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Socio Economic Assessment of the Paulatuk Area of Interest

Cover image: Blythe Browne.

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ACRONYMS

AANDC	Aboriginal Affairs and Northern Development Canada
AOI	Area of Interest
BSP	Beaufort Sea Partnership
CEAA	Canadian Environmental Assessment Agency
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DND	National Defense
EBSA	Ecologically and Biologically Significant Area
EIRB	Environmental Impact Review Board
EISC	Environmental Impact Screening Committee
ENR	Department of Environment and Natural Resources
FJMC	Fisheries Joint Management Committee
GNWT	Government of the Northwest Territories
HTC	Hunters and Trappers Committee
IBA	Important Bird Area
IFA	Inuvialuit Final Agreement
IGC	Inuvialuit Game Council
ILA	Inuvialuit Land Administration
IRC	Inuvialuit Regional Corporation
ISR	Inuvialuit Settlement Region
ITI	Departmant of Industry, Tourism and Investment
LOMA	Large Ocean Management Area
MBS	Migratory Bird Sanctuary
MPA	Marine Protected Area
NMCA	National Marine Conservation Area
NRCan	Natural Resources Canada
NWT	Northwest Territories
RCC	Regional Coordination Committee
SSAC	Site Selection Advisory Committee

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Figure 1a: Inuvialuit Settlement Region

1.0 INTRODUCTION

1.1 Background

Under Canada's *Oceans Act*, Marine Protected Areas (MPAs) are established to protect and conserve important fish and marine mammal habitats, endangered marine species and their habitats, unique features and areas of high biological productivity or biodiversity. The Health of the Oceans initiative launched in 2007 provided funding for the establishment of six new Marine Protected Areas, which would help meet Canada's goal of establishing a network of marine protected areas by 2012. One of the new MPAs was to be located in the Western Arctic in the Beaufort Sea Large Ocean Management Area (LOMA). The Beaufort Sea LOMA is the marine portion of the Inuvialuit Settlement Region (ISR), a settled land claim.

1.2 Objectives

As described in the *National Framework for Establishing and Managing Marine Protected Areas* (DFO, 1999), an ecological and socio-economic assessment must be conducted to determine the merits of the Area of Interest (AOI), how significant they are, what the impacts from human activities are on the significant ecological features and functions, and whether the area complies with the reasons for establishing an MPA as stated in the Oceans Act. This document comprised the socio-economic portion of the assessment.

1.3 Site Selection Process

This AOI is the second area proposed for an MPA in the Beaufort Sea. The first, the Tarium Niryutait MPA, is located in the Mackenzie River estuary in the western part of the ISR.

Facing Image: Terry Stein

The communities of Paulatuk, Ulukhaktok and Sachs Harbour expressed interest in protecting marine areas near their communities to the Fisheries Joint Management Committee (FJMC) and Fisheries and Oceans Canada (DFO). The FJMC, Inuvialuit Game Council (IGC), Inuvialuit Regional Corporation (IRC) and DFO discussed the potential of identifying a second candidate MPA site, and decided to support the idea and form a Site Selection Advisory Committee (SSAC) to undertake the process of identifying an Area of Interest for a proposed MPA. The SSAC was formed with representatives from DFO, FJMC, IRC and IGC in September 2008.

The SSAC held workshops with the communities of Paulatuk, Ulukhaktok and Sachs Harbour in November 2008 to gain input on specific areas of ecological and social/cultural importance near their communities that they felt may deserve protection as an MPA. The communities identified areas, ranked each one, and then chose their two top areas as candidates.

Criteria considered by the communities included:

- Does the area contain culturally important species?
- Is the area identified in a Community Conservation Plan?
- Does the area have ecological importance?
- Is there high biodiversity?
- Is there high productivity?
- Are there threats to the area?
- How immediate are these threats?
- What is the possibility of future conflicts with stakeholders?
- Does the area contribute to social and cultural values?

Additional criteria used by the Site Selection Advisory Committee included:

- Is the area replicated or protected elsewhere?
- Are there related management plans or other managed areas associated with the potential candidate area?
- How much information is available for the area?
- Will there be economic benefits from protection? and
- How feasible is it to establish an MPA in the potential candidate area?

Feasibility criteria included that the area:

- Be close to a community;
- Have existing monitoring activities or be possible to monitor;
- Have no jurisdictional conflicts;
- Be suitable for zoning, providing flexibility in management options if required; and
- Would contribute to other wildlife and habitat conservation measures (e.g. adjacent to Migratory Bird Sanctuary, National Park, Beaufort Sea Beluga Management Plan, Char Management Plans, etc.).

Communities felt that the SSAC should recommend three areas, one for each community. They expressed that it was difficult to determine one area from a community being more important than other areas recommended by other communities.

The SSAC re-applied the criteria to choose one area from each community to recommend to the Regional Coordination Committee (RCC) Chairs, who are senior representatives of DFO, IGC and IRC. The three areas were:

- Nearshore waters from Pearce Point to Cape Parry (Paulatuk area);
- Prince Albert Sound (Ulukhaktok area); and
- Thesiger Bay to Nelson Head (Sachs Harbour area).

The recommendation for the creation of three MPAs was rejected by the RCC due to lack of human and financial resources to complete the

process by 2012, as well as a lack of commitment for operational funds to manage more than one new MPA.

The SSAC reassessed the criteria using additional available information. Though all three sites were closely matched, Darnley Bay scored higher for productivity and biodiversity.

The SSAC re-visited the communities of Paulatuk, Ulukhaktok and Sachs Harbour to provide the results of the recommendations made concerning proposed MPAs, and the rationale for the final selection of Darnley Bay. The community of Paulatuk supports the choice of Darnley Bay as an Area of Interest for an MPA, and Ulukhaktok and Sachs Harbour also respected and supported the decision of the SSAC.

