south limit is a line joining Cape Eyre and Leask Point; its north limit is a line joining Lyons Point, on Prince of Wales Island, and Pressure Point, on Somerset Island.

Barrow Strait is 170 miles long from its entrance between **Prince Leopold Island** and Cape Hurd to its border with **Viscount Melville Sound**, which is a line between Cape Berkeley (*Chart 7829*) on Prince of Wales Island and **Cape Cockburn**, the SW end of Bathurst Island.

Cape Clarence, 5.5 miles SSW of Prince Leopold Island, is the NE point of Somerset Island.

Specific Site 1A:

Peel Sound

Refer to Charts 7575, 7830, and to Sailing Directions, Arctic Canada, Volume III, Chapter VI.

Spring season

A solid sheet of ice covers Peel Sound with a smooth-ice thickness of 1.8 to 2.1 m. There are no appreciable currents to help the break-up; clearing is usually a matter of ice melting in place.

Environment

See Figures 6-1, 6-2 and 6-3

Polar bears are relatively concentrated in north Franklin Strait SW of Bellot Strait. Hunters from Resolute travel on the sea ice to hunting areas and outpost camps in Back Bay and Creswell Bay. There are subsistence and sports hunts.

Ringed seals are mainly hunted in coastal areas north of Bellot Strait. Aston Bay is an important hunting area in some years.

Peary caribou, an endangered species, migrate in spring and fall across the sea ice between wintering grounds on Somerset Island and Boothia Peninsula and summering areas on Prince of Wales Island. They also cross the sea ice of Bellot Strait.

The fast ice is sensitive because of the polar bear hunt and because it is crossed by caribou.

Belugas, narwhal and **harp seals** that summer here begin their southward migration when leads open in the fast ice, usually in late July.

Caribou are hunted on Russell Island and on both sides of Peel Sound north of Bellot Strait.

Waterfowl arrive in May and June. They use coastal leads and other open water areas as soon as they can.

Some important areas for waterfowl:

- Aston Bay, oldsquaws and snow geese;
- Back Bay, snow geese and oldsquaws;
- Browne Bay, snow geese and oldsquaws in the inner part of the Bay;
- Browne Bay, a hunting area south of Aston Bay.
- Guillemard Bay, oldsquaws;

- Tasmania Islands, up to 1,000 king eiders in the near-shore areas;
- Young Bay, snow geese.

These areas are sensitive due to a caribou hunt on Prince of Wales Island and Somerset Island.

Summer season

The waterway does not always fully clear.

Environment

See Figure 6-4

Beluga whales (2,000) may summer in the south part. In offshore waters, belugas congregate near pack ice but not in specific areas.

Narwhal (2,000) also summer here.

Harp seals are numerous.

Walrus have not been seen here.

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods and especially in areas where ice stays all summer.

Polar bears are most abundant in bays and fiords where there is ice. In areas with no ice, they move onto the shore.

East side

Oldsquaws and **snow geese** summer in Aston Bay. Snow geese also summer in and around Tasmania Islands. Most leave by early September.

Eider ducks stage in the bay prior to their migration south.

Waterfowl are hunted south of Aston Bay.

Caribou are hunted along the coast of Somerset Island from Bellot Strait northwards.

West side

Black guillemots congregate in the Edgeworth Island/Lyons Point area.

Snow geese and **oldsquaws** summer in Back Bay and the inner part of Browne Bay. Snow geese also summer in Young Bay. Most leave by early September.

Oldsquaws summer in Guillemard Bay. They may still be here in September.

Beluga whales use coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. There are up to 600 beluga whales in Coningham Bay, on the SE side of Prince of Wales Island. They are also hunted in Young Bay.

Narwhal and **beluga whales** are hunted in near-shore waters along the coast of Prince of Wales Island.

Caribou are hunted on Prince of Wales Island.

Fall season

There is sometimes an inflow of old ice into Peel Sound from west Barrow Strait. Freeze-up usually begins in the third week of September. Consolidation of the ice cover is usually complete by the last week of October.

Environment

See Figure 6-5

Most of Peel Sound is sensitive to aircraft. Near-shore areas are sensitive to ships because of the beluga whales and waterfowl. Nearby land areas are sensitive because of caribou hunting and the waterfowl and polar bears along the shore.

Beluga whales (2,000) may move north in early to mid-September. From Peel Sound, they move across Barrow Strait as a broad front.

Narwhal migrate from Peel Sound at a much slower pace than the beluga whales. Narwhal may still be here after the beluga whales have left.

Harp seals leave in early September.

East side

Caribou are hunted along the west coast of Somerset Island from Bellot Strait northwards.

West side

Caribou may be hunted anywhere on the east side of Prince of Wales Island.

Peel Sound and Prince Regent Inlet

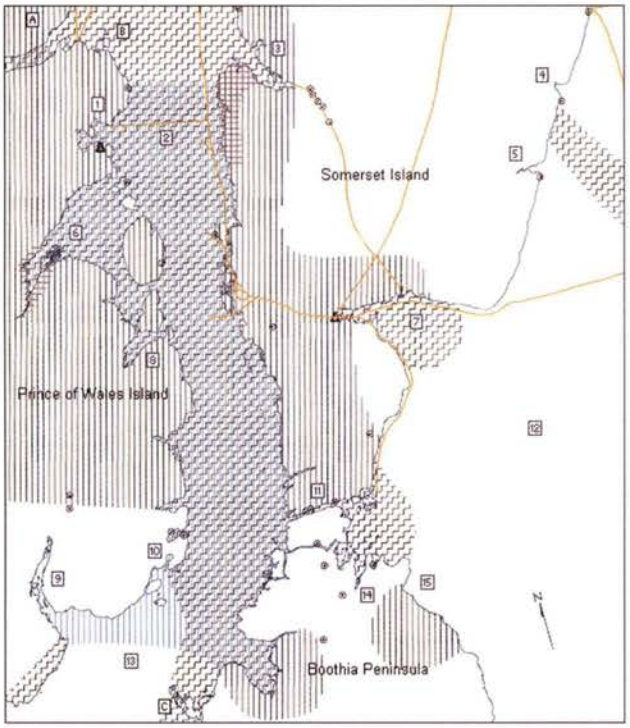


Figure 6-1: Spring Scenario 1

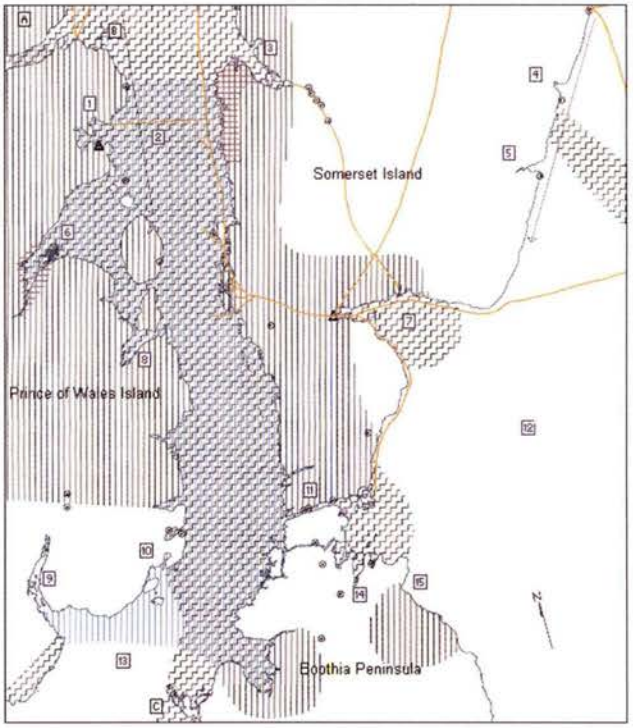


Figure 6-3: Spring Scenario 3

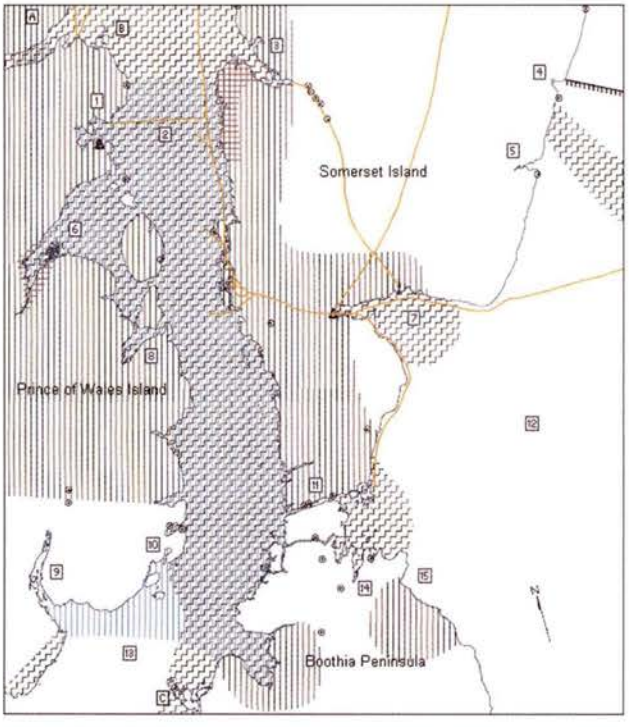


Figure 6-2: Spring Scenario 2

Water Legend

1 Back Bay	6 Browne Bay	11 Bellot Strait
2 Peel Sound	7 Creswell Bay	12 Prince Regent Inlet
3 Aston Bay	8 Young Bay	13 Franklin Strait
4 Elwin Bay	9 Guillemard Bay	14 Brentford Bay
5 Batty Bay	10 Coningham Bay	15 Menchikoff Bay

Land Legend

A Russell Island
B Edgeworth Island
C Tasmania Islands

Travel Routes
Outpost Camps
Bird Colonies
Ice Water Ice Edge

Caribou – Harvest
Caribou – Concentration/ Migration
Waterfowl – Harvest
Polar Bear – Harvest and Areas of Concentration
Beluga/Narwhal – Migratory Route

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Specific adverse effects and mitigating measures:

⇨ Spring

Ships should contact the community of Resolute for locations of hunting parties and on-ice camps. Ships and aircraft should avoid these areas.

Helicopters should avoid the important waterfowl hunting areas and caribou hunting areas.

Caribou may be frightened by low-flying aircraft and injure themselves on rough ice. Injury often causes death.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

⇨ Summer

Hunting activities and the presence of beluga whales make the west coast of Peel Sound more sensitive

Peel Sound and Prince Regent Inlet

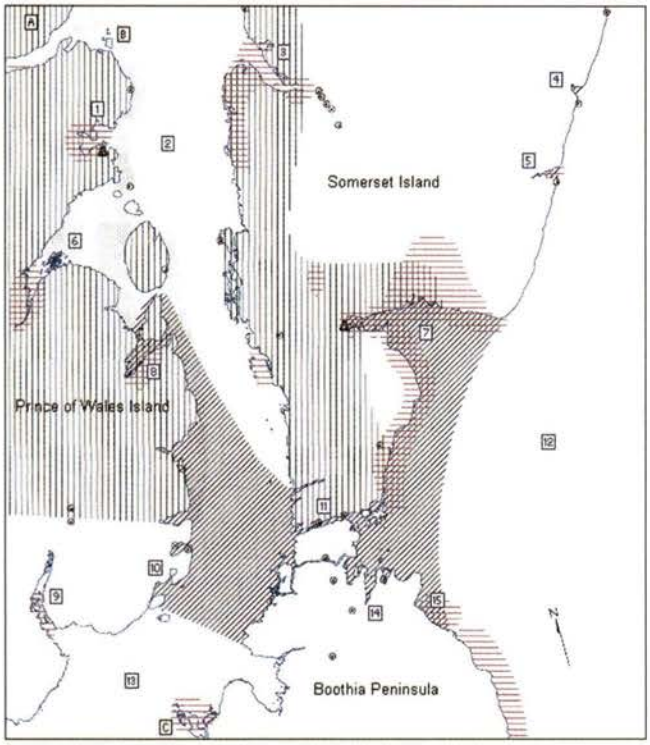


Figure 6-4: Summer Scenario

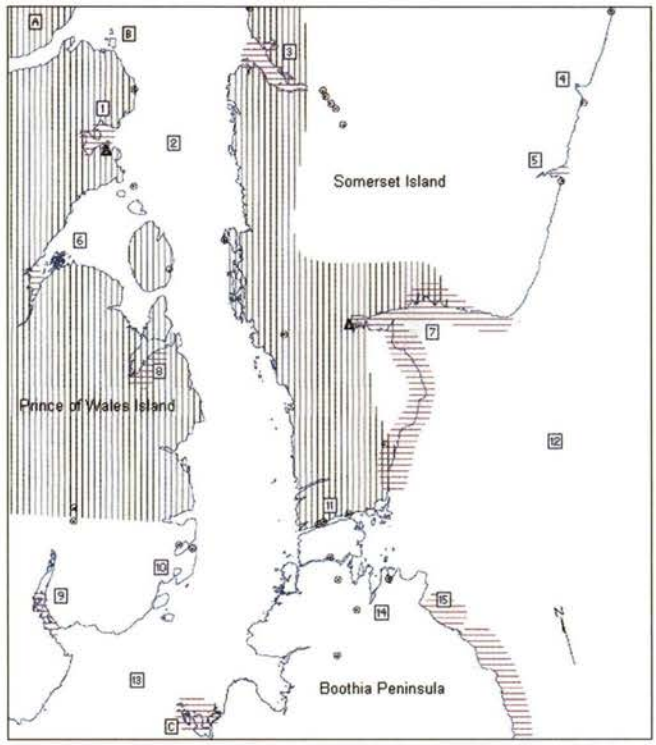


Figure 6-5: Fall Scenario

Water Legend

1 Back Bay
2 Peel Sound
3 Aston Bay
4 Elwin Bay
5 Batty Bay
6 Browne Bay
7 Creswell Bay
8 Young Bay
9 Guillemard Bay
10 Coningham Bay
11 Bellot Strait
12 Prince Regent Inlet
13 Franklin Strait
14 Brentford Bay
15 Menchikoff Bay

Land Legend

A Russell Island
B Edgeworth Island
C Tasmania Islands

Bird Colonies
Outpost Camps
Key Hunting Area
Caribou – Harvest
Beluga – Areas of Concentration
Waterfowl – Harvest and Areas of Concentration

than the east coast. Land areas near Peel Sound are sensitive to aircraft because of the hunt for caribou.

Aircraft should avoid overflights of waterfowl concentrations and especially the waterfowl hunting area south of Aston Bay. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Caribou are hunted over vast areas. If overflights of Prince of Wales Island or Western Somerset Island cannot be avoided, it may be impossible to avoid a hunting area.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

⇨ *Fall*

Aircraft should avoid overflights of waterfowl concentration areas. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Caribou are hunted over vast areas. If overflights of Prince of Wales Island or western Somerset Island are to be made, it may be impossible to avoid a hunting area.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific Site 1B:

Barrow Strait, Western Part

Refer to Chart 7569, 7830, and to Sailing Directions, Arctic Canada, Volume III, Chapter VII.

Bathurst Island and **Cornwallis Island** are on the north side of the west part of the strait; Prince of Wales Island and the north entrance to Peel Sound are on the south side. There are several large islands in the strait.

McDougall Sound lies between Bathurst Island and Cornwallis Island

Spring season

The consolidated ice cover in Barrow Strait begins to fracture at the east end in the last week of June; break-up progresses slowly through the strait by the first week of August.

Environment

See Figures 6-6, 6-7 and 6-8

As the fast ice breaks up, an ice edge often forms across Barrow Strait from west of Resolute to the NW end of Somerset Island.

Ringed seal prime breeding habitat is on near-shore fast ice in areas with irregular coastlines. They may congregate on the fast ice some distance back from the ice edge. They haul out around their breathing holes, which enlarge as the ice melts. There are more of them in the near-shore areas than there are offshore. They are common on the sea ice and are hunted along the north side of Barrow Strait, especially in the area between Griffith Island and Cornwallis Island.

Polar bears are common on the sea ice and are hunted throughout Barrow Strait. The polar bear sports hunts in the Lowther Island/Young Island area and near Garrett Island are especially important. People from Resolute travel across the fast ice to hunting areas in Peel Sound, Russell Island, Bathurst Island and Devon Island and on all land-fast and 10/10-winter ice cover between Cornwallis Island and Somerset Island.

Female polar bears with new-born cubs move from terrestrial denning areas onto the sea ice to hunt seals in late March and early April. They usually congregate in places where ringed seals are pupping.

Polar bears hunt along ice edges and leads in the ice where the seals are easier to catch.

Beluga whales apparently do not congregate along ice edges in Barrow Strait and Wellington Channel. No major concentrations were seen in seven years of observation.

Narwhal and **harp seals** generally do not congregate along the Barrow Strait ice edge but may be found at the south part of the ice edge prior to break-up. These animals are waiting to enter Peel Sound. Narwhal and beluga whales may be hunted along this south part of the ice edge.

Belugas and **narwhal** are found in offshore waters after the ice edge retreats across west Barrow Strait.

Overall, the northern part of the ice edge is not heavily used by marine mammals. However, ringed seals and waterfowl are hunted near the Resolute Passage ice edge between Cornwallis Island and Griffith Island.

Thick-billed murres, black guillemots and **glaucous gulls** congregate at the ice edge.

Black-legged kittiwakes congregate only along the north part of the ice edge in Resolute Passage.

The entire ice edge is sensitive to ships and aircraft. The areas around Russell Island are sensitive to aircraft due to hunting activities.

The sensitive area in central west Barrow Strait during the spring is due to the populations of beluga and narwhal.

North shore: Cornwallis Island, Cape Dungeness to McDougall Sound

Ringed seals and **polar bears** are hunted from the fast ice by hunters from Resolute. There is an especially important hunting area for ringed seals between Cornwallis Island and Griffith Island.

Walrus and **beluga whales** are hunted after break-up near Resolute.

Thick-billed murres, black guillemots, black-legged kittiwakes and **glaucous gulls** congregate along the coast and coastal ice edges.

McDougall Sound

Inuit who work at the Polaris Mine on Little Cornwallis Island may hunt near the island.

Ringed seals and **polar bears** are hunted on the sea ice by residents of Resolute.

Walrus (200 to 300) may overwinter in the Hell Gate/Cardigan Strait area. In early June, these animals move into an area north of Cornwallis Island and then into McDougall Sound, where open water appears early. In late spring, most of the 200-300 walrus may reach this area through Jones Sound and others through Lancaster Sound and Barrow Strait.

Muskox are hunted on Cornwallis Island.

Common eiders use areas in McDougall Sound and north of Cornwallis Island where there is open water.

McDougall Sound is sensitive because of its use by walrus and seabirds and for hunting.

South shore: Somerset Island

Caribou are hunted west of Garnier Bay.

King eider and **common eider** (8,000) use near-shore areas along the north coast of Somerset Island from Cape Clarence to west of Cunningham Inlet as soon as there is open water. Use of these areas and others along the west coast of Somerset Island varies; not all areas are used every year.

Thick-billed murres and **black-legged kittiwakes** congregate in near-shore waters from east of Cunningham Inlet west to the ice edge when it is at its westernmost extent.

The north shore of Somerset Island is sensitive to aircraft. Garnier Bay is sensitive to ships.

Summer season

Break-up progresses slowly westwards through the strait by the first week of August.

Environment

See Figure 6-9

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods and especially in areas where ice stays all summer.

Polar bears are most abundant in bays and fiords where ice stays. In areas with no ice, they move onto the shore.

Beluga whales (3,000) are found in the offshore and coastal waters of Barrow Strait in July and August, especially along the north shore of Somerset Island. There are also many of them in the bays and estuaries on the north shore of Somerset Island and the south

Western Barrow Strait and Wellington Channel

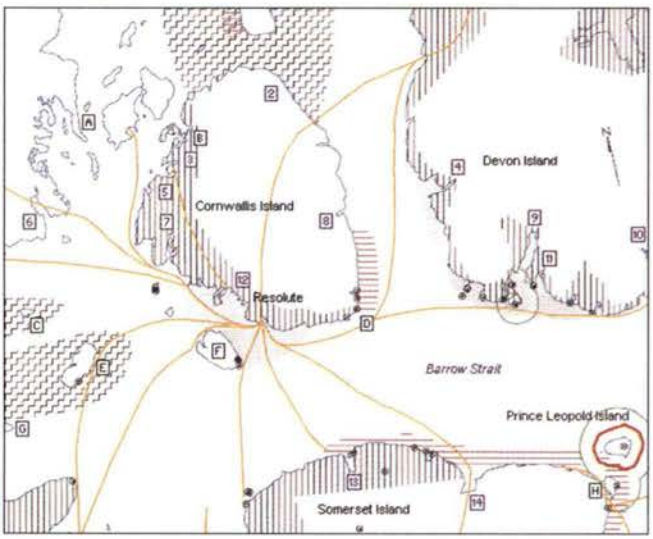


Figure 6-6: Spring Scenario 1

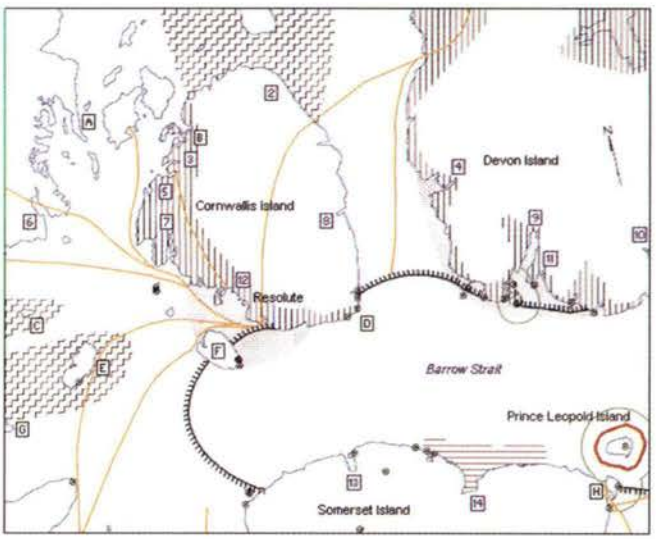


Figure 6-8: Spring Scenario 3

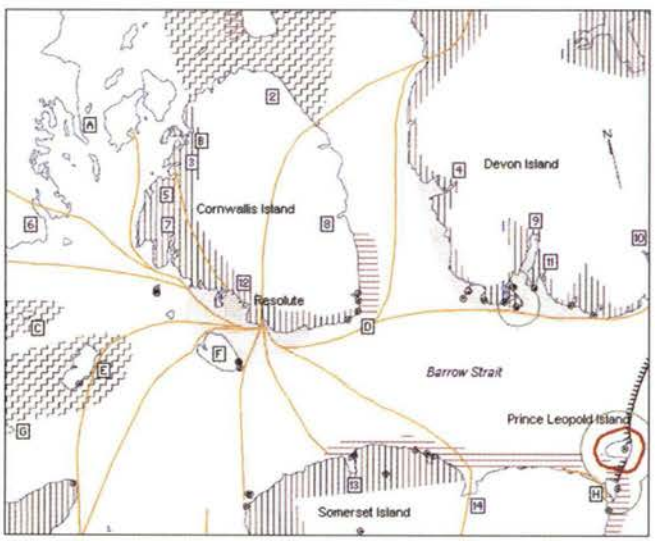
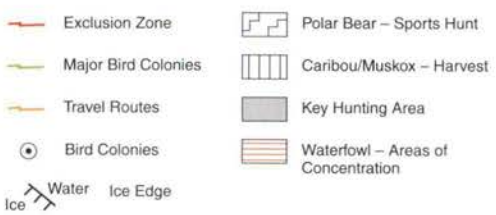


Figure 6-7: Spring Scenario 2



Water Legend

1 Goodsir Inlet	8 Read Bay
2 Abandon Bay	9 Radstock Bay
3 Midshipman Bay	10 Maxwell Bay
4 Griffin Inlet	11 Kearney Cove
5 Graham Bay	12 Allen Bay
6 Freemans Cove	13 Cunningham Inlet
7 Pioneer Bay	14 Garnier Bay

Land Legend

A Brooman Point	E Lowther Island
B Marshall Peninsula	F Griffith Island
C Garrett Island	G Young Island
D Cape Dungeness	H Cape Clarence

Western Barrow Strait and Wellington Channel

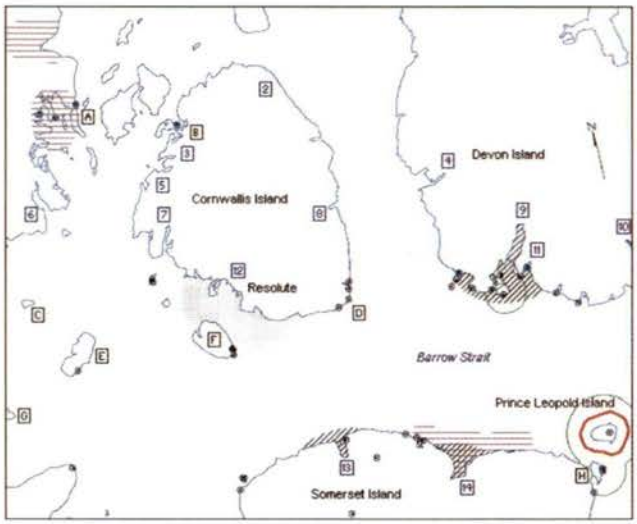


Figure 6-9: Summer Scenario

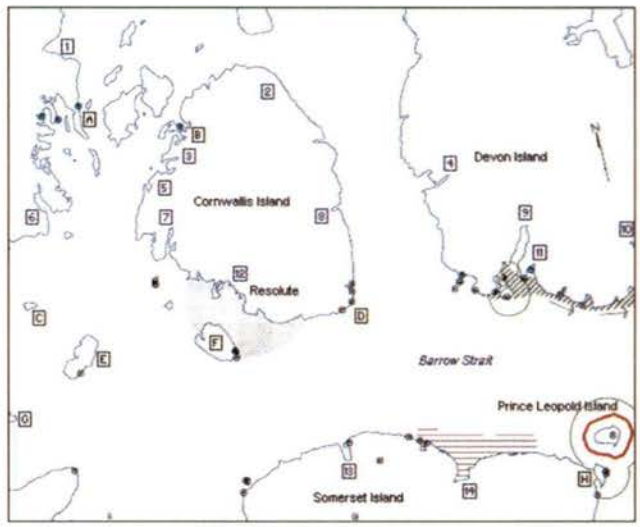


Figure 6-10: Fall Scenario

Land Legend

- A Brooman Point
- B Marshall Peninsula
- C Garrett Island
- D Cape Dungeness
- E Lowther Island
- F Griffith Island
- G Young Island
- H Cape Clarence

Water Legend

- 1 Goodsir Inlet
- 2 Abandon Bay
- 3 Midshipman Bay
- 4 Griffin Inlet
- 5 Graham Bay
- 6 Freemans Cove
- 7 Pioneer Bay
- 8 Read Bay
- 9 Radstock Bay
- 10 Maxwell Bay
- 11 Kearney Cove
- 12 Allen Bay
- 13 Cunningham Inlet
- 14 Garnier Bay

- Exclusion Zone
- Major Bird Colonies
- Travel Routes
- Bird Colonies
- Walrus Haul-Out Sites
- Beluga – Areas of Concentration
- Key Hunting Area
- Waterfowl – Areas of Concentration
- Beluga Migration

shore of Devon Island. They do not congregate in specific areas in offshore waters but are often found near pack ice.

Narwhal (1,000) may summer in the offshore waters of Barrow Strait near pack ice.

Bowhead whales also summer in Barrow Strait but apparently do not summer in the nearby waterways of Wellington Channel, McDougall Sound or Peel Sound.

Harp seals (2,500) are found in Barrow Strait in late July; their numbers decline in August.

Black guillemots and **thick-billed murres** congregate between Young Island and Lowther Island.

Arctic terns are found in breeding concentrations on Garret Island.

Black-legged kittiwakes congregate off Browne Island.

Residents of Resolute hunt and fish in the near-shore waters of Barrow Strait and along the south coast of Cornwallis Island.

Barrow Strait and the entrance to Prince Regent Inlet are sensitive due to the waterfowl and the hunting activities. This part of Barrow Strait is also sensitive because of the large numbers of marine mammals.

The coastal areas of Barrow Strait are more sensitive than its offshore waters. Animals in offshore waters are widely dispersed but they congregate in near-shore waters. The least sensitive route through Barrow Strait is through its offshore waters, keeping at least 20 miles off the coasts of Somerset Island and Cornwallis Island.

North shore: Cornwallis Island, Cape Dungeness to McDougall Sound

Inuit from Resolute hunt marine mammals in near-shore waters near the community. Marine areas between Cape Dungeness and McDougall Sound out to Griffith Island are major summer hunting areas.

Ringed seals, bearded seals, walrus and **beluga whales** are hunted in open water off the south coast of Cornwallis Island. Bearded seals are also hunted in Allen Bay.

Beluga whales are hunted along the south coast of Cornwallis Island, in Allen Bay and eastwards, in summer and fall. About 20 to 30 whales are harvested each year.

Residents of Resolute fish for char along the coast from SE Cornwallis Island to the west side of Allen Bay and in Pioneer Bay.

Black-legged kittiwakes congregate in Allen Bay.

Black guillemots congregate in near-shore waters of the north coast of Griffith Island.

McDougall Sound

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods and especially in areas where ice stays all summer.

Harp seals are found throughout this area.

Walrus (100) and **waterfowl** summer here.

McDougall Sound is sensitive to ships and aircraft.

McDougall Sound, east coast

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They haul out at traditional sites on land, usually near shallow areas where they can feed on the bottom. Some of them will feed in the water while others stay on shore. There is a walrus haul-out on the Marshall Peninsula of Cornwallis Island.

Arctic terns have a breeding colony on the NW coast of Cornwallis Island.

Arctic char are fished between Graham Bay and Midshipman Bay.

McDougall Sound, west coast

Walrus have three haul-out sites on and near Brooman Point.

Oldsquaws in large numbers summer in the bay between Brooman Peninsula and mainland Bathurst Island.

Arctic terns have a breeding colony on the east shore of Brooman Point.

King eiders breed on land near Goodsir Inlet on the east coast of Bathurst Island.

Arctic char are fished in Freemans Cove and just west of Brooman Point.

Little Cornwallis Island

Inuit who work at the Polaris Mine on Little Cornwallis Island may hunt and fish for char near the island.

Arctic terns have a breeding colony on the NW coast of Little Cornwallis Island.

South shore: Somerset Island

Many seabirds, waterfowl and beluga whales summer along the north shore of Somerset Island. This coast is sensitive to ships and aircraft.

Limestone Island to Cunningham Inlet

Beluga whales are found along the coast and in offshore waters when not in the bays to the east.

Black-legged kittiwakes and **black guillemots** congregate in near-shore areas along this coast.

Cunningham Inlet to Garnier Bay

Beluga whales use coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. Several hundred to several thousand beluga whales use the bays on the north shore of Somerset Island in late July and August. Use of these bays varies from year to year. About 1,000 beluga whales may use Garnier Bay in late July and August. Up to 1,750 may use Cunningham Inlet and 300 may use the small bay between Cunningham Inlet and Garnier Bay. During times of low water, when belugas are not in the bays, they are found along the coast and in offshore waters.

Oldsquaws (2,400) stage and moult in Garnier Bay in late July to mid-August.

Eiders (13,000) stage here before migrating south.

Black guillemots congregate in Garnier Bay and in near-shore waters along the coast on either side of the bay.

Snow geese also summer here. Most have migrated south by the end of summer.

Black-legged kittiwakes congregate in the small bay on the shoreline between Cunningham Inlet and Garnier Bay.

Garnier Bay is sensitive to ships and aircraft because there are large numbers of beluga whales and waterfowl.

Fall season

New ice begins in the west end of Barrow Strait in the second week of September and spreads to the east end by early October. The west end usually consolidates in the third week of October and the east end late in November.

Environment

See Figure 6-10

The offshore waters of west Barrow Strait are sensitive because of the migrating beluga whales and narwhal.

Beluga whales leave their summering areas and begin their migration in early to mid-September. Their outbound migration begins at a rapid pace along a broad front.

Narwhal also leave in September but at a much slower pace than beluga whales; they disperse in open water and stay there as long as ice conditions permit. They are still here after the belugas have left.

Harp seals may migrate out of Barrow Strait in August and most leave by late August.

North shore: Cornwallis Island

Bearded seals, walrus and **beluga whales** are hunted in the waters along the south coast of Cornwallis Island by residents of Resolute.

The north shore of west Barrow Strait is sensitive to ships and aircraft.

McDougall Sound

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They haul out at traditional sites on land, usually near shallow areas where they can feed on the bottom. Some of them will feed in the water while others stay on shore. Haul-outs may be used until mid-September. The outbound migration may be in October.

There is a walrus haul-out in Kearney Cove, east of Radstock Bay. Some of the walrus that summer in McDougall Sound migrate to wintering areas in the Hell Gate, Cardigan Strait and Penny Strait areas where there is open water all winter. Others leave through Lancaster Sound or Jones Sound.

Nearby land areas are medium in sensitivity to aircraft because of the waterfowl.

Inuit who work at the Polaris Mine on Little Cornwallis Island may hunt near the island. This area is medium in sensitivity to aircraft because of the waterfowl.

South shore: Somerset Island

The south shore of Barrow Strait is medium in sensitivity because of migrating narwhal and beluga whales and large numbers of waterfowl.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet above a colony.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific adverse effects and mitigating measures:

⇨ Spring

Because of hunting activities, the area between Cornwallis Island and Griffith Island is very sensitive during the fast ice period and when there is an ice edge. A route south of Griffith Island though the centre of Barrow Strait is much less sensitive than a route north of Griffith Island. A route close NW of Somerset Island is very sensitive when the ice edge is in place.

Mariners should contact the community of Resolute for locations of hunting parties and on-ice camps. Ships and aircraft should avoid these areas.

The use of ice edges by whales is unpredictable. If whales congregate at ice edges, people from Resolute may hunt them.

Real-time ice maps help to locate the ice edge. Speed should be reduced and other measures taken to reduce noise 40 miles from the ice edge.

If an area within 40 miles of the ice edge is to be approached and/or if the ice edge is to be crossed, contact should be made with Resolute for the locations of hunting camps.

Ships should not loiter at the ice edge.

Precautions should be taken when approaching the south part of the west Barrow Strait ice edge near Peel Sound.

Helicopters should avoid the important caribou and muskox hunting areas and the areas used for polar bear sports hunts.

⇨ Summer

Seabird colonies are sensitive for the entire summer period.

Ships should avoid an area within 10 and preferably 20 miles off the north coast of Somerset Island. If passage is to be made within 20 miles of the coast, speed should be reduced and other measures taken to reduce noise.

Aircraft overflights within 20 miles of the coast should be at an altitude of not less than 2,000 feet. The south coast of Cornwallis Island is equally sensitive because of hunting; ships should take appropriate mitigating measures within an area of 10 and preferably 20 miles offshore.

Aircraft should avoid overflights of bird concentrations around Garnier Bay. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

⇨ Fall

Seabird colonies are sensitive as long as they are occupied.

Aircraft should avoid overflights of bird concentrations. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Specific Site 1C:

Wellington Channel

Refer to Chart 7569 and to Sailing Directions, Arctic Canada, Volume III, Chapter VIII.

Wellington Channel *(74°50′N, 93°00′W),* between **Devon Island** and **Cornwallis Island**, is entered from Barrow Strait. The channel is 95 miles long and 16 miles wide.

Spring season

A solid sheet of first-year ice covers Wellington Channel. Fracturing of the consolidated ice cover usually begins in the second week of July. The channel is mostly open by the fourth week of August.

Environment

See Figures 6-6, 6-7 and 6-8

Ringed seals and **polar bears** are hunted from the fast ice in Wellington Channel. There is an important sports hunt for polar bears north of Cornwallis Island.

After the main ice edge in the Northwest Passage has retreated to west Barrow Strait, there may be an ice edge in Wellington Channel. Marine mammals do not congregate at this ice edge.

Thick-billed murres, black guillemots and **glaucous gulls** are found in large numbers near the ice edge.

Common eiders (3,000) are up to 2 miles from the ice edge.

Ringed seals and **polar bears** are hunted in fast ice areas near the SW corner of Devon Island from Radstock Bay to Griffin Inlet; this is an important hunting area.

Eiders (1,000) use near-shore waters on the SE coast of Cornwallis Island as soon as there is open water. The birds are not here every year.

The ice edge is sensitive to ships and aircraft. All of Wellington Channel is sensitive to aircraft due to wildlife and hunting activities.

Summer season

There is open water throughout the channel by the fourth week of August.

Environment

See Figure 6-9

Hunters from Resolute hunt seals and walrus in Wellington channel.

Harp seals are found here all summer.

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods and especially in areas where ice stays all summer.

Polar bears are most abundant in bays and fiords where there is ice. In areas with no ice, they move onto the shore.

Arctic char are fished on the east coast of Cornwallis Island at several places between Read Bay and Abandon Bay.

Fall season

See Figure 6-10

No specific information is available.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific adverse effects and mitigating measures:

⇨ *Spring*

Ships and aircraft should avoid the key hunting areas in the near-shore waters of the SW corner of Devon Island.

Ships should contact Resolute for the locations of hunting parties on the fast ice. Ships and helicopters should avoid any identified areas.

Helicopters should avoid the important muskox/caribou hunting areas.

⇨ *Summer and fall*

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

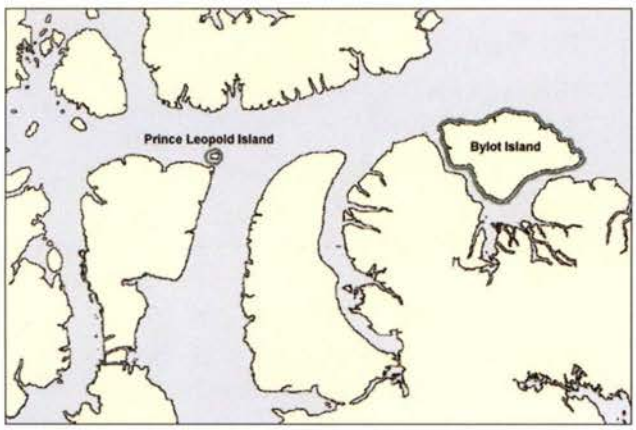


Figure 6-11: Migratory Bird Sanctuaries

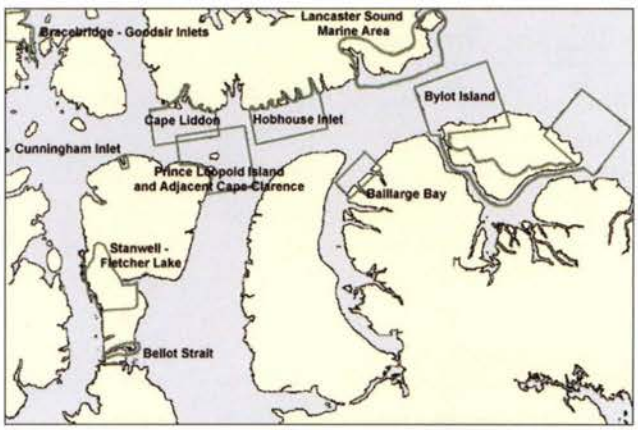


Figure 6-12: International Biological Programme Sites

Specific Site 1D:

Barrow Strait, Eastern Part

See Figures 6-11 and 6-12

Refer to Chart 7569 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Sailing Directions, Arctic Canada, Volume I gives information on ice conditions.

The seabird colony at **Prince Leopold Island** is the largest breeding colony in the region and one of the largest in North America. More than 180,000 pairs of birds nest here. This is a **Migratory Bird Sanctuary** and an **International Biological Programme Site**. Ships and aircraft must keep well clear.

The area is high sensitivity from early June to late October.

Spring season

Environment

See Figures 6-13, 6-14 and 6-15

Seals and **polar bears** are common on the land-fast sea ice in the eastern part of Barrow Strait.

Ringed seals are common in all areas with fast ice but there are more of them in near-shore areas with irregular coastlines than there are offshore. They haul out on the ice near their enlarged breathing holes.

Female polar bears with new-born cubs move from terrestrial denning areas onto the sea ice to hunt seals in late March and early April. They usually congregate where ringed seals are pupping. Polar bears hunt along ice edges and leads in the ice where the seals are easier to catch. Inuit from Resolute travel great distances on the ice to hunt polar bears and ringed seals

There is often an ice edge between Maxwell Bay and the NE corner of Somerset Island.