Darnley Bay met the ecological and feasibility criteria for an Area of Interest for a proposed MPA. The AOI is located within a LOMA and spans two identified Ecologically and Biologically Significant Areas (EBSAs). It has a high ecological importance and is biologically diverse. Several species and their habitats were thought to be the susceptible to anthropogenic activities which might occur within the area, yet there is anticipated to be minimal conflict among resource users in this area.

1.3.1 Regional Study Area

The AOI is within the Beaufort Sea LOMA, which includes the marine portion of the Inuvialuit Settlement Region (Figure 1a).

1.3.2 Detailed Study Area

The AOI is situated along the coastline of Darnley Bay, from Pearce Point to Cape Parry, in proximity to the community of Paulatuk, Northwest Territories (Figure 1b).

1.4 Current Status of the Area

The Area of Interest is located within the Inuvialuit Settlement Region. Portions of the Area of Interest are already dealt with by three management plans: the Paulatuk Community Conservation Plan, Paulatuk Char Management Plan and the Beaufort Sea Beluga Management Plan. Portions of the Area of Interest have been identified as conservation priorities under various initiatives such as Important Bird Areas and DFO EBSAs. There are currently no areas formally protected under legislation within the Area of Interest, although a Migratory Bird Sanctuary, which is a land-based protected area, exists adjacent to the Area of Interest. These plans and designated areas are outlined below.

1.4.1 Paulatuk Community Conservation Plan

The Paulatuk Community Conservation Plan (Community of Paulatuk et al., 2000) identifies important habitats, harvesting areas and cultural sites and makes recommendations for their management. Most of the Area of Interest falls within areas identified as Management Category E in the Plan due to the marine area being identified as Beluga Management Zone 1B (Figure 1c). The remainder of the AOI and the Cape Parry Peninsula itself is identified as Category C ranging for purposes as diverse as caribou and muskox hunting to fishing and berry harvesting.

Category E areas are recommended for the highest degree of protection. They are lands and waters where cultural or renewable resources are of extreme significance and sensitivity, and it is recommended that there be no development in these areas. Category C areas are lands and waters where cultural or renewable resources are of particular significance and sensitivity during specific times of the year. These areas are recommended to be managed to eliminate, to the greatest extend possible, potential damage and disruption (Community of Paulatuk, et al, 2000).