Narwhal that summer further to the west would be delayed by the ice edge but do not appear to congregate here as they do at the Lancaster Sound ice edge. Narwhal are widely dispersed in the pack ice of Barrow Strait and western Lancaster Sound when the ice edge breaks-up and allows passage.

Beluga whales and **harp seals** do not congregate at this ice edge.

Ringed seals may retreat from the ice edge and congregate on the fast ice behind it.

Thick-billed murres, black guillemots, black-legged kittiwakes and **northern fulmars** congregate close to this ice edge.

This ice edge is sensitive to aircraft but not to ships as there are large numbers of seabirds but not many marine mammals.

Polar bears congregate at the SE corner of Devon Island when there is fast ice; this is an important hunting area for people from Resolute. After the ice edge recedes westward, walrus and large numbers of seabirds use the area. It is very sensitive to ships and aircraft.

Polar bears congregate in some bays along the south shore of Devon Island where ice stays when the ice edge recedes from Lancaster Sound and Barrow Strait. They also congregate in Radstock Bay and Maxwell Bay and adjacent coastal ice edges. When fast ice links Cornwallis Island and Devon Island, there is an important hunt for polar bears in Maxwell Bay, Radstock Bay and along the coast between Maxwell Bay and Griffin Inlet.

Walrus (100) may congregate along coastal ice edges after the main ice edge retreats from eastern Barrow Strait.

Muskox and **caribou** are hunted on west Devon Island in spring. Inuit from Resolute travel on the sea ice of Barrow Strait and Wellington Channel and along the south coast of Devon Island to reach these hunting areas.

Eider ducks, northern fulmars, thick-billed murres, black-legged kittiwakes, black guillemots and **glaucous gulls** congregate along the shore when the ice edge retreats to the west of Devon Island.

Northern fulmars (10,000 pairs) have a major seabird colony at Cape Liddon, on the west side of the entrance to Radstock Bay. They arrive in late April but leave prior to egg laying and are virtually absent in late May and early June; they return in large numbers in early to mid-June.

South shore:
Somerset Island, Cape Clarence

Black guillemots have a colony here (200 pairs). The colony is sensitive from May through fall. After break-up they congregate in the water around the colony.

Walrus may be hunted in the Cape Clarence area by people from Resolute in late spring when the ice edge is in east Barrow Strait.

Prince Leopold Island.

Thick-billed murres (180,000 pairs), **northern fulmars** and **black-legged kittiwakes** nest here. The fulmars arrive in late April but leave prior to egg laying and are virtually absent in late May and early June; they return in large numbers in early to mid-June. The murres arrive in mid-May. The kittiwakes begin arriving in late May.

Thick-billed murres, northern fulmars and **black-legged kittiwakes** congregate in the water around the colony after ice break-up.

The area around Prince Leopold Island is sensitive to ships and aircraft and must be avoided.

Summer season

Environment

See Figure 6-16

Beluga whales (3,000) are found in coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. Beluga whales use some of the bays and estuaries on the north shore of Somerset Island and the south shore of Devon Island. They do not congregate in specific areas but are often near pack ice. About 30 to 80 of them may use Radstock Bay and Kearney Cove.

Narwhal (1,000) may summer near pack ice in the offshore waters of Barrow Strait.

Bowhead whales also summer here

Harp seals (2,500) are found in Barrow Strait in late July; numbers decline in August.

Eastern Barrow Strait

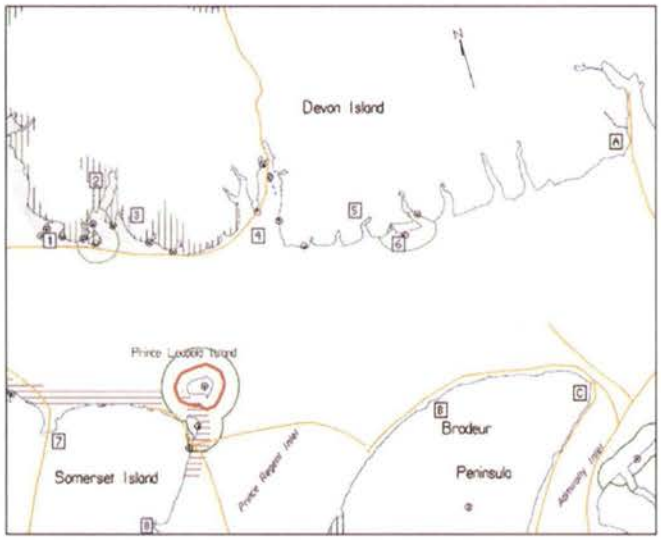


Figure 6-13: Spring Scenario 1

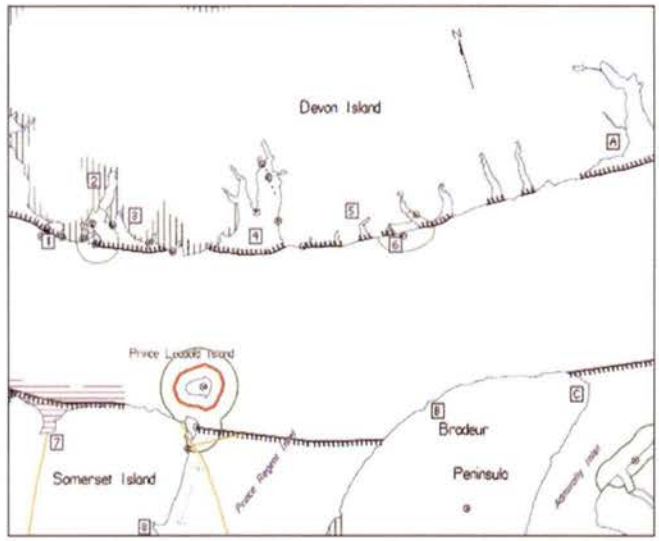


Figure 6-15: Spring Scenario 3

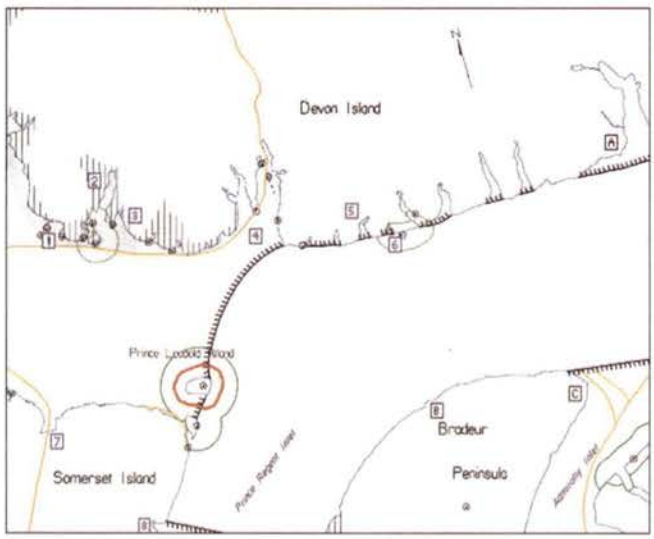
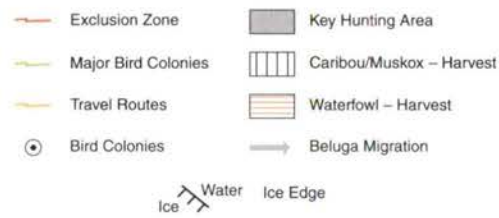


Figure 6-14: Spring Scenario 2



Land Legend

- A Cape Home
- B Cape York
- C Cape Crauford

Water Legend

- 1 Union Bay
- 2 Radstock Bay
- 3 Kearney Cove
- 4 Maxwell Bay
- 5 Blanley Bay
- 6 Hobhouse Inlet
- 7 Garnier Bay
- 8 Elwin Bay

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods, and especially in areas where ice stays all summer.

Polar bears are most abundant in bays and fiords where there is ice. In areas with no ice, they move onto the shore.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional sites on land, usually near shallow areas where they can feed on the bottom. Some of them will feed while others stay on shore. Haul-outs may be used until mid-September. There are three haul-outs near the SW corner of Devon Island: on the east shore of inner Maxwell Bay; in Kearney Cove; and in Union Bay. These are used by 200 animals. On the south shore, there is a haul-out at Cape Clarence.

Thick-billed murres (180,000 pairs), **northern fulmars**, and **black-legged kittiwakes** nest on Prince Leopold Island and congregate offshore near the colony.

Black-legged kittiwakes and **thick-billed murres** also congregate in near-shore waters between Cape Clarence and Garnier Bay.

Black guillemots have a colony at Cape Clarence (200 pairs). They are also found in near-shore waters close to the colony.

Thick-billed murres and **black guillemots** also congregate on the north shore between Maxwell Bay and Radstock Bay.

Northern fulmars (10,000 pairs) have a major seabird colony at Cape Liddon, on the west side of the entrance to Radstock Bay. The fulmars congregate in marine areas near the colony.

Black-legged kittiwakes congregate on each side of Radstock Bay and west of Union Bay.

Thick-billed murres congregate in Radstock Bay and between Radstock Bay and Union Bay and in Union Bay.

Black guillemots congregate between Radstock Bay and Union Bay and in Union Bay.

Fall season

Environment

See Figure 6-17

The sensitive areas in the offshore waters of Barrow Strait, Prince Regent Inlet and west Lancaster Sound are due to the outbound migrating beluga whales, narwhal, harp seals and bowhead whales.

Beluga whales from Prince Regent Inlet, West Barrow Strait and Peel Sound migrate along a broad front across Barrow Strait and continue close to the north shore.

Narwhal leave in September. Their outward migration is at a much slower pace than that of beluga whales. During their fall migration, they disperse in open water and stay there as long as ice conditions permit. They are still here after the belugas have left.

Harp seals migrate out of Barrow Strait in August; most leave by the end of the month.

South shore: Garnier Bay

Eiders (13,000) stage here before migrating south. They may stay until late October.

Snow geese also summer here. Most have begun their southern migration by early September.

Cape Clarence

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They haul out at traditional sites on land, usually near shallow areas where they can feed on the bottom. Some of them will feed in the water while others stay on shore. Haul-outs may be used until mid-September. The outbound migration may be in October. There may be a walrus haul-out at Cape Clarence.

Black guillemots have a colony here (200 pairs). They rear their young until early September and leave by early November.

Prince Leopold Island

Thick-billed murres rear their young until early September and leave by mid- to late September. The young are flightless and plunge from the cliffs into the water. Accompanied by the adult males, they begin their outbound migration by swimming through Barrow Strait and Lancaster Sound.

Black-legged kittiwakes rear their young until mid-September and leave by early to mid-October.

Fulmars breed until mid-October and leave by late October.

This area is high sensitivity until late October.

Eastern Barrow Strait

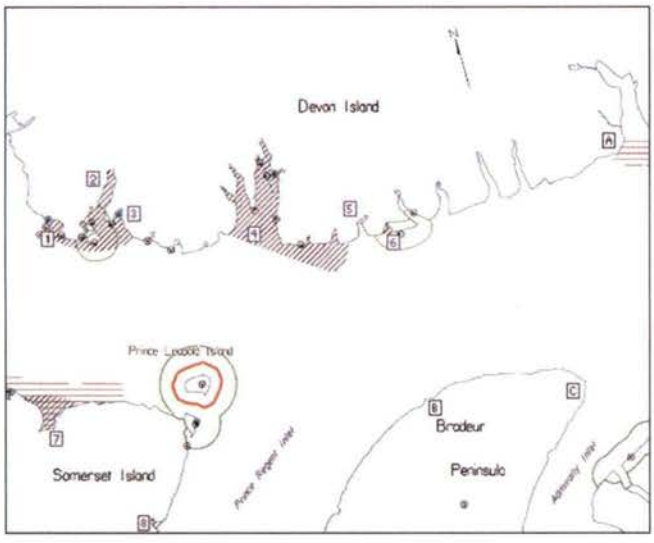


Figure 6-16: Summer Scenario

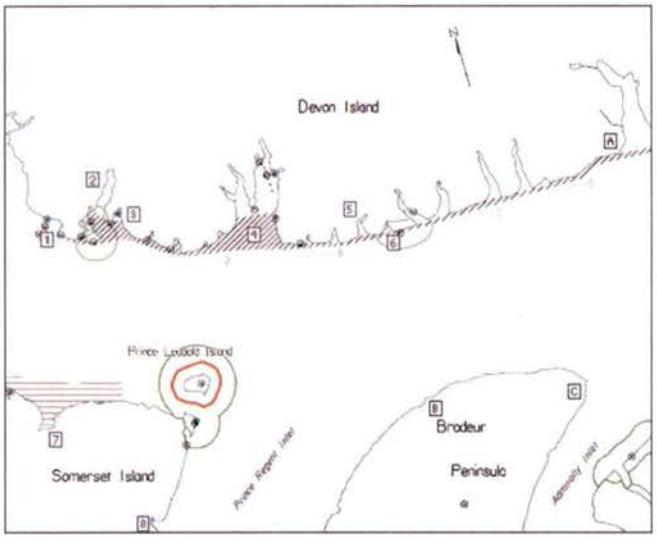


Figure 6-17: Fall Scenario

Land Legend

- A Cape Home
- B Cape York
- C Cape Crauford

Water Legend

- 1 Union Bay
- 2 Radstock Bay
- 3 Kearney Cove
- 4 Maxwell Bay
- 5 Blanley Bay
- 6 Hobhouse Inlet
- 7 Garnier Bay
- 8 Elwin Bay

- Exclusion Zone
- Major Bird Colonies
- Travel Routes
- Beluga – Areas of Concentration
- Waterfowl – Areas of Concentration
- Beluga Migration
- Bird Colonies
- Walrus Haul-Out Sites

North shore: Beechy Island to Maxwell Bay

This area has a relatively high sensitivity to ships because of migrating beluga whales and narwhal, walrus haul out sites and a seabird colony.

Beluga whales from Prince Regent Inlet, Peel Sound and Barrow Strait migrate from summering areas around Somerset Island along a broad front in Barrow Strait and then close to shore along the south coast of Devon Island. The outbound migration is over a short period of time and most of the animals are within 400 m of shore.

Radstock Bay, Union Bay

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They haul out at traditional sites on land, usually near shallow areas where they can feed on the bottom. Some of them will feed in the water while others stay on shore. Haul-outs may be used until mid-September. The outbound migration may be in October. There are three haul-outs near the SW corner of Devon Island: on the east shore of inner Maxwell Bay; in Kearney Cove; and in Union Bay.

Northern fulmars (10,000 pairs) have a colony at Cape Liddon, on the west side of the entrance to Radstock Bay. The breeding season extends to mid-October; they leave by late October.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet above a colony.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific adverse effects and mitigating measures:

⇨ Spring

Ice edge

Marine mammals are not known to congregate at the Maxwell Bay/Somerset Island ice edge. No special precautions need be taken when crossing this ice edge. If new observations indicate that it is a possibility, speed should be reduced and other measures taken to reduce noise 40 miles from the ice edge.

Seabird colonies are sensitive for the entire spring season.

Ships should contact Resolute for the location of hunting parties on the fast ice. Ships and helicopters should avoid these areas. The key hunting area in near-shore waters of the SE corner of Devon Island should be avoided. The coastal ice edges are medium in sensitivity as they are important habitat for polar bears and walrus; they should be avoided.

Helicopters should avoid the key marine hunting area and the muskox/caribou hunting areas. The coastal ice edges are important habitat for polar bears and walrus; they should be avoided.

⇨ Summer

Seabird colonies are sensitive for the entire summer season.

Ships should avoid the area between Prince Leopold Island and Cape Clarence and use a route that passes north and east of Prince Leopold Island.

Aircraft should avoid overflights of bird concentrations in the area around Radstock Bay and between Radstock Bay and Union Bay. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained. Ships normally cause little disturbance to birds in the water.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

⇨ Fall

Seabird colonies are sensitive as long as they are occupied.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Migratory marine mammals use the north coast of Barrow Strait; ships should stay 10 miles offshore.

General Site 2:

Prince Regent Inlet, Gulf of Boothia

Refer to Charts 7502, 7503, and to Sailing Directions, Arctic Canada, Volume III, Chapters IV, V and VI.

Prince Regent Inlet, Gulf of Boothia and **Committee Bay** form an inlet that extends more than 400 miles from Lancaster Sound south to Rae Isthmus, which is at the base of Melville Peninsula.

The boundary between Prince Regent Inlet and the Gulf of Boothia is a line from **Possession Point**, at the SE end of Somerset Island, to **Cape Kater**, on Brodeur Peninsula.

The boundary between Gulf of Boothia and Committee Bay is a line from **Cape Chapman**, at the north end of Simpson Peninsula, to **Cape Miles**, on Melville Peninsula.

Specific Site 2A:

Prince Regent Inlet

Refer to Charts 7502, 7503, and to Sailing Directions, Arctic Canada, Volume III, Chapters IV, V and VI.

Sailing Directions, Arctic Canada, Volume I gives information on ice conditions.

Spring season

Environment

See Figures 6-1, 6-2, 6-3, 6-18, 6-19 and 6-20

Ringed seals and **polar bears** are common on land-fast sea ice. Prime breeding habitat for ringed seals is on near-shore fast ice in areas with irregular coastlines. There are more ringed seals in these near-shore areas than offshore. Ringed seals are hunted almost anywhere in Prince Regent Inlet.

Female polar bears with new-born cubs move in late March and early April from terrestrial denning areas onto the sea ice to hunt seals. They usually congregate in places where ringed seals are pupping. Polar bears hunt along ice edges and leads in the ice where seals are easier to catch. They congregate on the ice in an area SE of Bellot Strait.

People from Arctic Bay hunt polar bears on the sea ice along the west coast of Brodeur Peninsula and across Prince Regent Inlet to Somerset Island. People from the outpost camp in Creswell Bay travel across the sea ice to Bellot Strait; people from Arctic Bay cross Prince Regent Inlet ice to Somerset Island. Overall, Prince Regent Inlet is very low in sensitivity to ships and aircraft when there is ice cover.

Beluga whales and **narwhal** begin their southward migration into Prince Regent Inlet when leads open up in the fast ice along the east coast of Somerset Island. This is usually in early July.

Cape Clarence to Creswell Bay

Ringed seals and **polar bears** along the east shore of Somerset Island are hunted from the outpost camp in Creswell Bay.

Polar bears are hunted on the sea ice in an area between Batty Bay and Elwin Bay. This is an extension of Arctic Bay's polar bear hunting area.

Prince Regent Inlet and Arctic Bay

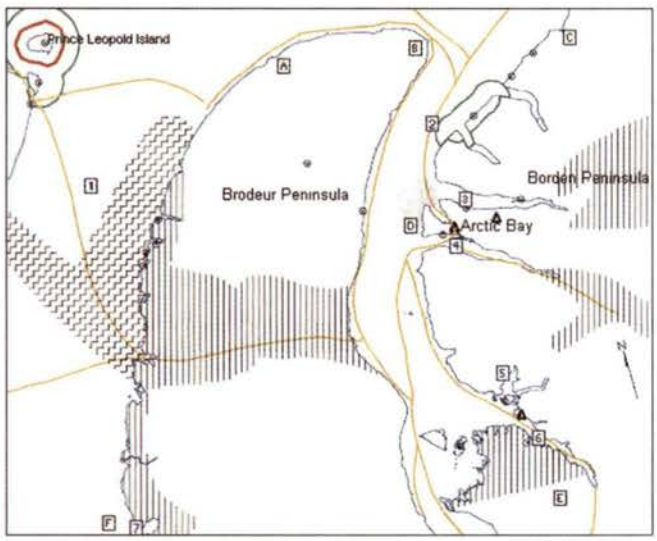


Figure 6-18: Spring Scenario 1

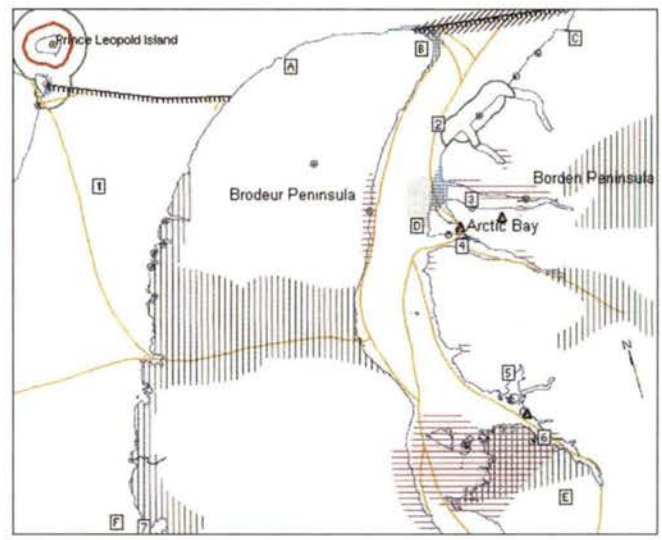


Figure 6-20: Spring Scenario 3

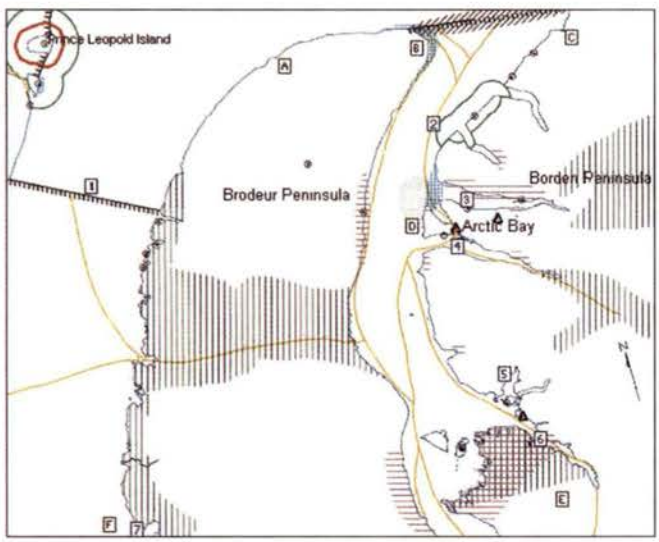


Figure 6-19: Spring Scenario 2

Land Legend

- A Cape York
- B Cape Crauford
- C Cape Joy
- D Uluksan Peninsula
- E Steensby Peninsula
- F Cape Kaye

Water Legend

- 1 Prince Regent Inlet
- 2 Admiralty Inlet
- 3 Strathcona Sound
- 4 Adams Sound
- 5 Fleming Inlet
- 6 Moffet Inlet
- 7 Fitzgerald Bay

Caribou are hunted inland of Creswell Bay on west Somerset Island.

King eiders and **common eiders** (up to 4,000) use near-shore areas along the coast north of Creswell Bay as soon as there is open water. Use of these areas and others along the north coast of Somerset Island varies each year and not all areas are used every year. Eiders are found in near-shore leads and polynyas in Creswell Bay (up to 400 birds) and another 400 may be found in coastal areas between Creswell Bay and Bellot Strait.

Creswell Bay

People from Resolute have a year-round hunting camp in the inner bay.

Areas between Elwin Bay and Batty Bay and around Creswell Bay are sensitive to aircraft in spring because of hunting activities and the presence of waterfowl.

Bellot Strait

Polar bears are hunted around the east entrance to Bellot Strait; this area is sensitive to aircraft

Eiders (up to 6,000) are found in the open water of Bellot Strait and its eastern approaches. Up to 1,000 eiders use near-shore areas of north Boothia Peninsula as soon as there is open water.

Because of the large numbers of waterfowl, Bellot Strait is medium in sensitivity to aircraft.

Summer season

Environment

See Figures 6-4 and 6-21

Beluga whales (up to 6,000) are found in offshore waters of Prince Regent Inlet. Many of them enter bays on Somerset Island and a bay on Brodeur Peninsula. They do not congregate in specific areas in offshore waters but are often found near pack ice.

Narwhal (up to 10,000) summer in Prince Regent Inlet. Unlike beluga whales, narwhal do not make much use of near-shore areas but some may be found in areas such as Creswell Bay.

Bowhead whales have a major summering area in Prince Regent Inlet. They are found near pack ice. **Ringed seals** are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where there is ice for long periods and especially where there is ice all summer.

Harp seals may be widely distributed and abundant where there is pack ice.

Polar bears are most abundant in bays and fiords where there is ice. When there is no ice, they move onto the shore.

Walrus are seldom seen in Prince Regent Inlet. There may be a few along the east coast of Somerset Island near ice pans and coastal ice edges.

All of Prince Regent Inlet is sensitive to ships. Coastal areas on the west side of the inlet, and especially Creswell Bay and areas to the south, are sensitive to ships and aircraft

Offshore waters are sensitive due to the presence of bowhead whales, narwhal and belugas. This sensitive area may be anywhere in the inlet.

Coastal areas

Beluga whales congregate at Cape Kater, in the estuary of Kater River at the south end of Fitzgerald Bay. The entire bay between Cape Kaye and Cape Kater is sensitive.

Caribou are hunted along the west coast of Brodeur Peninsula by people from Arctic Bay.

Black guillemots congregate in near-shore waters along the Somerset Island coast from Cape Clarence to Creswell Bay.

Black-legged kittiwakes congregate in near-shore open water between Cape Clarence and Elwin Bay and near Batty Bay.

Eiders (2,600) summer in Batty Bay.

Beluga whales (up to 100) summer in Batty Bay and Elwin Bay and off the east coast of Somerset Island. Not all bays are used every year. There is some hunting for beluga and narwhal in these bays.

Elwin Bay and Batty Bay are medium in sensitivity to ships and aircraft. The area around Cape Clarence is also sensitive.

Creswell Bay

Creswell Bay is the most important biological area in the Prince Regent Inlet region.

Beluga whales use coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year.

Prince Regent Inlet and Arctic Bay

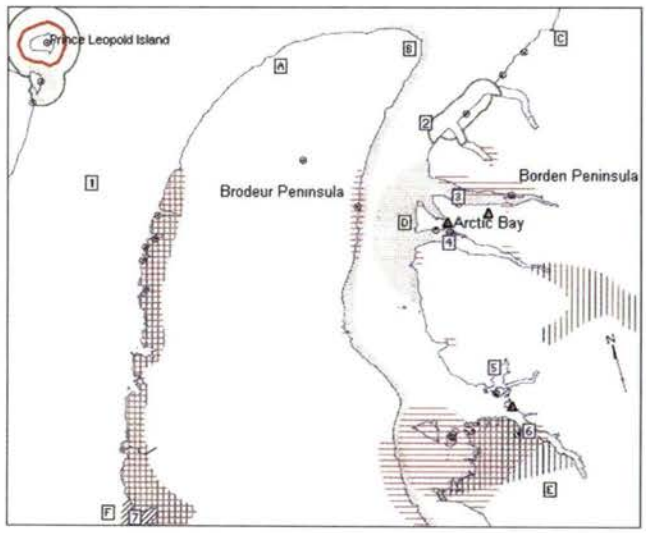


Figure 6-21: Summer Scenario

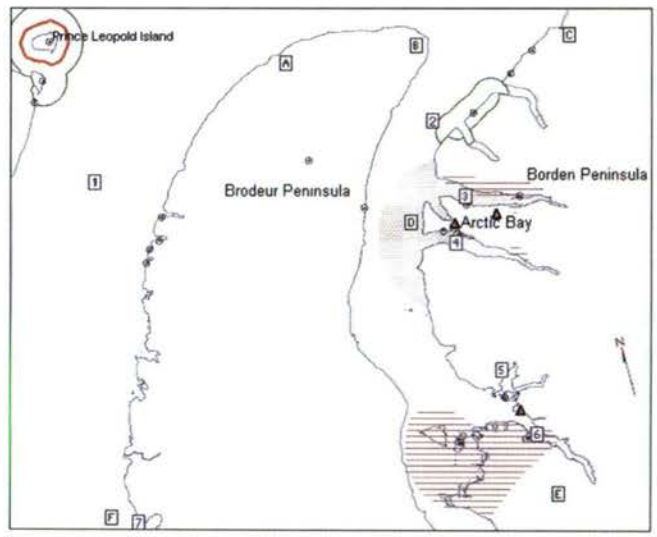


Figure 6-22: Fall Scenario

Water Legend

1 Prince Regent Inlet
2 Admiralty Inlet
3 Strathcona Sound
4 Adams Sound
5 Fleming Inlet
6 Moffet Inlet
7 Fitzgerald Bay

Land Legend

A Cape York
B Cape Crauford
C Cape Joy
D Uluksan Peninsula
E Steensby Peninsula
F Cape Kaye

Exclusion Zone
Major Bird Colonies
Travel Routes
Bird Colonies
Outpost Camps
Beluga – Areas of Concentration
Caribou – Harvest
Key Hunting Area
Waterfowl – Harvest and Areas of Concentration

The estuary of Creswell River in the outer bay is the only estuary used by large numbers of whales each year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. There may be up to 4,000 beluga whales in outer Creswell Bay and the estuary of the Creswell River.

Narwhal are in Creswell Bay most years.

Arctic char from Stanwell Fletcher Lake are abundant in Creswell Bay and surrounding area. They stay close to shore. Most char fishing is in the inner bay at the mouth of Stanwell Fletcher River. This area is intensively used by birds.

Shorebirds and **loons** nest on land north of the outer bay. **Oldsquaws** (up to 700), **brant** and **snow geese** (more than 1,200) also nest here. Most adult snow geese and most young of the year begin the migration south by the end of summer. Up to 2,200 oldsquaws forage, moult and stage here.

Eiders (as many as 7,000) may stage here. Up to 12,000 shore birds stage in the outer bay in late summer.

Black-legged kittiwakes congregate all along the north coast.

Arctic terns are found in breeding concentrations in the inner bay.

People from Resolute have a year-round hunting camp in the inner bay. Ringed seals and bearded seals, beluga whales and narwhal are hunted. Snow geese, ducks and caribou are also hunted here. Arctic char are fished in the inner bay.

Because of intense biological activity and its use for resource harvesting, Creswell Bay is medium to high sensitivity to ships and aircraft.

Creswell Bay to Menchikoff Bay

Shore birds (12,000) stage in the outer bay in late summer. Most shorebirds leave by late August.

Arctic terns are found in breeding concentrations in the inner Bay. Arctic terns also breed along the coast in Menchikoff Bay. Most of them leave by mid-September.

Snow geese nest along the shore between Creswell Bay and Bellot Strait and in Menchikoff Bay, on north Boothia Peninsula. Most leave for the south by early September.

Oldsquaws (2,500) summer in coastal areas south of Menchikoff Bay. Some may still be here in September.

Eiders (up to 18,000) stage for migration between Cape Clara and Bellot Strait. Some may still be here in October.

Arctic Char are fished south of Creswell Bay, north of Bellot Strait and in Brentford Bay.

This area is rated as medium in sensitivity to ships and low in sensitivity to aircraft.

Fall season

Environment

See Figures 6-5 and 6-22

Some offshore waters of Prince Regent Inlet, western Lancaster Sound and Barrow Strait are sensitive due to outbound migrating beluga whales, narwhal, harp seals, bowhead whales and thick-billed murres. Near-shore areas are sensitive because of populations of waterfowl.

Belugas (4,000) move northwards in Prince Regent Inlet in early to mid-September.

Narwhal leave in September. They move much slower than beluga whales. During the fall migration, narwhal disperse in open water and stay as long as open water permits; they are still here after the belugas have left.

Bowhead whales that summer in Prince Regent Inlet migrate to the north coast of Baffin Island and then along the shore.

Harp seals migrate out of the Prince Regent Inlet area in early September.

Cape Clarence to Creswell Bay

Cape Clarence, Batty Bay and Elwin Bay are sensitive because of the seabirds and waterfowl.

Black guillemots (200 pairs) nest at Cape Clarence on the NE corner of Somerset Island. Black guillemots rear their young until early September and leave by early November.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional haul-outs on land, usually near shallow areas where they can feed on the bottom. Some of them will feed in the water while others stay on shore. Haul-outs may be used until mid-September. The outbound migration may be in October. There is a haul-out at Cape Clarence.

Eiders (2,600) summer in Batty Bay. Some stay until late October.

Creswell Bay

Creswell Bay is the most important biological area in the Prince Regent Inlet region. Terrestrial areas around Creswell Bay are rated as high sensitivity.

People from Resolute have a year-round **hunting camp** in the inner bay. Ringed seals, bearded seals and waterfowl are hunted in this area. Caribou are hunted around the bay.

Beluga whales that summer in Creswell Bay have left and the arctic char have returned to fresh water. There are still many birds here.

Shorebirds and **loons** nest in terrestrial habitats north of the outer bay.

Oldsquaws (700), **brant** and **snow geese** (1,200) also nest here. About 2,200 Oldsquaws forage, moult and stage here and may still be here in September. Snow geese adults and most young of the year migrate south by early September.

Creswell Bay to Menchikoff Bay

Eiders (7,000) stage for migration in the bay and may still be here until late October. Eiders (18,000) also stage for migration between Cape Clara and Bellot Strait.

Specific Site 2B:

Gulf of Boothia

Refer to Charts 7502, 7503, and to Sailing Directions, Arctic Canada, Volume II, Chapter III.

Sailing Directions, Arctic Canada, Volume I gives information on ice conditions.

Cape Palmerston *(70°47′N, 92°38′W)*, elevation 91 m, is rounded.

Akuliakata Point *(69°43′N, 92°30′W)*, in the west part of Lord Mayor Bay, is the north entrance point of **Sagvak Inlet.**

Cape St. Catherine is on the east shore of Boothia Peninsula.

The recurring polynya off Cape St. Catherine should be avoided because of its importance to staging king eiders.

Spring and summer seasons

Environment

Arctic foxes have denning habitat on the east side of Boothia Peninsula. The fox dens are occupied from late winter or early spring through late summer and are reused each year.

Glaucous gulls and **Thayer's gulls** congregate here in spring and late summer.

There are at least sixteen gull colonies on the west shore of the gulf.

Specific gull colonies:

- 70 pairs on coastal cliffs in the Cape Palmerston area;
- 40 pairs on mainland coastal cliffs SW of Arbuthnot Island;
- 200 pairs on a coastal cliff on the west side of Mary Jones Bay;
- 13-60 pairs on coastal cliffs between Mundy Harbor and Eden Bay;
- 45 pairs on coastal cliffs at Mundy Harbor;
- 150-325 pairs on mainland coastal cliffs west of Martin Island;
- 15 pairs on mainland coastal cliffs west of Coutts Lindsay Island;
- 12 pairs on coastal cliffs at Cape Margaret;
- 25 pairs on coastal cliffs along the north shore of Thom Bay;
- 35 pairs on coastal cliffs at the SW end of Thom Bay;
- three colonies (12-15 pairs, 7 pairs, 25 pairs) on cliffs along the south shore of Thom Bay;
- 150 pairs on coastal cliffs SW of Sheriff Harbor;
- 26-50 pairs on coastal cliffs at the head of Lord Mayor Bay;
- 100 pairs on cliffs along Sagvak Inlet;
- oldsquaws also congregate in the coastal waters around Abernethy Bay in late summer;
- king eiders congregate near the recurring polynya off Cape St. Catherine. More than 1,000 were seen in June 1974.

Fall season

Environment

No specific information is available.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific Adverse Effects and Mitigating Measures:

⇨ Spring

Hunting areas should be avoided. The communities of Ikpiarjuk and Resolute should be contacted for locations of hunting parties.

Ships and aircraft should avoid any identified areas. Helicopters should avoid polar bear and caribou hunting areas.

⇨ Summer

Aircraft should avoid overflights of bird concentrations in Batty Bay, Elwin Bay, Creswell Bay and most coastal areas south of Creswell Bay. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Aircraft should avoid caribou hunting areas. If they cannot be avoided, an altitude of 2,000 feet should be maintained.

Ships and helicopters should avoid entering Creswell Bay. It is intensively used by marine mammals and birds and for resource harvesting.

⇨ Fall

Birds in the water are not particularly sensitive to ships. However, ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Ships should avoid entering Creswell Bay. It is intensively used by marine mammals and birds and for resource harvesting.

Aircraft should avoid overflights of bird concentrations. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Aircraft should avoid caribou hunting areas. If they cannot be avoided, an altitude of 2,000 feet should be maintained.

The Northwest Passage — Eastern Entrance

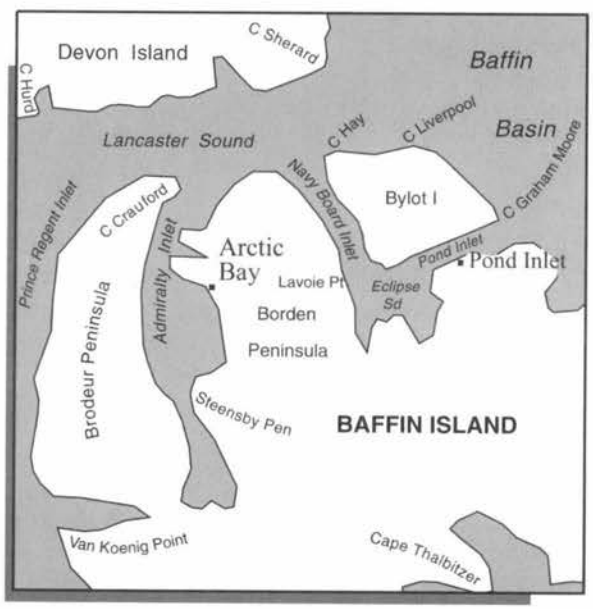
General

Refer to Chart 7000 and to Sailing Directions, Arctic Canada, Volume II.

The eastern entrance to the Northwest Passage is from Baffin Bay into Lancaster Sound, either directly or through Pond Inlet, Eclipse Sound and Navy Board Inlet. The usual route continues through Barrow Strait to Peel Sound or M'Clintock Channel.

This chapter covers the route from Baffin Bay through Lancaster Sound. Also included are Admiralty Inlet and the route around Bylot Island.

Caution — Most of the surveys through this route are of a reconnaissance nature.



Biological Seasons – Eastern Arctic

Biological seasons in this region do not correspond to the calendar seasons. For the eastern part of the Northwest Passage, biological seasons are defined as follows.

Biological spring (mid-April to mid-August): In early spring, there is fast ice in all areas. As spring progresses, the fast ice breaks up and ice edges form across Lancaster Sound, Barrow Strait and adjoining channels. Ringed seals and polar bears are found on the fast ice and in the Baffin Bay pack ice. Inuit travel great distances over sea ice to hunt seals and polar bears.

The ice edges that form across Lancaster Sound and Barrow Strait and at the entrances to Pond Inlet, Navy Board Inlet and Admiralty Inlet block the migration of the walrus, harp seals and whales that congregate along some ice edges. Cliff-nesting seabirds arrive at their colonies in May and many species gather along ice edges to feed. Waterfowl arrive in May and June; many of these congregate at coastal and cross-channel ice edges and in leads in the near-shore fast ice.

	Location	Year	Percentage
A	Devon Island to Bylot Island east of Navy Board Inlet	1978, 1979, 1983, 1987	15%
B	Devon Island to Cape Charles Yorke, Baffin Island	1970, 1984	8%
C	Devon Island to central Brodeur Peninsula	1982,1989	8%
D	Devon Island to Prince Leopold Island to Somerset Island	1965, 1966, 1967, 1968, 1971, 1972, 1973, 1975, 1977, 1980, 1981, 1985, 1988	50%
E	Resolute to Griffith Island to Somerset Island	1964, 1969, 1974, 1976	15%
F	Resolute to Griffith Island to Lowther Island to Russel Island	1986	4%

Table 7-1: Spring Locations of the Fast Ice Edge in Barrow Strait and Lancaster Sound

Source: Consulting and Audit Canada, 1993, Environmental Assessment of Canadian Coast Guard's Arctic Icebreaking Operations.

There are important hunts at ice edges across Pond Inlet and Admiralty Inlet and sometimes Navy Board Inlet.

As winter ice recedes, ice boundaries (also known as floe edges) tend to form in Lancaster Sound and Barrow Strait. There are many possible configurations for these but in most years they form at three places (see Table 7-1).

The three typical ice edges are:

- from SE Devon Island to Bylot Island or the Borden Peninsula;
- from SW Devon Island to Prince Leopold Island and Somerset Island; and
- from Cornwallis Island to Griffith Island and/or Lowther Island and then to the NW end of Somerset Island.

Any one or all three of these may or may not happen in any particular spring, or ice edges may develop at different places. As the main ice edge retreats through west Parry Channel, ice edges may remain across Pond Inlet, Navy Board Inlet, Admiralty Inlet, Wellington Channel, Prince Regent Inlet and Peel Sound. Ice edges may also remain across bays and fiords and along coasts.