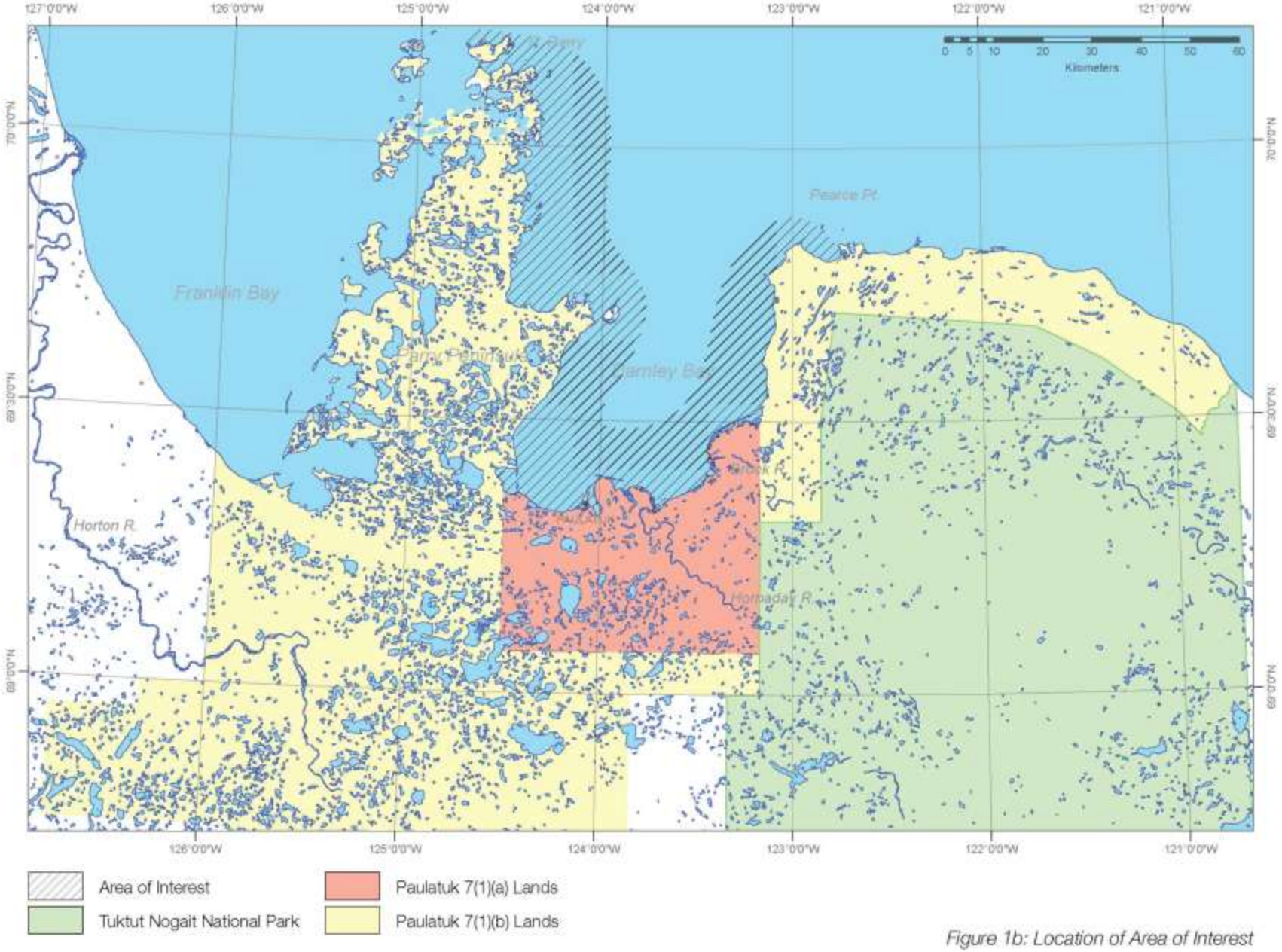


Figure 1b: Location of Area of Interest

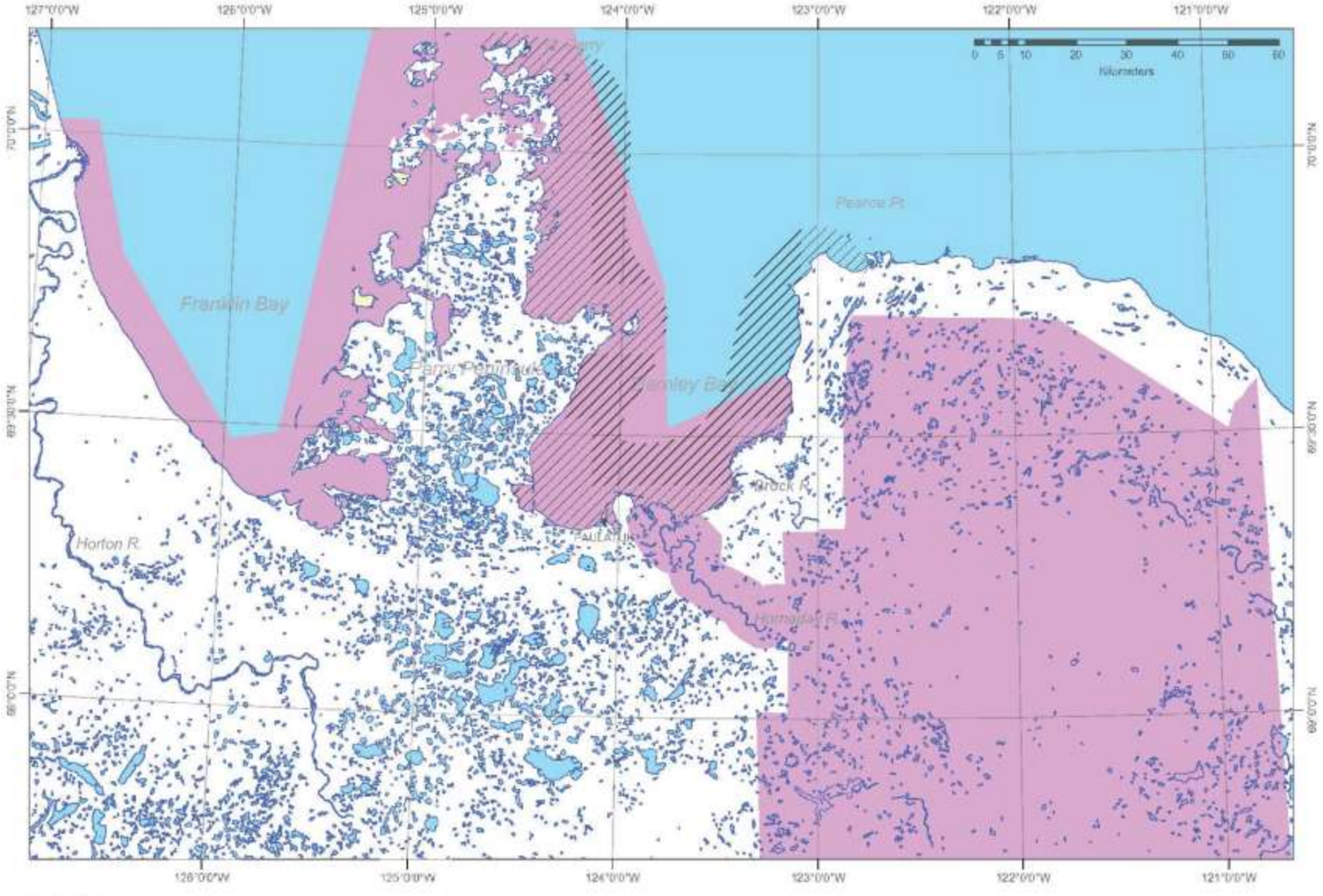


Figure 1c: Management Category "E" Areas
Paulatuk Community Conservation Plan, 2000

1.4.2 Beaufort Sea Beluga Management Plan

The Beaufort Sea Beluga Management Plan (FJMC, 2001) was developed to ensure the responsible and effective, long-term management of beluga by the Inuvialuit and DFO. Much of the Area of Interest (with the exception of the area north of the Brock River estuary) is designated as a Beluga Management Zone 1B in the Beaufort Sea Beluga Management Plan (FJMC, 2001).

The 1B Zones are the occasional or potential harvesting areas in the Inuvialuit Settlement Region. In reviewing development proposals, any Zone 1 areas (including 1B areas) are to be considered as protected areas. The Beluga Management Plan recommends that Zone 1B areas should not be subject to exploration or exploitation of hydrocarbons by the oil and gas industry, commercial fishing proposals should be evaluated and regulated with regard to beluga food species, developments such as hydro-electric or mining projects should be evaluated for potential deleterious effects on water quality and quantity or the salinity and integrity of ice.

1.4.3 Cape Parry Important Bird Area and Migratory Bird Sanctuary

Important Bird Areas (IBAs) are internationally agreed-upon sites that are deemed a priority for conservation. These sites hold significant numbers of one or more globally threatened species, are one of a set of sites that together hold a suite of restricted-range species or biome-restricted species, or have exceptionally large numbers of migratory or congregatory species (BirdLife International, 2009). Canada's science-based Important Bird Area program identifies, conserves and monitors sites that provide essential habitat for Canada's bird populations (IBA Canada, 2009).

The Cape Parry Important Bird Area includes the cape and the waters off the cape, recognizing the importance of the limestone cliffs of the cape, and the polynya and upwelling currents around the cape. It is significant for: the only Thick-billed Murre colony in the western Canadian Arctic; suspected breeding of Black Guillemots; and the up-to-20,000 King Eiders, Common Eiders and Oldsquaw that stage in the offshore open water in the spring—a globally significant number of waterfowl (IBA Canada, 2004).

The 200-hectare Cape Parry Migratory Bird Sanctuary (MBS) was established in 1961 under the Migratory Birds Convention Act. (Canadian Wildlife Service, 2005). MBSs are created at important sites to conserve migratory bird populations by regulating hunting and protecting them from disturbance during migration and nesting. Management activities at these sites include monitoring, maintaining or improving habitat, enforcing regulations, and conducting research (Environment Canada, 2007).

1.4.4 Paulatuk Char Management Plan

The Paulatuk Char Management Plan was written to ensure a healthy stock of Arctic char (Salvelinus alpinus) by protecting habitat, and managing and conserving the char population to ensure that subsistence needs are met. Through a partnership of the FJMC, the Paulatuk Hunters and Trappers Committee (HTC), and DFO, the first plan was put in place for 1998-2002. The Plan has now been updated for 2007-2010. The harvest is monitored annually through a community monitoring program, the results of which help the responsible organizations to make decisions on the next edition of the Plan. The Plan makes recommendations regarding areas open to fishing, gear choice, method of capture, and size of harvest. The Plan calls for a harvest of no more than 1700 fish from the Hornaday River which represents a 30% reduction in take from years before the Plan was in place. Since the Plan has been in place there has been a steady increase in average size of fish caught as well as catch per unit effort. Both trends are indications that the Hornaday River char population is improving.

1.4.5 Ecologically and Biologically Significant Areas

Ecologically and Biologically Significant Areas (EBSAs) are identified by Fisheries and Oceans Canada as part of the ecosystem–based management of LOMAs. EBSAs are areas that are important to the structure and function of some component of the marine environment or to a particular ecosystem. EBSAs are not regulated, but because of their significant properties should be managed with a great degree of risk aversion. In the Beaufort Sea LOMA, EBSAs were identified through combining knowledge held by scientists and researchers, with traditional knowledge held by communities (Paulic et al., 2009)

The Area of Interest spans two EBSAs: Hornaday River and Pearce Point (Cobb et al, 2008). The Hornaday River EBSA is in the southern region of Darnley Bay and is a coastal estuary including the Hornaday and Brock River systems. The Pearce Point EBSA is the northern region of Darnley Bay between Pearce Point and Cape Parry. (Cobb et al, 2008).