Biological summer (mid-August to early October): During this period, the area is mostly ice-free but there may be some fast ice in deep bays and fiords. Although Barrow Strait and Prince Regent Inlet and other areas are usually open, fields of dense pack ice can be found almost anywhere. There is usually heavy pack ice in Peel Sound, north of Cornwallis Island, and in south Prince Regent Inlet.

Migratory marine mammals move to their traditional summering areas. Beluga whales summer around Somerset Island and are seldom seen in Lancaster Sound or adjacent waters. Narwhal summer in Admiralty Inlet, Prince Regent Inlet and Eclipse Sound. Harp seals move into and out of Lancaster Sound all the time.

Seabirds forage at sea and raise their young in colonies. Large numbers of some species of waterfowl raise their young, stage for migration, and moult in near-shore waters. Inuit fish for arctic char in coastal waters and hunt seals, whales and walrus in the open-water near communities and satellite hunting camps.

In some years, ice may stay in the Lancaster Sound area well into late summer and many bays and inlets are still filled with ice. The summer ice scenario assumes that:

- marine mammals have access to traditional summering areas and are not restricted by ice;
- there is open water in most bays and inlets but fast-ice and ice pans stay in some bays all summer. Ice pans are blown by the wind and will be found on most shorelines;
- loose pan ice cover will be heavier in bays and inlets with a narrow opening or in long narrow bays and inlets than in bays open to the sea;
- fields of heavy pack ice remain for at least part of the summer in Barrow Strait/western Lancaster Sound and in Prince Regent Inlet;
- there is a great deal of pack ice and fast ice in Peel Sound and north of Cornwallis Island;
- locations of ice fields vary and depend on wind conditions.

Biological fall (early October to mid-November): During this period, migratory marine mammals leave their summering areas and pass through Lancaster Sound on their way to wintering areas. For some species, such as beluga whales and walrus, the entire population leaves in a short period of time. For other species, groups of animals leave over a longer period. The end of biological fall, as defined here for the eastern areas of the Northwest Passage, is when migratory marine mammals and birds have left and winter ice is forming.

Marine mammals leave before or during freeze-up. Fall ice conditions are similar to those of summer but the pack ice in Barrow Strait and Prince Regent Inlet may have dispersed.

There is still some heavy pack ice in Peel Sound and north of Cornwallis Island as well as loose pans in bays and inlets and ice pans on the shoreline. New ice forms in some bays and inlets but it is thin and easily broken up by wind action. Formation of ice that will remain over the winter marks the end of biological fall.

The seasonal terms *spring*, *summer* and *fall* in this Handbook refer to the biological seasons unless otherwise stated.

General Site 1:

Baffin Bay, Approaches to Lancaster Sound and Pond Inlet

Refer to Charts 7220, 7302 and to Sailing Directions, Arctic Canada, Volume II, Chapter VIII, and to Sailing Directions, Arctic Canada, Volume I, Chapter VI.

Baffin Bay is bounded to the west by Devon Island and part of Ellesmere Island and to the east by Greenland.

Lancaster Sound is entered between **Cape Hay** *(73°44′N, 80°01′W)*, on Bylot Island, and **Cape Sherard**, 53 miles to the north. The sound extends west for 165 miles to its junction with Barrow Strait at a line joining Prince Leopold Island and Cape Hurd on Devon Island, 28 miles to the north.

Bylot Island lies on the south side of the entrance to Lancaster Sound.

Pond Inlet is entered between **Cape Macculloch** *(72°29′N, 75°06′)*, which is the NNE tip of Baffin Island, and **Cape Graham Moore**, 26 miles to the NW, which is the SE tip of Bylot Island.

The Lancaster Sound ice edge is very sensitive to ships and aircraft due to the large numbers of marine mammals and birds.

Specific Site 1A:

Baffin Bay

Refer to Charts 7220, 7302, and to Sailing Directions, Arctic Canada, Volume II, Chapter VIII.

Spring season

Ice conditions include large areas of offshore and near-shore pack ice and extensive near-shore fast ice with many distinct ice edges.

Environment

Ringed seals (400,000) breed on offshore pack ice but this is not prime breeding habitat; they prefer near-shore fast-ice on irregular coastlines. Ringed seals in pack ice are easy prey for polar bears. At break-up, these seals may move to the near-shore waters of Baffin Island and Pond Inlet.

Polar bears (1,700) roam the Baffin Bay pack ice, which extends north to Ellesmere Island. They are widely dispersed over 300,000 km^2.

Narwhal and **bowhead whales** (an endangered species) migrate to Lancaster Sound through the Baffin Bay pack ice.

Fulmars, black guillemots, thick-billed murres and large numbers of **other seabirds** are in the Baffin Bay pack ice prior to breeding. They are widely dispersed over vast expanses of ice and so are seldom encountered.

Dovekies in their millions migrate through Baffin Bay in mid- to late May on their way to nesting areas in west Greenland.

Arctic terns arrive from wintering areas in the Antarctic in mid- to late June on their way to nesting colonies in the arctic islands.

Offshore pack ice is low sensitivity to ships and aircraft. Many animals live here but are widely dispersed and can escape by diving into the water.

Coastal areas

Ringed seal densities on the coastal fast ice of Baffin Island are similar to those of offshore pack ice. There are more seals in Baffin Bay fiords than in the pack ice or near-shore fast ice.

Polar bears are common on the near-shore fast ice and in fiords.

Other migratory marine mammals reach Lancaster Sound by moving along the coast after the ice loosens up. Most are going to summering areas in the arctic islands and Jones Sound.

Walrus reach Lancaster Sound by moving south along the east coast of Devon Island.

Beluga whales reach Lancaster Sound by moving south along the east coast of Devon Island or northwards along the east coast of Baffin Island.

Harp seals move along the east and north shores of Baffin Island to Lancaster Sound.

Bowhead whales arriving in late June and July reach Lancaster Sound from the SE and do not travel far into the pack ice.

Specific Site 1B:

Lancaster Sound, Eastern Part

Refer to Chart 7220 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Spring season

There are large areas of offshore and near-shore pack ice and extensive near-shore areas of fast-ice with many distinct ice edges.

Environment

See Figures 7-1, 7-2 and 7-3

Fast ice

Ringed seals are widely distributed on the sea ice in early spring when west Lancaster Sound is frozen over. Prime breeding habitat for ringed seals is on near-shore fast ice in areas with irregular coastlines. There are more ringed seals in these near-shore areas than offshore.

Polar bears (females with new-born cubs) move from terrestrial denning areas in late March and early April to the sea-ice to hunt seals, usually congregating where ringed seals are pupping. Polar bears like to hunt along ice edges and leads in the ice where the seals are easier to catch.

Lancaster Sound ice edge

Marine mammals and **seabirds** feed at the ice edge where they can find the fish and invertebrates associated with the underside of the spring sea ice. This resource is based on the microscopic algae that grow on the underside of the ice. This algae gives a brownish colour to the spongy bottom of the ice.

Narwhal, beluga whales, bowhead whales, harp seals and **walrus** that summer in waters to the west migrate through Lancaster Sound. An ice edge often forms from Cape Warrender south to Baffin Island. If there is an ice edge when migrating marine mammals arrive, some of these animals gather at the ice edge and wait for break-up.

Narwhal first appear at the ice edge in April and often congregate there.

Beluga whales that winter along the west coast of Greenland enter Lancaster Sound in June or early July. A few hundred belugas that winter in the Baffin Bay north water may enter Lancaster Sound in late April or early May. Belugas also congregate along the ice edge. Belugas and narwhal gather within 1 km of the ice edge and are most numerous within 400 m of it.

Bowhead whales do not congregate at the Lancaster Sound ice edge. If the ice edge impedes their migration, they move offshore into the pack ice until break-up. In May to early July, they are at the ice edge and in the pack ice off Lancaster Sound and Pond Inlet. At break-up, they migrate through Lancaster Sound to the channels of the archipelago.

Walrus arrive mid-June to mid-July. If the Lancaster Sound ice edge blocks their westward migration, they congregate at coastal ice edges along the shores of Devon Island, the Navy Board Inlet ice edge, and the NE shore of Bylot Island.

Ringed seals may congregate in fast-ice areas behind the ice edge. Ringed seals haul out on the fast ice around their breathing holes, which have been enlarged by the melting of the ice. Polar bears also congregate behind the ice edge.

Harp seals move along the north coast of Bylot Island and into Lancaster Sound in July and August. Harp seals are found off the Lancaster Sound ice edge if it is in place when they arrive in July. If there is an ice edge, they may congregate along its southern part until leads open.

Thick-billed murres arrive in early to mid-May.

Black-legged kittiwakes begin arriving in late May.

Thayer's gulls begin arriving in mid-May; most of them arrive in mid-June.

Fulmars arrive in June.

Thick-billed murres, black guillemots, fulmars, black-legged kittiwakes, Thayer's gulls and **glaucous gulls** congregate along the ice edge.

Dovekies in their millions pass through here in mid- to late May on their way to nesting areas in West Greenland.

The Lancaster Sound ice edge is very sensitive to ships and aircraft due to the large numbers of marine mammals and birds.

Lancaster Sound East

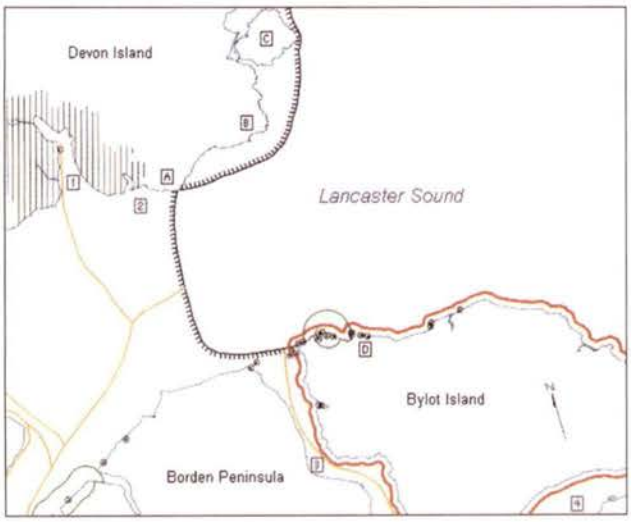


Figure 7-1: Spring Scenario 1

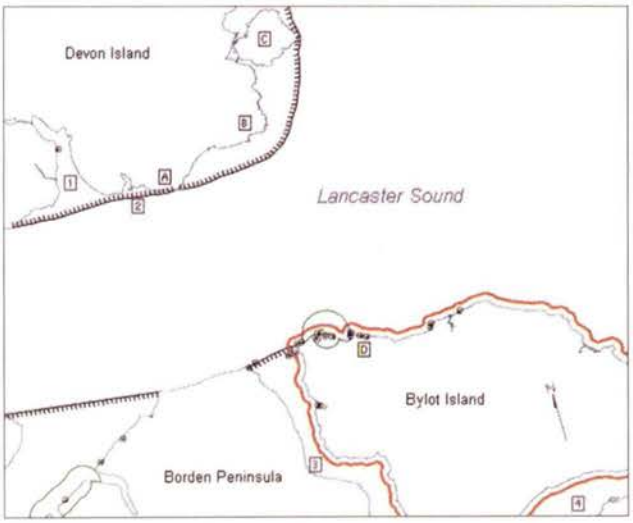


Figure 7-3: Spring Scenario 3

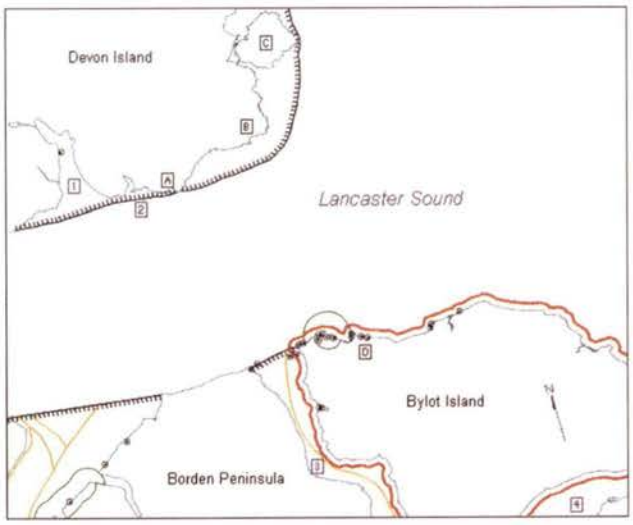


Figure 7-2: Spring Scenario 2

Exclusion Zone
Muskox – Harvest
Major Bird Colonies
Bird Colonies
Travel Routes
Ice Water Ice Edge

Land Legend

- A Cape Warrender
- B Cape Sherard
- C Philpots Island
- D Cape Hay

Water Legend

- 1 Croker Bay
- 2 Dundas Harbour
- 3 Navy Board Inlet
- 4 Pond Inlet

Lancaster Sound East

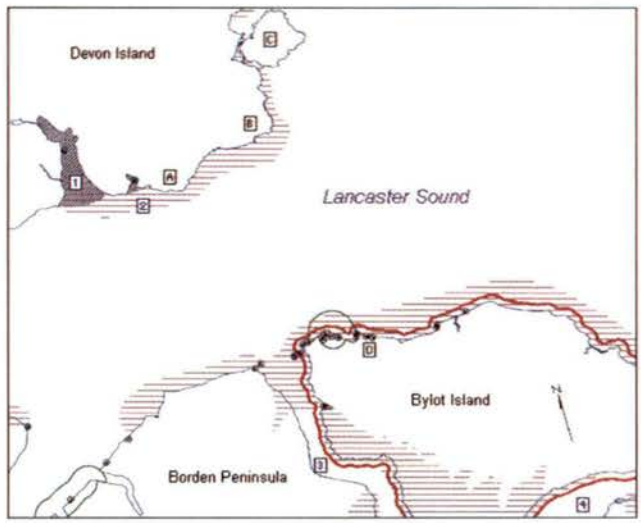


Figure 7-4: Summer Scenario

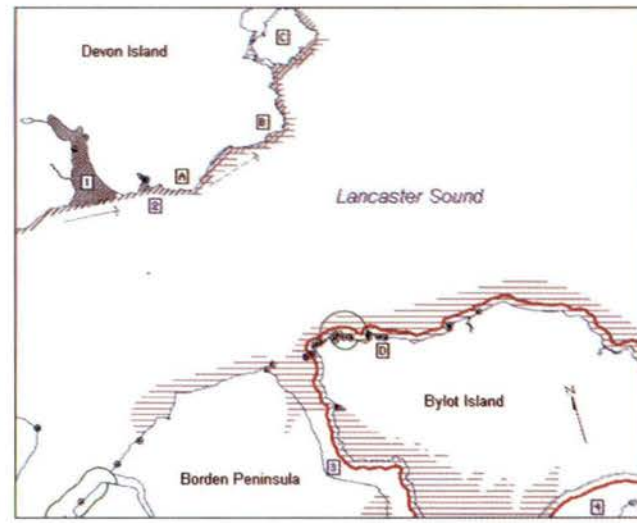


Figure 7-5: Fall Scenario

Land Legend

- A Cape Warrender
- B Cape Sherard
- C Philpots Island
- D Cape Hay

Water Legend

- 1 Croker Bay
- 2 Dundas Harbour
- 3 Navy Board Inlet
- 4 Pond Inlet

- Exclusion Zone
- Major Bird Colonies
- Bird Colonies
- Walrus Haul-Out Sites
- Waterfowl/Birds – Areas of Concentration
- Beluga – Areas of Concentration
- Beluga Migration

Break-up

Harp seals (the entire high arctic population of 150,000), **beluga whales** (18,000), **narwhal** (18,000) and a few hundred of the eastern stock of **bowhead whales** pass through Lancaster Sound during and after break-up of the ice edge.

Narwhal are usually in groups, some of which may have hundreds of animals.

Harp seals travel in groups of up to 100.

Bowhead whales pass through Lancaster Sound very quickly. They move fast (5 km/h) and the entire population moves through in a few days.

Walrus (300-500) may migrate to the central high arctic through Lancaster Sound and 200-300 may reach the central high arctic via Jones Sound. Walrus moving into Lancaster Sound do so from the NE along the east coast of Devon Island and not from the SE along the Baffin coast.

Ringed seals move after break-up to areas where there is fast ice. In areas with no ice, they are widely dispersed. They do not haul out on ice pans.

Polar bears retreat to coastal ice edges after the Lancaster Sound ice edge breaks up. When the coastal ice edges break-up, they move on to their terrestrial summer retreats.

After break-up

Central Lancaster Sound has a low sensitivity to ships and aircraft. There are many animals but they are widely dispersed. The coastal areas are more sensitive to ships and aircraft than are the offshore waters.

Summer season

Ice conditions can be quite variable. In some years, ice may stay well into late summer and many bays and inlets are still filled with ice.

Environment

See Figure 7-4

Most of the migratory marine mammals have gone to their summering areas further west.

Belugas, narwhal and **bowhead whales** are rare in offshore waters of Lancaster Sound.

Harp seals continue moving along the north coast of Bylot Island and into Lancaster Sound all summer but most harp seals that enter Lancaster Sound do not go very far; they turn north across the sound and leave along the south coast of Devon Island.

Ringed seals are found in all areas and are widely dispersed in open water. Many of them move to bays and fiords where there is ice for long periods, and especially to areas where ice stays all summer.

Polar bears retreat to the land when the waters are ice-free.

Fall season

Marine mammals leave before or during freeze-up. There is still some heavy pack ice in Peel Sound and north of Cornwallis Island, as well as loose pans in bays and inlets and ice pans on the shoreline. New ice forms in some bays and inlets.

Environment

See Figure 7-5

Migratory marine mammals leave their summering areas in the arctic islands. Most of them leave through Lancaster Sound.

Beluga whales leave very quickly, passing close to the south shore of Devon Island.

Harp seals leave Lancaster Sound along the shores until pan ice forms in offshore waters in mid- to late September and the population disperses in offshore waters.

Narwhal leave Lancaster Sound along both the north and south shores.

Walrus outbound migration has not been documented; it may be in October.

Bowhead whales leave along the south shore of Lancaster Sound.

Seabirds migrate to wintering areas in late summer or late fall, depending on the species. Most waterfowl have left by mid- to late September. The males leave first, followed by females and their young. Some seabird species leave the arctic in mid-September; others may stay until November.

Thick-billed murres do the first part of their outbound migration through Lancaster Sound by swimming. The males accompany the young and there may be hundreds of thousands of murres in the water at this time.

Specific Site 1C:

Lancaster Sound North Shore: Philpots Island to Cape Home

Refer to Chart 7220 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Philpots Island is connected to Devon Island by a low isthmus. It is generally low except on its NE part where a hill rises to 241 m.

Cape Home *(74°33′N, 83°35′W)* is on the south side of Devon Island.

Spring season

There are large areas of offshore and near-shore pack ice and extensive near-shore areas of fast ice with many distinct ice edges.

Environment

See Figures 7-1, 7-2 and 7-3

Walrus in Lancaster Sound are mostly found in coastal and near-shore areas associated with ice edges and/or scattered ice pans. Walrus prefer shallow waters where they can reach the bottom to feed on clams. There are more of them in coastal areas off south Devon Island than there are along the north shore of Bylot Island.

Ringed seals are common and widely dispersed in all fast-ice habitats but there are more of them in near-shore areas than offshore. Densities are highest along irregular coastlines.

Thick-billed murres, **black guillemots**, **black-legged kittiwakes** and **Thayer's gulls** tend to congregate along coasts and ice edges.

Glaucous gulls are most numerous along ice-free coasts.

Northern fulmars congregate along coastal ice edges.

Philpots Island to Cape Warrender

In early spring, prior to break-up of the Lancaster Sound ice edge, the area between Philpots Island and Cape Sherard is very sensitive to ships and aircraft due to the large numbers of marine mammals and birds.

Beluga whales enter Lancaster Sound along the east coast of Devon Island, where they congregate along coastal ice edges between Philpots Island and the Lancaster Sound ice edge.

Walrus enter Lancaster Sound from the NE between mid-June and mid-July and, if the Lancaster Sound ice edge blocks the westward migration, they may congregate at coastal ice edges along the east shore of Devon Island south of Philpots Island.

King eiders and **common eiders** (1,000) arrive in May and June and congregate near-shore between Philpots Island and Cape Warrender.