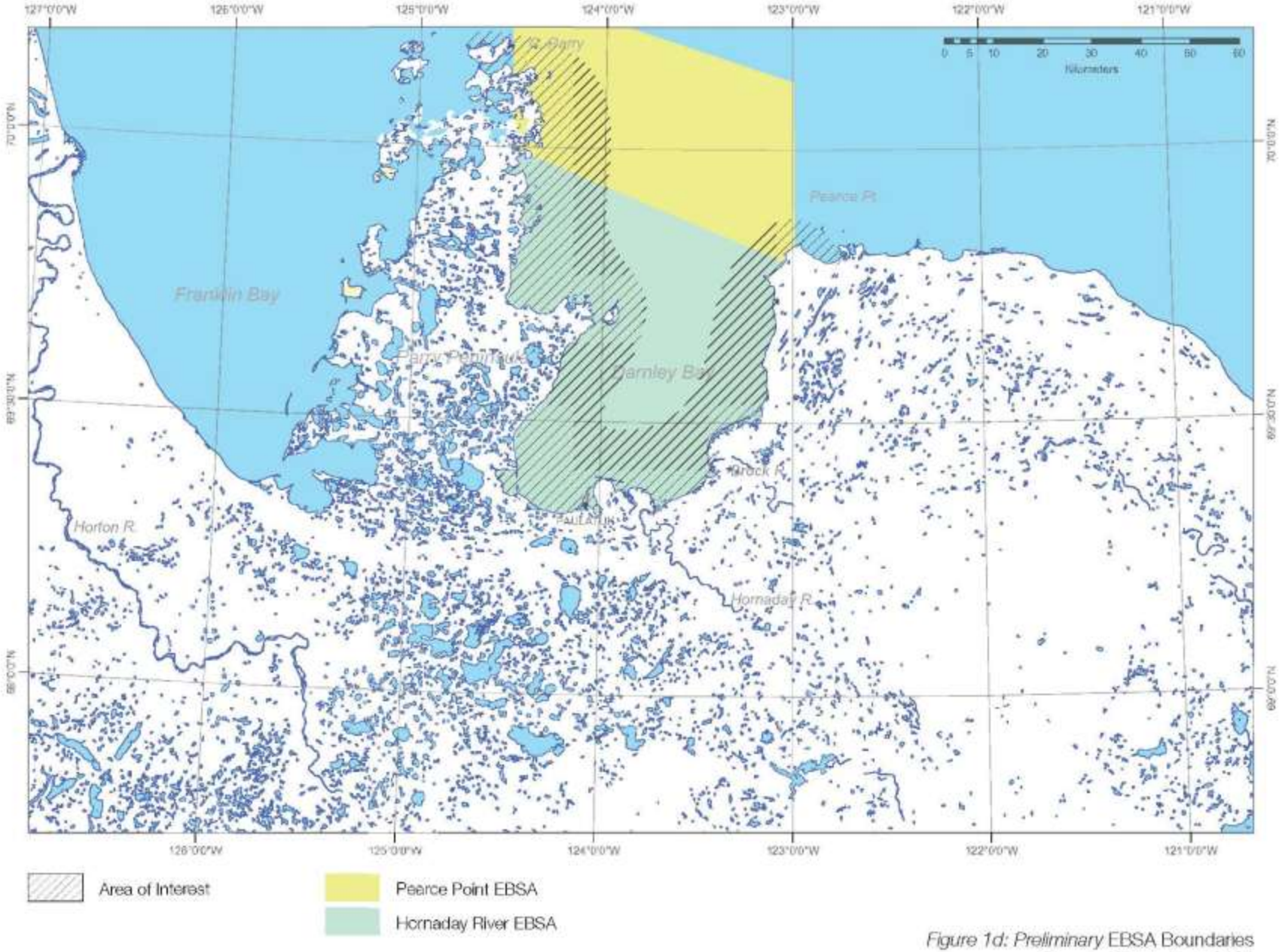


Figure 1d: Preliminary EBSA Boundaries
Source: Cobb et al., 2008

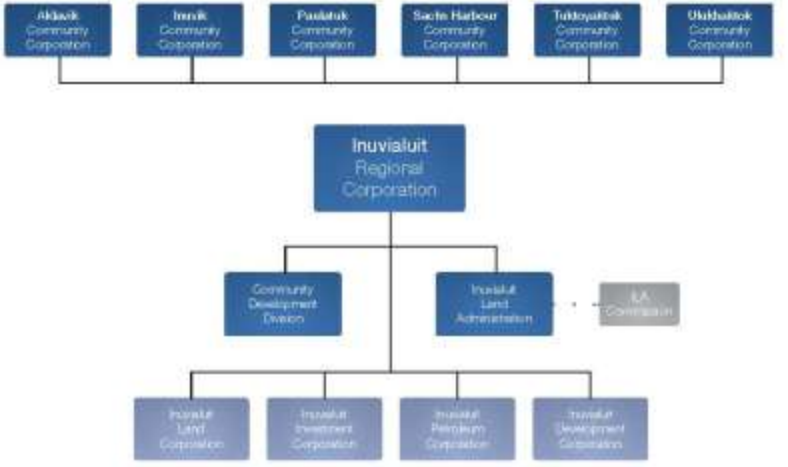


Figure 2a: Inuvialuit Corporate Group Structure

2.0 COMMUNITIES, GOVERNMENTS AND OTHER STAKEHOLDERS

2.1 Communities

2.1.1 Paulatuk

Paulatuk is located on the coast of the Beaufort Sea within the Darnley Bay AOI. The community of 300 inhabitants is part of the Inuvialuit Settlement Region (GNWT, 2008).

2.1.2 Inuvialuit Settlement Region

The AOI is located within in the Inuvialuit Settlement Region (ISR), a 906,430 square kilometre area of land and water subject to the Inuvialuit Final Agreement (IFA).

Within the ISR, Inuvialuit own and control, as Private Lands, over 91,000 square kilometres of land, with subsurface rights to 13,000 square kilometres of those lands. The AOI's terrestrial boundary lies within the Inuvialuit Private Lands.

The five other communities within the Inuvialuit region are Aklavik, Inuvik, Tuktoyaktuk, Sachs Harbour, and Ulukhaktok.

2.1.3 Inuvialuit Final Agreement

The Inuvialuit Final Agreement is a land claim settlement between the Inuvialuit and Canada. The three basic goals of the IFA are to:

- preserve Inuvialuit cultural identity and values within a changing northern society;
- enable Inuvialuit to be equal and meaningful participants in the

northern and national economy and society; and
- protect and preserve the Arctic wildlife, environment and biological productivity.

The IFA also sets out detailed principles for wildlife harvesting and management.

1. A basic goal of the Inuvialuit Land Rights Settlement is to protect and preserve the Arctic wildlife, environment and biological productivity through the application of conservation principles and practices.

2. In order to achieve effective protection of the ecosystems in the Inuvialuit Settlement Region, there should be an integrated wildlife and land management regime, to be attained through various means, including the coordination of legislative authorities.

3. It is recognized that in the future it may be desirable to apply special protective measures under laws, from time to time in force, to lands determined to be important from the standpoint of wildlife, research or harvesting. The appropriate ministers shall consult with the Inuvialuit Game Council from time to time on the application of such legislation.

4. It is recognized that one of the means of protecting and preserving the Arctic wildlife, environment and biological productivity is to ensure the effective integration of the Inuvialuit into all bodies, functions and decisions pertaining to wildlife management and land management in the Inuvialuit Settlement Region.

5. The relevant knowledge and experience of both the Inuvialuit and the scientific communities should be employed in order to achieve conservation.

2.2 Governing and Advisory Bodies

2.2.1 Inuvialuit Organisations

2.2.1a Inuvialuit Regional Corporation and Community Corporations

Inuvialuit Regional Corporation (IRC) was established to administer the rights and benefits of the Settlement. IRC's mandate is to continually improve the economic, social and cultural well–being of the Inuvialuit through implementation of the IFA and by all other available means.

Through a democratic process, Inuvialuit beneficiaries directly control IRC and its subsidiaries. Each Inuvialuit community (Aklavik, Inuvik, Paulatuk, Sachs Harbour, Tuktoyaktuk and Ulukhaktok) has a Community Corporation with elected directors. The directors of the six Community Corporations elect the Chair and Chief Executive Officer of IRC. The Chairs of each Community Corporation together with the Chair of IRC form the IRC Board of Directors. (See Figure 2a.)

Subsidiaries of the Regional Corporation include Inuvialuit Development Corporation, Inuvialuit Investment Corporation, Inuvialuit Petroleum Corporation and Inuvialuit Land Corporation.

2.2.1b Inuvialuit Game Council and Hunters and Trappers Committees

Inuvialuit Game Council (IGC) was established in 1983 to represent the collective Inuvialuit interest in all matters relating to wildlife. The IFA additionally enabled the establishment of a system of joint management within the Inuvialuit Settlement Region, involving the Inuvialuit and the territorial and federal levels of government. (See Figure 2b.) Inuvialuit co–management bodies consist of:

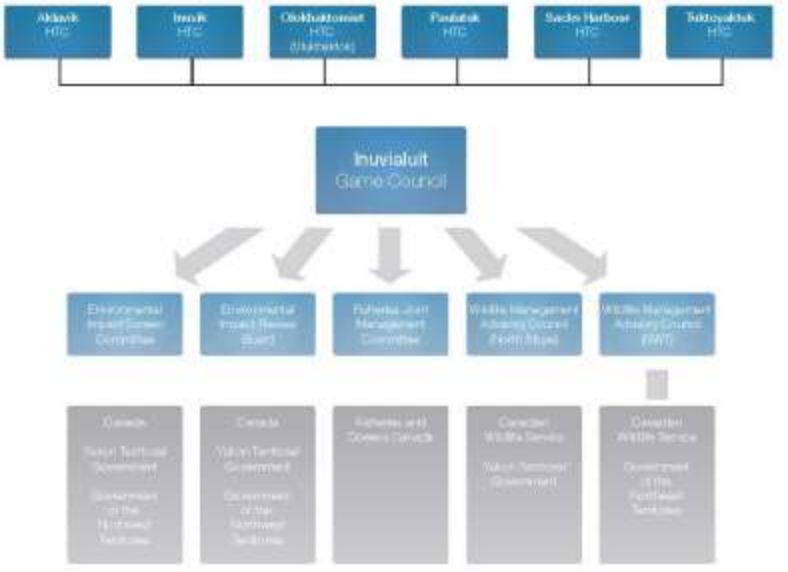


Figure 2b: Inuvialuit Co–management System

- Wildlife Management Advisory Council (NWT);
- Wildlife Management Advisory Council (North Slope);
- Fisheries Joint Management Committee;
- Environmental Impact Screening Committee; and
- Environmental Impact Review Board.

Each Inuvialuit community has a Hunters and Trappers Committee (HTC). Directors are drawn from the Inuvialuit population in each community. The Committees advise on local renewable resource interests, allocate local harvest quotas, write bylaws, and provide harvest information to the co–management bodies. The Inuvialuit Game Council is comprised of a chair and two representatives from each Hunters and Trappers Committee (HTC). The Chair of IGC can be from any of the six communities and is elected by all 42 HTC Directors.

The specific duties of the IGC are set out in Section 14(74) of the IFA. These duties include appointing Inuvialuit members for all Inuvialuit co–management bodies under the IFA and assisting these bodies whenever requested, advising government agencies, through the co–management bodies or otherwise, on renewable resource policy, legislation, regulation, and on any proposed Canadian position for international purposes that affects wildlife in the ISR. The IGC also allocates Inuvialuit quotas among the six Inuvialuit communities and appoints members for any co–management body dealing with Inuvialuit fish and wildlife harvesting and environment.

2.2.1c Inuvialuit Land Administration

The Inuvialuit Land Administration (ILA) is the subsidiary of the Inuvialuit Regional Corporation (IRC) responsible for managing and administering Inuvialuit–owned lands in the ISR. This includes both surface and subsurface rights to 13,000 square kilometres of land (referred to as 7(1)(a) Lands) and surface rights to a further 78,000 square kilometres (referred to as 7(1)(b) Lands).

Access to both 7(1)(a) and 7(1)(b) Lands that is more than casual and individual in nature requires permission from the Inuvialuit under the IFA, with ILA managning this access. The administration of rights on Crown Lands within the Inuvialuit Settlement Region is largely the responsibility of various Federal and Territorial Agencies, though ILA typically provides comment on any application.

2.2.2 Federal Government

2.2.2a Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) is mandated to protect and conserve marine and freshwater resources and habitat, establish fishery management plans, develop conservation and protection policies and implement programs to provide for the sustainable use of Canada's marine resources. Under Canada's Oceans Act, DFO is responsible for identifying potential marine protected areas (including: unique habitats; endangered or threatened marine species and their habitats; commercial and non–commercial fishery resources including marine mammals; and marine areas of high biodiversity or biological productivity), presenting management plans for marine protected areas to the federal cabinet, drafting federal legislation or regulations, if required, to implement the protected area, and taking a coordinating and overseeing role for established marine protected areas in Canada. DFO, Parks Canada and Environment Canada (Canadian Wildlife Service) all share mandated responsibilities to create protected areas in the marine environment. Because DFO leads in the development and implementation of a national system of marine protected areas and incorporates the different programs of the three departments, it is the federal department best suited to lead the creation of this MPA.

The Canadian Coast Guard (CCG) is under the jurisdiction of DFO and is responsible for safe harbours, waters and waterways, producing reliable navigational charts and maintaining an extensive system of navigational aids and marine communication. They manage and regulate marine transportation and have a fleet that provides icebreaking, aids to navigation, rescue, safety and environmental response services.