Polar bears also congregate in the area south of Philpots Island.

Harp seals move northwards along the east coast of Devon Island, beginning in July.

The area is still sensitive to ships and aircraft; some animals leave after break-up of the ice edge but many are still here.

Croker Bay

When the ice in Lancaster Sound permits, Inuit from Arctic Bay sometimes travel to land areas around Croker bay to hunt muskox. After the Lancaster Sound ice edge has retreated to the west, another ice edge usually forms across the mouth of Croker Bay.

Walrus may congregate along this ice edge and later move into Croker Bay itself.

Polar bears gather in Croker Bay. There is ice in the bay after break-up of the Lancaster Sound ice edge and they can hunt seals here and along adjacent coastal ice edges.

Northern fulmars tend to congregate at the Croker Bay ice edge.

Croker Bay marine areas are sensitive to ships and aircraft. Land areas around Croker Bay may be sensitive to aircraft if people from Arctic Bay are hunting muskox.

Summer season

Many bays and inlets are filled with ice. Ice conditions can be quite variable and ice may stay well into late summer.

Environment

See Figure 7-4

Beluga whales use coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. Beluga whales use some bays on the south shore of Devon Island, including Croker Bay (300 animals) and Dundas Harbour (50 animals).

Harp seals enter Lancaster Sound along the north coast of Baffin and Bylot Islands all summer but most do not stay. They cross Lancaster Sound, leave along the south coast of Devon Island, and continue their migration northwards along the east coast of Devon Island.

Walrus numbers in Lancaster Sound decline in the summer. Most move to summering areas to the west but some stay south of Philpots Island and in Croker Bay. They prefer to haul out on ice but haul out on land when there is no ice. Walrus have traditional haul-out sites on land. These are usually near shallow areas where they can feed on the bottom. Some animals are usually in the water feeding while others stay on shore. There may also be a haul-out in Dundas Harbour.

Northern fulmars (20,000 to 30,000) use south Devon Island between Philpots Island and Croker Bay as habitat. This is an important area for birds.

Black guillemots use the areas around Philpots Island, Cape Warrender and Dundas Harbour as feeding habitat.

Eiders (up to 900) and **oldsquaws** (more than 1,000) also summer here.

Geese breed on west Philpots Island and the nearby mainland.

Snow geese (up to 700) summer in Croker Bay and Dundas Harbour. They and most young of the year begin the migration south by the end of summer.

Arctic terns are found in breeding concentrations along the shores of Philpots Island.

Croker Bay and Dundas Harbour are sensitive to aircraft due to the beluga whales, walrus and geese.

Fall season

Marine mammals leave before or during freeze-up. There is still some heavy pack ice in Peel Sound and north of Cornwallis Island, as well as loose pans in bays and inlets and ice pans on the shoreline. New ice forms in some bays and inlets.

Environment

See Figure 7-5

Beluga whales migrate out of Lancaster Sound along the south coast of Devon Island as far east as Philpots Island. This is highly co-ordinated; most of them leave in less than a week. Most belugas are found within 400 m of the shore.

Narwhal begin to leave the arctic islands in September. The outward migration is mostly near the north and south shores of Lancaster Sound, at least for the first part of the migration. On their way out of Lancaster Sound, and in north Baffin Bay, the outbound migration becomes very rapid but some of them stay until mid-October.

Harp seals migrate into Lancaster Sound along the north coast of Baffin Island all summer and fall. Most do not stay in the area; they swim across Lancaster Sound and migrate out along the south coast of Devon Island. About 150,000 of them summer in the channels of the arctic islands and leave by late September.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional sites when hauling out on land. These are usually near shallow areas where they can feed on the bottom. There may be a haul-out in Dundas Harbour. Haul-outs are used until mid-September. The outbound migration may be in October.

Snow geese (up to 700) summer in Croker Bay and Dundas Harbour. Most adults and most young of the year have left by early September.

Arctic terns that breed along the coast of Philpots Island leave by mid-September.

Northern fulmars use the area as feeding habitat. Most leave by mid-September.

Oldsquaws may be found during their migration in September.

Black guillemots can be found around Philpots Island, at Cape Warrender and in Dundas Harbour until mid-October or early November.

Eiders that summer in the area may stay until late October.

Geese breed on west Philpots Island and the nearby mainland.

South Devon Island between Philpots Island and Croker Bay is a sensitive area because of the large numbers of birds, and because belugas, harp seals and narwhal migrate close to shore.

Specific Site 1D:

Lancaster Sound South Shore, Bylot Island

Refer to Charts 7212, 7220, and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Spring season

There are large areas of offshore and near-shore pack ice and extensive near-shore areas of fast ice with many distinct ice edges.

Environment

See Figures 7-6, 7-7 and 7-8

Cape Graham Moore to Wollaston Islands

There are important seabird colonies and concentrations of birds along this coast. Inuit hunt seals and polar bears along the fast ice off the north shore of Bylot Island and along the coastline.

Narwhal and **beluga whales** congregate at ice edges off Navy Board Inlet and Admiralty Inlet after break-up of the main ice edge; people from Pond Inlet and Arctic Bay hunt them.

Polar bears and **ringed seals** along the north coast of Bylot Island are hunted by Inuit from Pond Inlet when there is fast ice in Lancaster Sound, and also later in spring when there is a coastal ice edge off Bylot Island.

Ringed seals are common and widely dispersed in all fast-ice habitats but there are more of them in near-shore areas than offshore. Densities are highest near irregular coastlines.

Walrus prefer coastal and near-shore waters with ice edges and/or nearby ice pans. There are fewer along the south shore than along the north shore. After break-up of the Navy Board Inlet ice edge, they congregate near Wollaston Islands.

Eider ducks, thick-billed murres, black guillemots, black-legged kittiwakes and **Thayer's gulls** often congregate along the coastal ice edges of north Bylot Island. Most of the birds arrive in May.

Thick-billed murres (20,000 pairs) and **black-legged kittiwakes** (3,000 pairs) have colonies at Cape Graham Moore. Major colonies at Cape Hay have 140,000 pairs of thick-billed murres and 20,000 pairs of black-legged kittiwakes. Murres arrive in early to mid-May, kittiwakes in late May. They congregate at the Lancaster Sound ice edge if it is in place when they arrive, and offshore near their colonies when open water appears.

Black-legged kittiwakes, thick-billed murres and **glaucous gulls** congregate in the water near the Cape Hay colony after the Lancaster Sound ice edge breaks up.

Northern fulmars congregate along the coastal ice edges after the Lancaster Sound ice edge retreats to the west.

Gulls are also found in smaller colonies along the north shore of Bylot Island.

The north and south coasts are both sensitive. The entire north coast of Baffin Island, from west of Admiralty Inlet to south of Pond Inlet, and the south coast of Devon Island are much more environmentally sensitive to ships and aircraft than is central Lancaster Sound.

Summer season

Many bays and inlets are filled with ice. In some years, there may be ice in the Lancaster Sound area well into late summer.

Environment

See Figure 7-9

Residents of Pond Inlet hunt seals and whales along the north coast of Bylot Island.

Harp seals move into Lancaster Sound along the north coast of Bylot Island all summer, with numbers peaking in late July.

Walrus numbers decline; most move on to summering areas in the west. Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional sites when hauling out on land. These are usually near shallow areas where they can feed on the bottom. There are walrus haul-out sites in the Wollaston Islands. These may be used until mid-September.

Pond Inlet Area

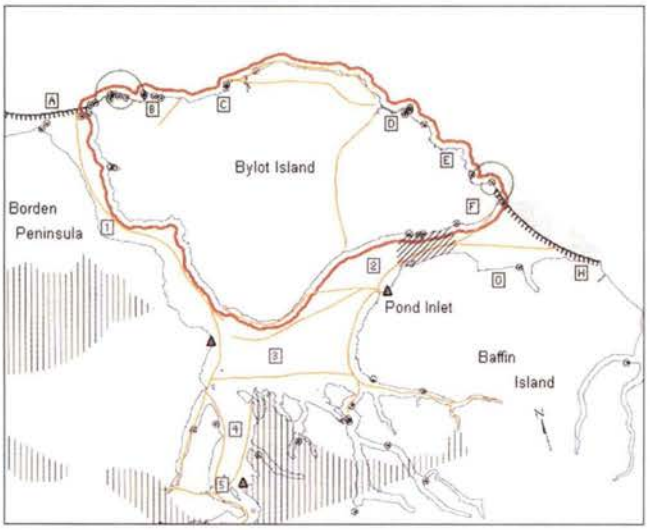


Figure 7-6: Spring Scenario 1

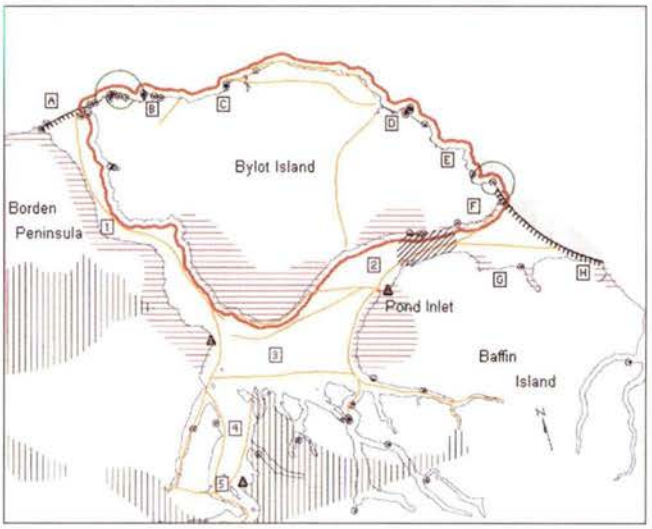


Figure 7-8: Spring Scenario 3

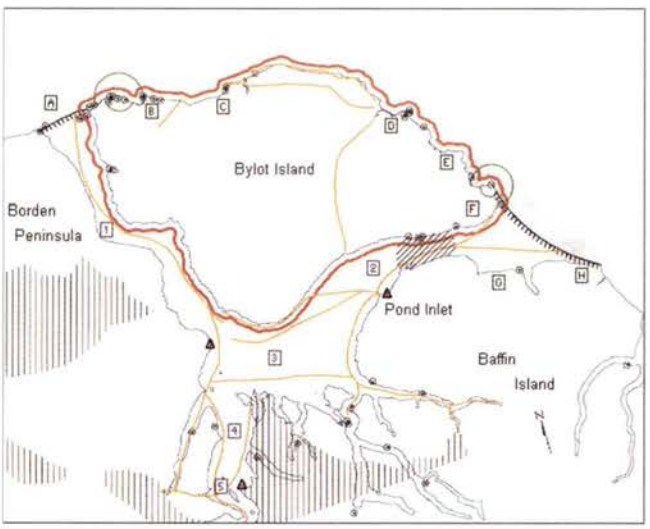
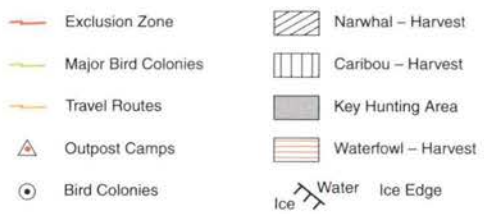


Figure 7-7: Spring Scenario 2



Land Legend

- A Wollaston Islands
- B Cape Hay
- C Maud Bight
- D Cape Walter Bathurst
- E Cape Burney
- F Cape Graham Moore
- G Guys Bight
- H Mcculloch Cape

Water Legend

- 1 Navy Board Inlet
- 2 Pond Inlet
- 3 Eclipse Sound
- 4 Milne Inlet
- 5 Koluktoo Bay

Thick-billed murres (20,000 pairs) and **black-legged kittiwakes** (3,000 pairs) have colonies at Cape Graham Moore. Major colonies at Cape Hay have 140,000 pairs of Thick-billed murres, 20,000 pairs of black-legged kittiwakes and a small number of **black guillemots**. Seabirds from the colony congregate in near-shore waters.

Oldsquaws (3,000) summer along the north coast of Bylot Island between Cape Graham Moore and Cape Burney, off Cape Walter Bathurst and in Maud Bight.

Eiders are common between Cape Graham Moore and Navy Board Inlet.

Northern fulmars congregate in near-shore waters between Cape Hay and Navy Board Inlet and across the mouth of the inlet.

Fall season

Marine mammals leave before or during freeze-up. There is still some heavy pack ice in Peel Sound and north of Cornwallis Island, as well as loose pans in bays and inlets and ice pans on the shoreline. New ice forms in some bays and inlets.

Environment

See Figure 7-10

Narwhal leave in September. During its first part, this migration is near the north and south shores of Lancaster Sound. The main outbound migration becomes very rapid in Lancaster Sound and Baffin Bay but some animals stay in Lancaster Sound into mid-October.

Bowhead whales that summer in Eclipse Sound, Prince Regent Inlet and areas to the west leave Lancaster Sound along the south shore. This migration is close to shore.

Harp seals leave Lancaster Sound along the south coast of Devon Island over a long period of time. A short outbound migration of harp seals along the north coast of Bylot Island in late September lasts about two weeks. Some harp seals are still moving into Lancaster Sound along the north Baffin coast in fall and cross Lancaster Sound and leave along the south coast of Devon Island.

Thick-billed murres (20,000 pairs) and **black-legged kittiwakes** (3,000 pairs) have colonies at Cape Graham Moore. Major colonies at Cape Hay have 140,000 pairs of thick-billed murres and 20,000 pairs of black-legged kittiwakes. Most of the murres leave by mid- to late September. The young are flightless and plunge from the cliffs into the water to begin their outbound migration by swimming, accompanied by the males. The kittiwakes rear their young until mid-September and leave by mid-October.

Oldsquaws (up to 3,000) summer along the north shore of Bylot Island between Cape Graham Moore and Cape Burney, off Cape Walter Bathurst and in Maud Bight. Some other birds also pass through here.

Eiders are common along the coast between Cape Graham Moore and Navy Board Inlet and may stay until late October.

Black Guillemots congregate near their colonies on Wollaston Islands until mid-October or early November.

The south coast of Lancaster Sound is highly sensitive to ships and aircraft because of the presence of large seabird colonies, many waterfowl, and migrating marine mammals, especially the bowhead whales; this is an endangered species.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over a colony.

Specific Adverse Effects and Mitigating Measures:

⇨ Spring

Real-time ice maps help locate the ice edge. Beluga whales and narwhals react to ships at distances of up to 33 miles. Speed should be reduced and other measures taken to reduce noise 40 miles from the Lancaster Sound ice edge.

Ships should not linger near ice edges. The ice edge should be crossed in a way that will minimize noise and disturbance.

Seabird colonies are sensitive during the entire spring period.

Bylot Island is very sensitive to aircraft and is a **Migratory Bird Sanctuary**. Overflights of the island should be avoided. If an overflight is necessary, the seabird colonies and important waterfowl areas should be avoided.

Ships should contact the communities of Pond Inlet and Arctic Bay for locations of on-ice hunting areas and support camps near Bylot Island. Ships and aircraft should avoid these sites or areas.

Coastal waters and coastal ice edges near SE Devon Island are very sensitive, as are adjacent land areas. If land areas around Croker Bay are to be over-flown during the spring ice edge scenario, the community of Arctic Bay should be contacted for the location of any hunting parties on the south coast of Devon Island.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over any wildlife.

⇨ Summer

Seabird colonies are sensitive during the entire summer period.

Aircraft should avoid overflights of bird concentrations in the area between Philpots Island and Croker Bay and the north coast of Bylot Island. If overflights are necessary, helicopters should maintain an altitude of 2,000 feet.

Birds in the water are not particularly sensitive to ships but ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

⇨ Fall

Seabird colonies are sensitive as long as they are occupied.

Aircraft should avoid overflights of bird concentrations in the area between Philpots Island and Croker Bay and the north coast of Bylot Island. If overflights are necessary, helicopters should maintain an altitude of 2,000 feet.

Birds in the water are not particularly sensitive to ships but ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

The north and south coasts of Lancaster Sound are migration routes for marine mammals. Ships should stay at least 10 miles away from shore.

Specific Site 1E:

Pond Inlet, Eclipse Sound, Navy Board Inlet

Refer to Chart 7212 and to Sailing Directions, Arctic Canada, Volume II, Chapter VI.

Navy Board Inlet leads along the west side of Bylot island and into Lancaster Sound.

Eclipse Sound, around the SW side of Bylot Island, connects Pond Inlet and Navy Board Inlet.

Spring season

There is full coverage with fast ice and an ice edge across Pond Inlet and Navy Board Inlet.

Environment

See Figures 7-6, 7-7 and 7-8

Narwhal are hunted at an ice edge that usually forms across the inlet. There are hunting camps on the sea ice near the ice edge; the camps are moved back as it recedes.

Ringed seals and **polar bears** are found in all areas with fast ice. Inuit from Pond Inlet hunt them in Pond Inlet, Eclipse Sound, Navy Board Inlet and along the north coast of Bylot Island. Up to 1,000 or more ringed seals may be harvested. Virtually all polar bears are harvested in the second half of winter and in spring. Inuit from Pond Inlet travel along the sea ice all through Pond Inlet, Eclipse Sound and Navy Board Inlet on their way to hunting areas and outpost camps in Koluktoo Bay and on the west coast of Eclipse Sound.

Ringed seals are in low densities at the ice edge but they congregate in fast-ice areas behind it. It is not uncommon to see several ringed seals hauled out on the ice around breathing holes that have been enlarged by melting.

Bowhead whales are at the ice edge in May to early July and in the pack ice off Pond Inlet.

Narwhal congregate at the ice edge, most of them within 400 m of it. Their numbers increase until just before break-up. The narwhal move into leads in the ice off Pond Inlet later in spring and there is a short narwhal hunt. The narwhal move through Pond Inlet to summering areas in Eclipse Sound in late spring after break-up of the ice edge and fast ice.

Thick-billed murres, **black guillemots**, **northern fulmars**, **black-legged kittiwakes** and **glaucous gulls** congregate at the Pond Inlet ice edge.

Because marine mammals and seabirds congregate at this ice edge and because residents of Pond Inlet hunt there, the Pond Inlet ice edge is very sensitive to ships and aircraft.

An ice edge usually forms across Navy Board Inlet after the fast ice recedes from eastern Lancaster Sound.

Narwhal and some **beluga whales** and **walrus** may congregate at this ice edge. If narwhal hunting is not productive at the Pond Inlet ice edge, hunters move to the Navy Board Inlet ice edge.

Ringed seals may congregate on the fast ice some distance behind the ice edge.

Polar bears congregate at this ice edge.

Caribou are hunted throughout the spring in areas south of Eclipse Sound and within an area between the west coast of Navy Board Inlet and Admiralty Inlet.

Northern fulmars, oldsquaws and **eider ducks** congregate off the ice edge and in open water at the entrance to Navy Board Inlet. This ice edge is sensitive to ships and aircraft.

Waterfowl have important summering habitat on the south plain of Bylot Island and parts of the coast of Pond Inlet, Eclipse Sound and Navy Board Inlet. Most birds arrive in May and June. Waterfowl and seabirds occupy shore leads and open water as soon as they can.

Eiders and **oldsquaw ducks** congregate on the south coast of Pond Inlet between Guys Bight and Cape Macculloch. Eiders are also common along the north coast of Pond Inlet.

Waterfowl make extensive use of marine areas along the south and SW shore of Bylot Island.