2.2.2b Aboriginal Affairs and Northern Development Canada

Aboriginal Affairs and Northern Development Canada (AANDC) has two mandates: Indian and Inuit Affairs, and Northern Affairs. In Indian and Inuit Affairs, AANDC's primary role is to support First Nations and Inuit in developing healthy, sustainable communities, and in achieving their economic and social aspirations. This includes overseeing the implementation of settlements and promoting economic development. In Northern Affairs, AANDC is responsible for managing natural resources, protecting the environment and fostering leadership in sustainable development. AANDC administers issuance of surface and subsurface rights in Arctic offshore lands.

2.2.2c Environment Canada

Environment Canada's mandate is to preserve and enhance the quality of the natural environment. Environment Canada has legislative authority to establish marine protected areas and they regulate land activities that may affect marine protected areas in the offshore. Environment Canada's major focus is protecting major marine and nearshore areas for wildlife, research, conservation and public education. The Canadian Wildlife Service and the Canadian Environment Assessment Agency are both under the regulatory mandate of Environment Canada and play a role, either direct or indirect, in the implementation and/or maintenance of MPAs.

The Canadian Wildlife Service (CWS), under the jurisdiction of Environment Canada, is the national wildlife agency of the federal government. Their mandate includes the protection and management of migratory birds and nationally important wildlife habitat, endangered

species and research on nationally important wildlife issues. CWS establishes migratory bird sanctuaries, identifies key migratory bird habitat sites and is responsible for granting permits for migratory bird research. The establishment of Marine Wildlife Areas (MWAs) is the responsibility of CWS, although none have been established to date. MWAs are intended to protect nationally significant habitats, especially for migratory birds, but also for other wildlife for the purpose of wildlife research, conservation and interpretation.

2.2.2d Natural Resources Canada

Natural Resources Canada's (NRCan) mandate is to enhance the responsible development and use of Canada's natural resources. The department is charged with the federal responsibility for ensuring the sustainable development of Canada's energy resources, minerals and metals, and forests, and for providing the geographical and geological information base that supports decisions about Canada's land–based and offshore resources.

2.2.2e National Defense

National Defense (DND) has the mandate to formulate and manage all aspects of defense policy, defend Canada and Canadian interests and values while contributing to international peace and security. Canada's principal defense roles are defending Canada and defending North America in co–operation with the United States. The mandate to defend Canada is achieved through monitoring and controlling activity within Canada's national territory, airspace and maritime areas of jurisdiction, assisting other government departments in achieving various national goals, maintaining a national search and rescue capability, and assisting in national emergencies. The mandate to defend North America is achieved through protecting the Canadian approaches to the continent in partnership with the United States, particularly through the North American Aerospace Defense Agreement, maintaining the ability to operate effectively at sea, on land, and in the air with the military forces of the United States in defending the northern half of the Western Hemisphere.

2.2.2f Parks Canada

Parks Canada's mandate is to protect and present nationally significant examples of Canada's natural and cultural heritage and foster public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations. Under this mandate, Parks Canada identifies and establishes National Marine Conservation Areas (NMCAs), National Historic Sites and National Parks.

The NMCA Program is a national system of marine protected areas to represent the full range of Canada's marine ecosystems found within the Atlantic, Arctic and Pacific Oceans, and the Great Lakes. NMCAs will be managed for sustainable use and may contain smaller zones of high protection. NMCAs will be protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. MPAs designated under other federal programs may be considered as part of the NMCA plan if conservation objectives are similar.

The National Historic Site component of Parks Canada is responsible for Canada's program of historical commemoration, which recognizes nationally significant places, persons and events. National Parks are a countrywide system of representative natural areas of Canadian significance. They are protected for public understanding, appreciation and enjoyment, while being maintained in an unimpaired state for future generations.

National Parks comprise representative natural areas of significance across the country. By law, they are protected for public understanding, appreciation and enjoyment, while being maintained in an unimpaired state for future generations.

2.2.3 Territorial Government

2.2.3a Government of the Northwest Territories

The Government of the Northwest Territories (GNWT) recognizes that the environment is the basis for economic prosperity and plays a prominent role in the social, cultural and spiritual identity of the Northwest Territories. The two territorial departments whose jurisdictions are most applicable in evaluating the area of interest are the Department of Environment and Natural Resources (ENR) and the Department of Industry, Tourism and Investment (ITI).

The Department of Environment and Natural Resources promotes and supports the sustainable use and development of natural resources to protect, conserve and enhance the Northwest Territories environment for the social and economic benefit of all residents, while the Department of Industry, Tourism and Investment promotes and supports Northwest Territories economic prosperity and community self-reliance.

2.2.4 Joint Management Committees

2.2.4a Beaufort Sea Partnership

The Beaufort Sea Partnership (BSP) is a regional governance structure that has been developed to advance integrated ocean management in the Beaufort Sea Large Ocean Management Area (LOMA), one of five priority areas identified for integrated ocean management planning by the Government of Canada. The Beaufort Sea LOMA is approximately 1,108,000 square kilometres and includes the marine portion of the Inuvialuit Settlement Region.

The BSP is directed by a Regional Coordination Committee comprised of: Inuvialuit Regional Corporation; Inuvialuit Game Council; Fisheries Joint Management Committee; Fisheries and Oceans Canada; Natural Resources Canada; Transport Canada; Environment Canada; Parks Canada Agency; Aboriginal Affairs and Northern Development Canada; Yukon Government; and Government of the Northwest Territories.