Pond Inlet Area

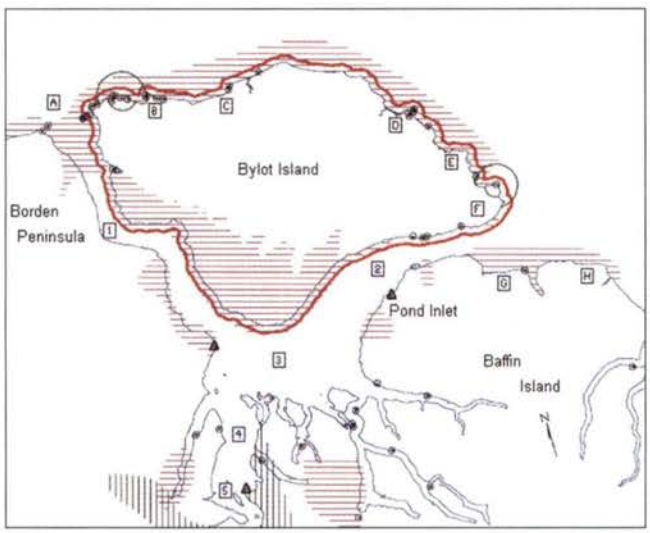


Figure 7-9: Summer Scenario

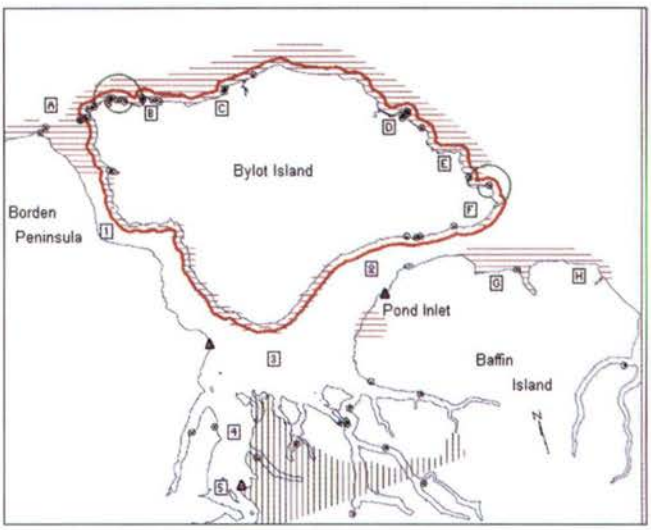


Figure 7-10: Fall Scenario

Land Legend

- A Wollaston Islands
- B Cape Hay
- C Maud Bight
- D Cape Walter Bathurst
- E Cape Burney
- F Cape Graham Moore
- G Guys Bight
- H Mcculloch Cape

Water Legend

- 1 Navy Board Inlet
- 2 Pond Inlet
- 3 Eclipse Sound
- 4 Milne Inlet
- 5 Koluktoo Bay

- Exclusion Zone
- Major Bird Colonies
- Caribou – Harvest
- Waterfowl – Areas of Concentration
- Outpost Camps
- Bird Colonies
- Walrus Haul-Out Sites

Snow geese (70,000), **oldsquaws** (several hundred) and **king eiders** breed on the south plain of Bylot Island.

Geese are common on both sides of north Navy Board Inlet and on the lowlands to the SW. There is a hunt for waterfowl in all these areas. A large part of the annual harvest of waterfowl is in spring.

Pond Inlet, Eclipse Sound and Navy Board Inlet are heavily used for resource harvesting and travel and are more sensitive to ships and aircraft than is Lancaster Sound. Not all hunting areas are used at all times but a route through here cannot avoid on-ice travel routes and hunting areas. A route through Lancaster Sound would be less environmentally disruptive than one through Pond Inlet, Eclipse Sound and Navy Board Inlet.

Ships should contact the community of Pond Inlet for locations of on-ice hunting areas and support camps.

Ships and aircraft should avoid any identified sites or areas.

Summer season

The ice of west Pond Inlet and Eclipse Sound breaks up in mid-July and can melt in a few days if conditions are favourable. Navy Board Inlet is usually ice-free from the third week in August to the end of September.

Environment

See Figure 7-9

Ringed seals are found in all areas, widely dispersed in open water. There are many of them in bays and fiords where there is ice for long periods, and especially in areas where ice stays all summer.

Harp seals, bowhead whales and **narwhal** summer in the Pond Inlet, Eclipse Sound and Navy Board Inlet area. Over 100,000 **waterfowl** breed, raise young, moult and stage in this area. Very few beluga whales summer here.

Polar bears retreat to the land in ice-free waters.

Caribou are hunted in the south part.

Arctic char are common along coastlines.

Hunters pursue marine mammals and waterfowl through most of the areas.

The entire Pond Inlet, Eclipse Sound and Navy Board Inlet area is very sensitive. Eclipse Sound is highly sensitive to ships, and the southern plain of Bylot Island is highly sensitive to aircraft.

Pond Inlet

Eiders congregate on the south coast of Pond Inlet between Guys Bight and Cape Macculloch. They are also common on the north coast of Pond Inlet south of Cape Graham Moore.

Oldsquaws (400) summer in Guys Bight and another 1,000 to 2,000 summer just south of Cape Macculloch. Some are still here in September.

Black guillemots are found in small local groups on both sides of Pond Inlet.

Arctic char are fished at many places along the south coast of Pond Inlet.

Eclipse Sound

The large numbers of breeding waterfowl account for the area's high sensitivity rating. Marine areas near the south shore of Bylot Island are highly sensitive to ships.

Bowhead whales summer in Eclipse Sound and especially in Milne Inlet. This area is highly sensitive to ships because of the presence of the bowhead whale and large numbers of narwhal.

Caribou are hunted in the area around south Milne Inlet.

Snow geese (over 70,000) breed on the south plain of Bylot Island.

Oldsquaws (several hundred pairs) and **king eiders** also breed on this plain.

Waterfowl make much use of marine areas along the south and SW coast of Bylot Island.

King eiders, oldsquaws and **snow geese** use coastal areas along the south and SW shores of Bylot Island as brood-rearing habitat. These birds are usually within 3 miles of shore.

Moulting oldsquaws (3,000) use this area in late summer. The birds are flightless and are found in large groups in near-shore waters.

Adult snow geese and most young of the year begin the migration south in early September.

Arctic terns congregate along the south and SW coast of Bylot Island. Most leave in mid-September.

Narwhal (up to 3,000) may summer in Eclipse Sound. They enter the area at break-up and stay until mid-September.

Geese are common in southern Tremblay Sound and the southern parts of some other fiords in Eclipse Sound. They leave by early September. Geese are common in early September on both sides of north Navy Board Inlet and on the lowlands to the SW.

Arctic char are fished in the bays and fiords of south Eclipse Sound and Milne Inlet and a few places in Navy Board Inlet.

Harp seals can be found in open water throughout the area but may congregate in Navy Board Inlet.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional haul-out sites on land. These are usually near shallow areas where they can feed on the bottom. A few use haul-outs in Wollaston Islands.

Northern fulmars congregate across the mouth of Navy Board Inlet and adjacent coastal areas of Bylot Island and the Borden Peninsula.

Black guillemots congregate near their colony on Wollaston Islands.

Geese are common on both sides of north Navy Board Inlet and on the lowlands SW of Navy Board Inlet.

Much of the annual hunt of ringed seals is in the open-water period. The summer hunt for narwhal is as important as the spring ice-edge hunt. A few bearded seals and walrus are also harvested. Waterfowl are hunted in spring, summer and fall.

The route from Pond Inlet to Navy Board Inlet is much more sensitive than a passage through Lancaster Sound.

Eclipse Sound is a very sensitive area so a direct route to the community of Pond Inlet through Pond Inlet is less disruptive than passage through Navy Board Inlet and Eclipse Sound. Thousands of waterfowl make much use of the near-shore waters of south and west Bylot Island. Hundreds of narwhal summer in Milne Inlet and the deep fiords of south Eclipse Sound. Narwhal are also found in the centre of Eclipse Sound, especially if there is pack ice. The least sensitive route through Eclipse Sound is through the centre of the channel.

Fall season

Marine mammals begin to leave before or during freeze-up. New ice forms in bays and inlets.

Environment

See Figure 7-10

Geese and **ducks** are hunted off Cape Macculloch, in Guys Bight, SW of Pond Inlet, south of Cape Graham Moore and off the south end of Bylot Island. Many ringed seals are taken in September and October.

Narwhal begin their outbound migration in September but some stay in the Pond Inlet/Eclipse Sound area into mid-October.

Bowhead whales that summer in Eclipse Sound and Milne Inlet migrate out of the area through Navy Board Inlet and then east along the coast of Bylot Island.

Harp seals are found in the Pond Inlet area in late September and early October.

Eiders congregate on the south shore of Pond Inlet between Guys Bight and Cape Macculloch. They are also common on the north shore of Pond Inlet south of Cape Graham Moore. They may stay until late October.

Black guillemots are found in small local groups on both sides of Pond Inlet. They leave in mid-October to early November.

Snow geese and most young of the year leave by early September. **Oldsquaws** are found here in September. **Eiders** stay until late October.

Northern fulmars congregate across the mouth of Navy Board Inlet and the coastal areas of Bylot Island and the Borden Peninsula until late October.

Eclipse Sound and Navy Board Inlet are medium in sensitivity. This is due to narwhal, the bowhead whales, waterfowl and hunting.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific adverse effects and mitigating measures:

⇨ *Spring*

Speed should be reduced and other measures taken to reduce noise emissions within 40 miles of these ice edges.

Ships should not linger near ice edges.

If an area within 40 miles of an ice edge is to be approached and/or if the ice edge is to be crossed, the community of Pond Inlet should be contacted for the locations of hunting camps. The ice edge should not be crossed without first contacting the community.

Helicopters should avoid the important waterfowl congregation and hunting areas and caribou hunting areas.

⇨ *Summer*

All of Bylot Island is a **Wildlife Sanctuary**. The SW part and adjacent near-shore areas are especially sensitive because of the large numbers of waterfowl that use the area.

Coastal areas in general should be avoided.

Milne Inlet is especially sensitive because of the narwhal, bowhead whales and outpost camps.

Birds in the water are not particularly sensitive to ships but ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Helicopters should avoid the important waterfowl congregation and hunting areas and caribou hunting areas.

⇨ *Fall*

All of Bylot Island is a **Wildlife Sanctuary**. The SW part and adjacent near-shore areas are especially sensitive because of the large numbers of waterfowl that use the area.

Birds in the water are not particularly sensitive to ships but ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Helicopters should avoid the important waterfowl congregation and hunting areas and caribou hunting areas.

Specific Site 1F:

Admiralty Inlet

Refer to Chart 7568 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Admiralty Inlet extends south from Lancaster Sound for 140 miles to **Easter Sound**, which joins it to **Berlinguet Inlet**. A low isthmus 4 miles wide separates the latter from Bernier Bay in the Gulf of Boothia.

Spring season

Break-up is in late-July to mid-August.

Environment

See Figures 7-11, 7-12 and 7-13

Hunting on the fast-ice of Admiralty Inlet and its related ice edge is very important to the communities of Nanisivik and Arctic Bay.

After break-up in Lancaster Sound, fast ice usually remains in Admiralty Inlet with an ice edge across the entrance to the inlet.

Northern fulmars and **black guillemots** congregate at this ice edge.

Narwhal congregate at this ice edge prior to its break-up and are hunted here. This hunt offers the people of Arctic Bay their main opportunity to catch the animal. As the ice breaks up, narwhal follow the retreating ice to their summering areas in the south parts of the Inlet.

Walrus are hunted in late spring at the west end of the ice edge, near the NW corner of the inlet.

Ringed seals and **polar bears** live on the fast ice of the inlet. Both are hunted in spring by residents of Nanisivik and Arctic Bay. Half the annual harvest of ringed seals may be taken in June. Almost all of the polar bear harvest is in late winter and in spring. On-ice travel routes are used to reach hunting areas and outpost hunting camps at the head of Moffet Inlet and Jungerson Bay. Seals and polar bears are hunted off the Uluksan Peninsula; this is a key hunting area in spring and summer.

Polar bears and seals are on the ice and Inuit are hunting from the ice and travelling across it. After break-up of the Lancaster Sound ice edge, the sensitivity of Admiralty Inlet decreases from the ice edge, at its north end, towards the south. However, the activities and use of the ice continue.

East coast

Northern fulmers (25,000 pairs) nest near Baillarge Bay on the NE coast of Admiralty Inlet. They generally arrive in late April but leave prior to egg laying and are virtually absent from colonies in late May/early June; they return in large numbers in early to mid-June. They may congregate in marine areas near the colony after the fast ice breaks up.

Caribou are hunted in an area east of Strathcona Sound, Adams Sound and Fleming Inlet and on the Steensby Peninsula.

Waterfowl are plentiful, especially on Steensby Peninsula. They arrive in May and June and are found in shore leads and other open-water areas as soon as they appear. Waterfowl are hunted in Strathcona and Adams Sounds and on and near Steensby Peninsula.

West coast

Waterfowl are hunted here.

Caribou are hunted on Brodeur Peninsula.

Summer season

Break-up is late-July to mid-August. Freeze-up is in late-September to mid-October.

Environment

See Figure 7-14

Ringed seals, **harp seals** and **bearded seals** are hunted in open water throughout the inlet. A large part of the annual ringed seal hunt is in summer. Most of the harvest of bearded seals and harp seals is in the open-water period. **Narwhal** hunting is mostly along the west coast.

Ringed seals are widely dispersed in open water. They are most abundant in bays and fiords where ice stays for long periods and especially in areas where ice stays all summer.

Polar bears are most abundant in bays and fiords where there is ice. In areas with no ice, they move onto the shore.

Narwhal (up to 10,000) and **harp seals** (3,500) summer in Admiralty Inlet.

Bowhead whales summer here and move to the south shore of Lancaster Sound in September.

Beluga whales are rare in Admiralty Inlet.

Because it is used by large numbers of marine mammals and waterfowl, most of the inlet is medium to high sensitivity for ships

East coast

Hunting is especially important here. The area is sensitive to disturbance and highly sensitive to ships and medium sensitive to aircraft. Walrus are hunted in Strathcona Sound and Adams Sound. Waterfowl are also hunted in Strathcona and Adams Sounds and in several other areas.

There is fishing for **arctic char** at many places along the east coast of Admiralty Inlet south of Adams Sound.

Caribou are hunted inland east of Adams Sound and Fleming Inlet.

Black guillemots have a colony SW of Cape Joy at the entrance to Admiralty Inlet and congregate in near-shore waters.

Northern fulmars (25,000 pairs) nest near Baillarge Bay on the NE coast of Admiralty Inlet. They congregate in near-shore waters near the colony and NE of it.

Prince Regent Inlet and Arctic Bay

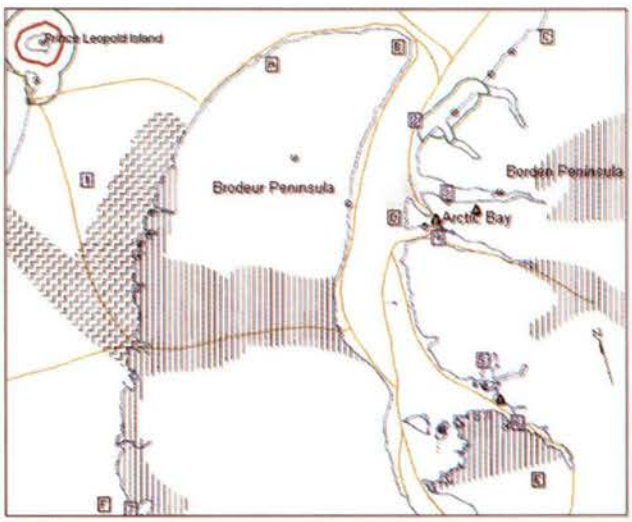


Figure 7-11: Spring Scenario 1

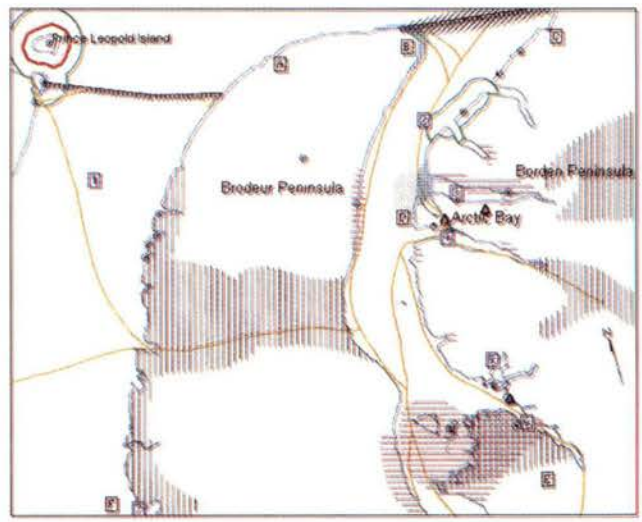


Figure 7-13: Spring Scenario 3

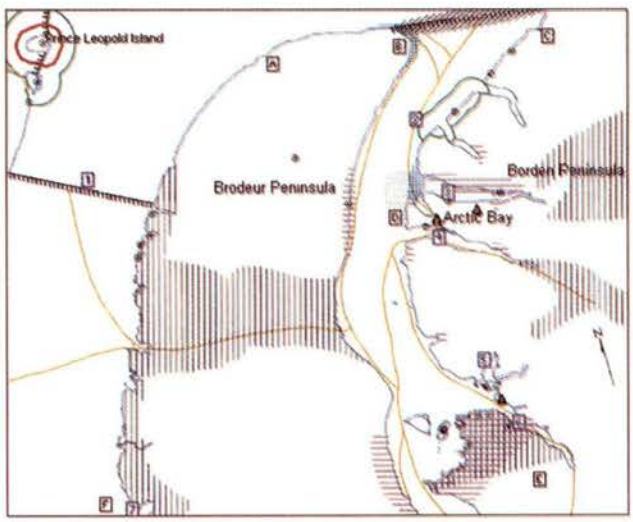


Figure 7-12: Spring Scenario 2

Land Legend

- A Cape York
- B Cape Crauford
- C Cape Joy
- D Uluksan Peninsula
- E Steensby Peninsula
- F Cape Kaye

Water Legend

- 1 Prince Regent Inlet
- 2 Admiralty Inlet
- 3 Strathcona Sound
- 4 Adams Sound
- 5 Fleming Inlet
- 6 Moffet Inlet
- 7 Fitzgerald Bay

Snow geese (2,000) breed on Steensby Peninsula. Most adult snow geese and young of the year begin the migration south by early September.

Common Eiders nest here in large numbers and congregate in near-shore waters.

Oldsquaws use this area in late summer.

Waterfowl are hunted in Moffet Inlet and on Steensby Peninsula and nearby areas along the west shore.

Caribou are hunted on Steensby Peninsula.

West coast

A large part of the annual narwhal hunt is in summer. Most of this is along the west coast of Admiralty Inlet. Waterfowl are hunted at several places and arctic char are fished in some areas. Walrus are hunted near the NE corner of Brodeur Peninsula.

The west shore is quite sensitive to ships.

Fall season

Freeze-up is late-September to mid-October.

Environment

See Figure 7-15

Most of Admiralty Inlet is medium in sensitivity to both ships and aircraft.

Narwhal leave in September. During fall migration, they disperse in open water and stay there as long as open water permits.

Harp seals stay in Admiralty Inlet until late September.

Beluga whales are seldom seen here.

Black guillemots have a colony west of Cape Joy at the entrance to Admiralty Inlet. The birds also congregate in nearby marine areas. Most leave by mid-October to early November.

Northern fulmers (25,000 pairs) nest near Baillarge Bay on the NE coast of Admiralty Inlet. The breeding season for fulmars extends to mid-October and all leave by late October.

The Arctic Bay area is a very important hunting area and is sensitive to disturbance. Waterfowl are hunted in Strathcona and Adams Sounds and several other areas in September.

Common eiders nest in large numbers and congregate in near-shore waters. They may stay until late September.

Waterfowl are hunted in September in Moffet Inlet, on Steensby Peninsula, and in nearby along the west coast of Admiralty Inlet.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet over a colony.

Birds in the water are not particularly sensitive to ships but ships should avoid rafts of moulting waterfowl (large numbers of birds huddled together on the water). These birds are flightless and sensitive to disturbance.

Specific adverse effects and mitigating measures:

⇨ *Spring*

Real-time ice maps help locate the ice edge. Narwhal react to ships at distances of up to 33 miles. Speed should be reduced and other measures taken to reduce noise 40 miles from the ice edge.

Ships should not linger near ice edges.

If an area within 40 miles of the ice edge is to be approached and/or if the ice edge is to be crossed, ships should contact Arctic Bay and Nanisivik for the locations of on-ice hunting areas and support camps. Ships and helicopters should avoid these areas.

The ice edge should not be crossed without first contacting the communities of Arctic Bay and Nanisivik.

Seabird colonies are sensitive during the entire spring period.

Prince Regent Inlet and Arctic Bay

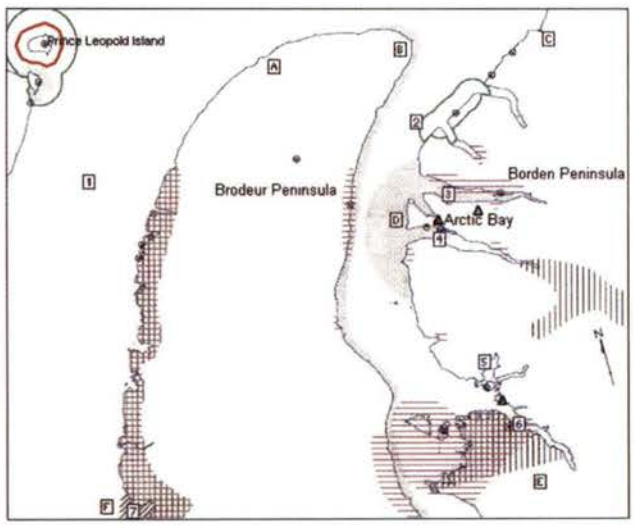


Figure 7-14: Summer Scenario

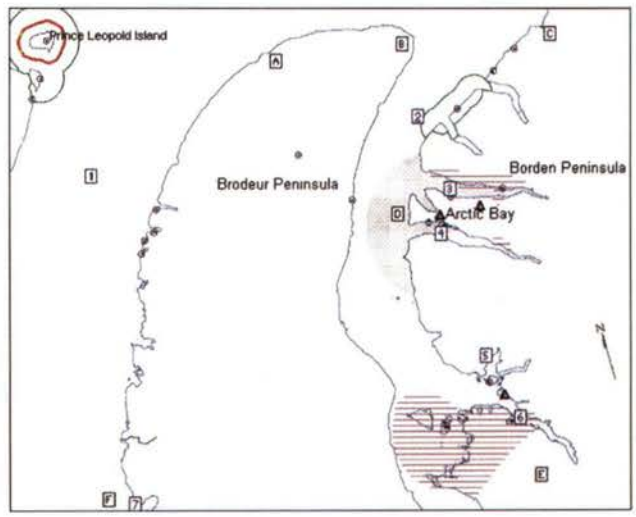


Figure 7-15: Fall Scenario

Land Legend

- A Cape York
- B Cape Crauford
- C Cape Joy
- D Uluksan Peninsula
- E Steensby Peninsula
- F Cape Kaye

Water Legend

- 1 Prince Regent Inlet
- 2 Admiralty Inlet
- 3 Strathcona Sound
- 4 Adams Sound
- 5 Fleming Inlet
- 6 Moffet Inlet
- 7 Fitzgerald Bay

- Exclusion Zone
- Major Bird Colonies
- Travel Routes
- Bird Colonies
- Outpost Camps
- Beluga – Areas of Concentration
- Caribou – Harvest
- Key Hunting Area
- Waterfowl – Harvest and Areas of Concentration

Helicopters should avoid the important on-ice hunting area off Arctic Bay, waterfowl congregation and hunting areas, the ice edge, the seabird colony at Baillarge Bay, and caribou hunting areas.

Helicopters should avoid the important waterfowl hunting areas and caribou hunting areas.

⇨ *Summer*

Seabird colonies are sensitive during the entire summer period.

Aircraft should avoid overflights of concentrations of waterfowl and waterfowl hunting areas. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Aircraft should avoid caribou hunting areas. If overflights cannot be avoided, an altitude of 2,000 feet should be maintained.

The least sensitive route for ships is down the centre of Admiralty Inlet, Strathcona Sound and Adams Sound.

⇨ *Fall*

Seabird colonies are sensitive as long as they are occupied.

Aircraft should avoid overflights of concentrations of waterfowl and waterfowl hunting areas. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

General Site 2:

Lancaster Sound, Western Part

Refer to Chart 7503 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Sailing Directions, Arctic Canada, Volume I gives information on ice conditions.

Spring season

There are large areas of consolidated pack ice and extensive near-shore areas of fast ice.

Environment

Polar bears and **ringed seals** are widely distributed on the sea ice in early spring when there is ice in western Lancaster Sound.

Ringed seal prime breeding habitat is on near-shore fast ice in areas with irregular coastlines. There are more seals in these near-shore areas than in offshore areas.

Female polar bears with new-born cubs move from terrestrial denning areas onto the sea ice in late March and early April to hunt seals, usually in places where ringed seals are pupping. They prefer to hunt along ice edges and leads in the ice where seals are easier to catch.

Beluga whales and **narwhal** are found in offshore waters of west Lancaster Sound after the Lancaster Sound ice edge retreats. Small groups of belugas may be found along ice edges of bays and fiords along the south shore of Devon Island. The distribution of both species tends to move westward as the ice edge retreats to the west. The sensitive areas in offshore waters of west Lancaster Sound in the spring are due to populations of beluga whales and narwhal.

Generally, the coastal areas along the north shore of west Lancaster Sound are more sensitive to ships and aircraft than the open-water areas. Marine animals are widely dispersed in open water but tend to congregate along coastal ice edges.

An ice edge often forms from Maxwell Bay to the NE corner of Somerset Island. This ice edge may delay the migration of narwhal to areas further west.

Narwhal do not appear to congregate at this ice edge as much as they do at the Lancaster Sound ice edge.

Beluga whales and **harp seals** do not congregate at this ice edge.

Ringed seals may retreat from the ice edge and congregate on the fast ice behind the ice edge.

Thick-billed murres, black guillemots, black-legged kittiwakes and **northern fulmars** congregate close to the ice edge.

This ice edge is rated as sensitive to aircraft but not to ships because there are large numbers of seabirds but few marine mammals.

When this ice edge breaks up and allows passage, narwhal disperse in the pack ice of Barrow Strait and western Lancaster Sound.

Summer season

Lancaster Sound usually clears of ice in July or mid-August.

Environment

Ringed seals are widely dispersed in open water. They migrate to and are most abundant in bays and fiords where ice stays longer, and especially in areas where there is ice all summer.

Polar bears are most abundant in bays and fiords where there is still ice. In areas with no ice, they move onto the shore.

Most migratory marine mammals move further west and south to their summering areas.

Beluga whales, narwhal and **bowhead whales** are rare in the offshore waters of Lancaster Sound in summer.

Harp seals continue their migration into Lancaster Sound along the north coast of Bylot Island throughout the summer. However, most harp seals that enter Lancaster Sound do not move very far west but turn north across the sound and migrate out along the south coast of Devon Island.

Eastern Barrow Strait

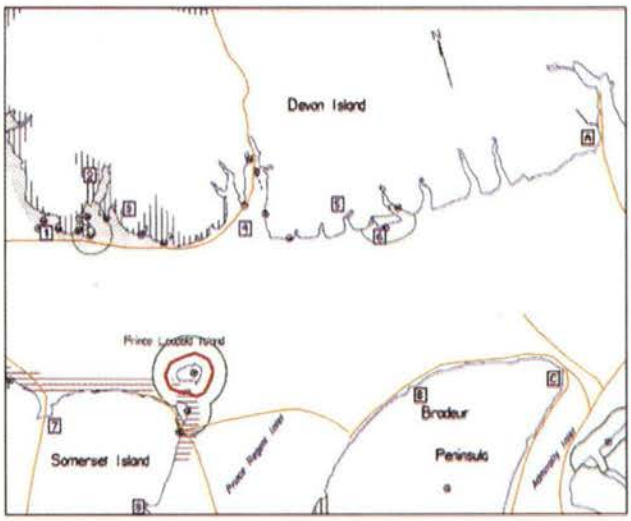


Figure 7-16: Spring Scenario 1

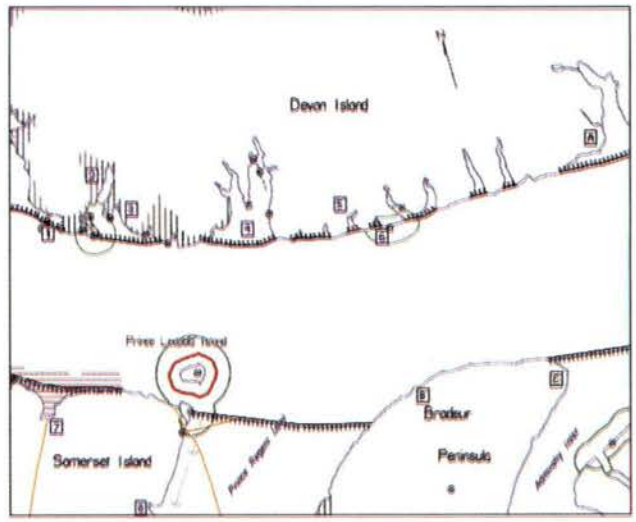


Figure 7-18: Spring Scenario 3

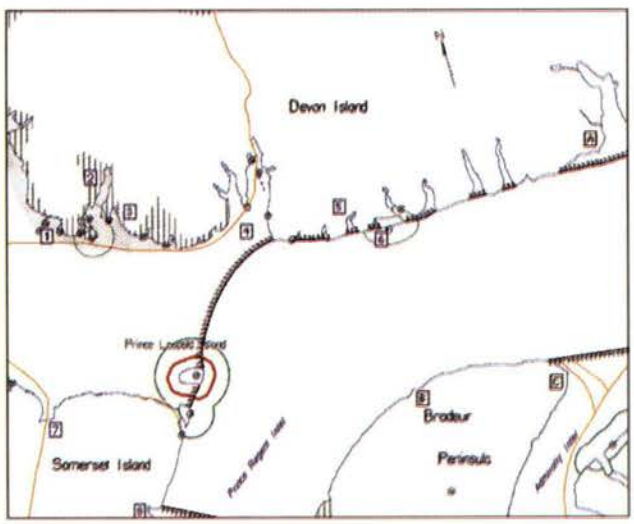
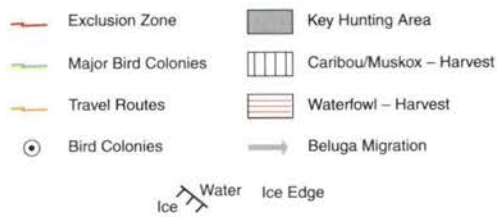


Figure 7-17: Spring Scenario 2



Land Legend

- A Cape Home
- B Cape York
- C Cape Crauford

Water Legend

- 1 Union Bay
- 2 Radstock Bay
- 3 Kearney Cove
- 4 Maxwell Bay
- 5 Blanley Bay
- 6 Hobhouse Inlet
- 7 Garnier Bay
- 8 Elwin Bay

Fall season

Western Lancaster Sound has a mix of some older floes and new ice.

Environment

The sensitive areas in offshore waters of west Lancaster Sound, Barrow Strait and Prince Regent Inlet are due to outbound migrating beluga whales, narwhal, harp seals, bowhead whales and thick-billed murres.

Specific Site 2A:

North Shore: Cape Home to Maxwell Bay

Refer to Chart 7503 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Maxwell Bay is the largest inlet on the south side of Devon Island.

Spring season

There may be large areas of consolidated pack ice and extensive near-shore areas of fast ice.

Environment

See Figures 7-16, 7-17 and 7-18

After the ice edge retreats, coastal areas of north Lancaster Sound are heavily used by seabirds and marine mammals and are more sensitive than offshore areas.

Northern fulmars and **black guillemots** congregate along coastal ice edges after the Lancaster Sound ice edge retreats to the west. Northern fulmars especially congregate near the Hobhouse Inlet seabird colony.

Beluga whales are in small groups along ice edges in bays and fiords.

Ringed seals prefer near-shore areas where there is ice.

Polar bears also congregate in these near-shore areas. When the ice edge recedes from Lancaster Sound, polar bears gather in some bays along south Devon Island where ice stays longer and they can hunt seals. They also congregate in Maxwell Bay, offering an important hunt.

Walrus prefer shallow near-shore areas with ice edges and adjacent scattered ice pans. There are more of them in coastal areas along the north shore of Lancaster Sound than there are off the north shore of Baffin Island.

Northern fulmars (75,000 pairs) have a major seabird colony at Hobhouse Inlet. They have very long nesting cycles, being in their colonies for nearly four months. The colonies are in areas where food is plentiful. Fulmars arrive in late April, but leave prior to egg-laying and are virtually absent from their colonies in late May and early June. The birds return in large numbers in early to mid-June.

Eastern Barrow Strait

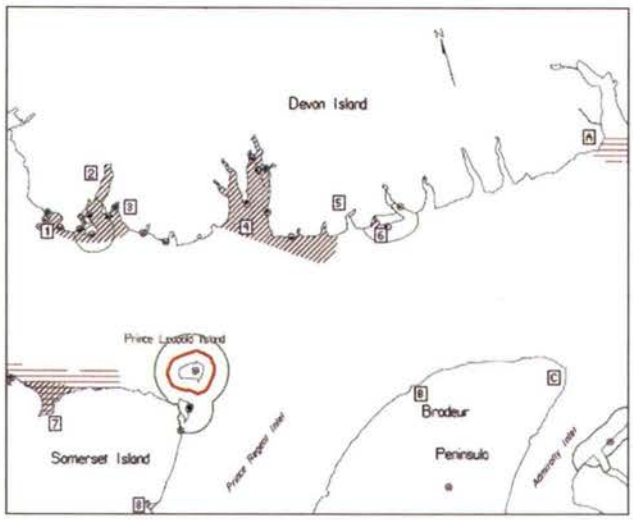


Figure 7-19: Summer Scenario

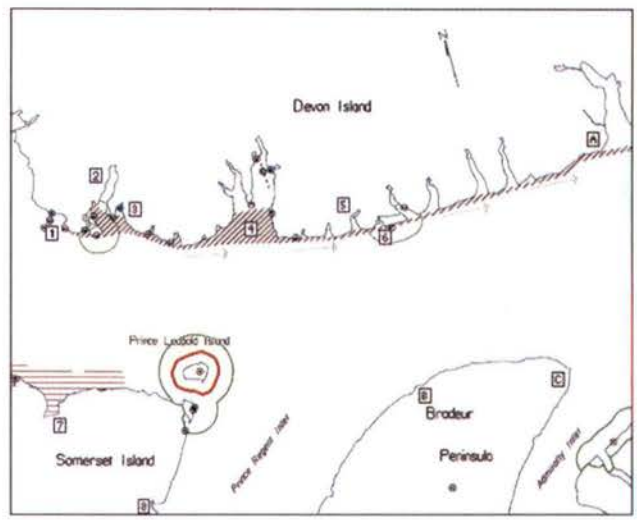


Figure 7-20: Fall Scenario

Land Legend

- A Cape Home
- B Cape York
- C Cape Crauford

Water Legend

- 1 Union Bay
- 2 Radstock Bay
- 3 Kearney Cove
- 4 Maxwell Bay
- 5 Blanley Bay
- 6 Hobhouse Inlet
- 7 Garnier Bay
- 8 Elwin Bay

- Exclusion Zone
- Major Bird Colonies
- Travel Routes
- Beluga – Areas of Concentration
- Waterfowl – Areas of Concentration
- Beluga Migration
- Bird Colonies
- Walrus Haul-Out Sites

Summer season

Lancaster Sound usually clears of ice between the end of June and mid-August.

Environment

See Figure 7-19

Beluga whales use coastal and offshore waters. They tend to return to the same bays and inlets each year but not all the bays and inlets are used every year. They enter estuaries for about five weeks, entering with the rising tide and leaving with the falling tide. Beluga whales use some of the bays on the south coast of Devon Island. About 70 of them may use Hobhouse Inlet in some years.

Northern fulmars (75,000 pairs) have a major colony at Hobhouse Inlet. They have long nesting cycles, staying in their colonies for nearly four months. The colonies are in areas where food is plentiful. They congregate in near-shore waters.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional sites when hauling out on land. These are usually near shallow areas where they can feed on the bottom. There is a walrus haul-out on the east shore of inner Maxwell Bay.

Black-legged kittiwakes congregate off-shore between Blanley Bay and Maxwell Bay.

Beluga whales (over 1,000) may spend at least part of the summer in Maxwell Bay.

Thick-billed murres and **black guillemots** congregate in Maxwell Bay. This bay is relatively sensitive to both ships and aircraft.

Fall season

There is a mix of older floes and new ice.

Environment

See Figure 7-20

The area has a high sensitivity to ships because of the presence of migrating beluga whales and narwhal and a seabird colony.

Beluga whales from Prince Regent Inlet, West Barrow Strait and Peel Sound migrate along a broad front north across Barrow Strait to south Devon Island. From there, the fall migration out of Lancaster Sound is highly co-ordinated along the south coast of Devon Island. Most of the population moves through in less than a week. Most migrating belugas are within 400 m of the shore.

Narwhal begin to leave the arctic islands in September. The outbound migration is mostly near the north and south coasts of Lancaster Sound, at least for the first part of the migration. On the way out of Lancaster Sound, the outbound migration of narwhal becomes very rapid but some animals stay until mid-October.

Harp seals migrate into Lancaster Sound along the south shore all summer and fall. Most animals do not remain in the area; they cross Lancaster Sound and migrate out along the south coast of Devon Island. Harp seals that have summered in the passages of the arctic islands leave Lancaster Sound by late September. The outbound migration of harp seals along the south coast of Devon Island is over a long period of time.

Walrus prefer to haul out on ice but will haul out on land when there is no ice. They have traditional sites when hauling out on land. These are usually near shallow areas where they can feed on the bottom. There is a walrus haul-out on the east shore of inner Maxwell Bay.

Northern fulmars (75,000 pairs) have a major seabird colony at Hobhouse Inlet. They have very long nesting cycles, being at their colonies for nearly four months. The breeding season for fulmars extends to mid-October and they have all left by late October.

Specific Site 2B:

South Shore: Cape Crauford to Cape York

Refer to Chart 7568 and to Sailing Directions, Arctic Canada, Volume II, Chapter VII.

Cape Crauford *(73°45′N, 84°50′W)*, the NW entrance Point of Admiralty Inlet, is a promontory 14 m high backed by a cliff. The land rises to 488 m about 4 miles west of the cape and is mostly covered by a snowfield.

Cape York *(73°49′N, 87°00′W)*, on the NW part of **Brodeur Peninsula**, is in the delta of the **Saaqu River**. The cape is low and does not show up well on radar.

Spring, summer and fall seasons

Sailing Directions, Arctic Canada, Volume I gives information on ice conditions.

Environment

Narwhal congregate near the north and south shores of Lancaster Sound on their outbound migration in September. Some of them stay in Lancaster Sound until mid-October.

Bowhead whales that summer in Prince Regent Inlet and areas to the west migrate out along the north coast of Baffin Island. They travel close to shore.

King eiders and **oldsquaws** congregate along the shores in spring and use near-shore areas in summer.

Black guillemots gather along coastal ice edges after the Lancaster Sound ice edge retreats westward.

Conclusion

The general mitigating measures outlined in Chapter 3 should be applied as appropriate.

Ships should stay at least 1.7 miles away from any seabird colony. Aircraft should stay at least 4.4 miles offshore or 1.7 miles inland or maintain an altitude of 2,000 feet above a colony.

To minimize disturbance, helicopters should maintain an altitude of 2,000 feet and not chase or fly low over wildlife.

Specific Adverse Effects and Mitigating Measures:

⇨ *Spring*

Marine mammals have not been seen congregating at the Maxwell Bay/Somerset Island ice edge. No special precautions need be taken when crossing this ice edge. If marine mammals are seen at the ice edge or new observations indicate that it is a possibility, speed should be reduced and other measures taken to reduce noise at a distance of 40 miles from the ice edge.

Seabird colonies are sensitive during the entire spring period.

When there is fast ice in Maxwell Bay, ships should contact the community of Resolute for the location of any polar bear hunt. Overflights of Maxwell Bay should be avoided at such times.

⇨ *Summer*

Seabird colonies are sensitive for the entire summer period.

Aircraft should avoid overflights of bird concentrations in the area around Maxwell Bay. If overflights are necessary, a minimum altitude of 2,000 feet should be maintained.

Ships usually cause little disturbance to birds in the water.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

Ships should stay at least 10 miles away from bays and inlets used by beluga whales. Aircraft should stay at least 10 miles offshore or 3 miles inland or maintain an altitude of 2,000 feet.

⇨ *Fall*

Seabird colonies are sensitive during the entire summer to early fall period.

In the mid-July to mid-September haul-out period, ships and aircraft should not approach within 1.7 miles of walrus haul-outs. Helicopters should maintain an altitude of 2,000 feet.

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Amundsen Gulf
Parry Channel
Byam Martin Channel
Belcher Channel
Axel Heiberg Island
Eureka
Ellesmere Island
Kane Basin
Nares Strait
GREENLAND
Melville Bugt
Grise Fiord
Jones Sound
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Resolute
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