2.2.4b Wildlife Management Advisory Council (NWT)

The Wildlife Management Advisory Council (NWT) was established by the IFA with the mandate to advise ministers on wildlife policies, the management, regulation and administration of wildlife, habitat and harvesting, and wildlife-related issues of park planning and management. In consultation with the IGC and ENR, the council sets quotas for Inuvialuit harvesting governed by preferential harvesting rights to Inuvialuit based on sustainable harvest levels and exclusive harvesting rights on Inuvialuit private lands.

2.2.4c Fisheries Joint Management Committee

The Fisheries Joint Management Committee (FJMC) was established to assist Canada and the Inuvialuit in administering the rights and obligations relating to fisheries and to assist the Minister of Fisheries and Oceans of Canada in carrying out their responsibility for the management of fisheries. Among other areas, the FJMC is responsible for allocating subsistence quotas for fish and marine mammals and preventing conflict with Inuvialuit activities.

2.2.5 Environmental Regulators

2.2.5a Environmental Impact Screening Committee/ Environmental Impact Review Board

Environmental assessment in the ISR is the mandate of the Environmental Impact Screening Committee (EISC) and the Environmental Impact Review Board (EIRB). The structure of both groups is similar. One membership is appointed respectively from the Yukon, Northwest Territories, and Canadian government. Three Inuvialuit members are appointed by the IGC. A committee chair is appointed by the Government

of Canada with the approval of the Inuvialuit. Development proposals, which require environmental assessment, first go to the EISC where one of three decisions can be made:

- the development will have no such significant negative impact and may proceed without environmental impact assessment and review;
- the development could have significant negative impact and is subject to assessment and review; and
- the development proposal has deficiencies of a nature that warrant a termination of its consideration and the submission of another project description.

If the development is deemed to have the potential for a significant negative environmental impact then it can be referred to the EIRB or other competent review body. The EIRB project review is carried out in public such that anyone with an interest in the project may make a presentation to the review panel. The EIRB determines if a development should proceed and under what conditions. Mitigative and remedial measures can be suggested along with an estimate of the potential liability based on a worst-case scenario.

The Environmental Impact Screening and Review process is initiated by any activity that requires a permit. No permits may be issued until the screening and review processes are complete. Allowable developments within a MPA would still be subject to the IFA screening and review process.

2.2.5b Canadian Environmental Assessment Agency

The Canadian Environmental Assessment Agency (CEAA) has the mandate to provide Canadians with effective environmental assessments that contribute to informed decision-making in support of sustainable development. CEAA provides leadership and serves as a centre of expertise for federal environmental assessments. Its roles include providing administrative and advisory support for environmental assessment review panels, comprehensive studies and mediators, and promoting the uniformity and harmonization of environmental assessment activities across Canada at all levels of government;

3.0 SOCIO–ECONOMIC ASSESSMENT

3.1 History

Archaeological sites in the AOI date back over a thousand years, beginning with Thule or Copper Inuit occupations, and later, Inuvialuit–occupations (Parks Canada, 2010). Modern Inuvialuit inhabitation of the area began in the early 1920s. The operation of a Hudson's Bay Company trading post at Letty Harbour from 1930–1937, and of a Roman Catholic mission and trading post at the community site from 1935–1954 attracted Inuvialuit families from the Mackenzie Delta and Alaska to the area (Parks Canada, 2010). While the Paulatuk mission was substantially abandoned in 1955 as the DEW Line site at Cape Parry was being established, the community was resettled in the early 1960s. Paulatuk was formally incorporated as a Settlement in 1968, and reincorporated as a Hamlet in 1987 (GNWT, 2010).

3.2 Regional Context

The AOI is located within the Inuvialuit region of the Western Arctic. Over 3,500 Inuvialuit live in six communities (Aklavik, Inuvik, Paulatuk, Sachs Harbour, Tuktoyaktuk, and Ulukhaktok), comprising three different linguistic groups (Uummarmiut, Siglit, and Kangiryuarmiut).

In addition to joint governance of Inuvialuit land–claim organizations through their respective Community Corporations, Inuvialuit communities are connected by strong cultural, familial and economic ties. Every community hosts an annual jamboree that draws Inuvialuit from other communities, while each area's particular, or especially plentiful, harvested foods are often exchanged with those of other areas. If a community's harvest is poor in a given year, other communities will contribute from their harvests. Economic opportunities also often draw workers from outside the local community.

Facing Image: Simon Routh

3.3 Population

As of July 1, 2010, Paulatuk had 336 inhabitants (GNWT, 2011). The community's population over the preceding decade remained relatively stable, showing a slight average yearly increase in its first half of the decade and an average yearly decline of similar magnitude in the second half (Figure 3a). As with many other small Aboriginal communities, Paulatuk experiences a high rate of mobility (often referred to as 'churn') in which the population fluctuates in response to local and regional economic opportunities. Paulatuk had the second–highest level of five–year inter–community mobility (14%) of any Inuvialuit community, excluding Inuvik, in 2006 (NWT Bureau of Statistics, 2011).

While Paulatuk's overall population did not show signficant growth in the past ten years, the age distribution of the population changed considerably, with a dramatic increase in the population aged 15–24 years and a smaller but still sizeable increase in the population aged 25–44 years (Figure 3b). This growth in the percentage of population that is of child–bearing age makes it likely that Paulatuk's population will rise in the succeeding decade, as reflected in the population projections for 2012–2022 (Figure 3a).

3.4 Traditional Uses

As with other Inuvialuit communities, people's connection to the land is profound and critical to the future well–being of the community. The Inuvialuit of Paulatuk actively harvest throughout the AOI, with two thirds of the adult population engaging in hunting and/or fishing (Figures 3c and 3d). Several key harvest species have experienced population declines in recent decades. In response, the community imposed a restriction on char harvesting beginning in 1998, and more recently reduced the caribou harvest to a third of its previous level. These self–imposed restrictions are a testament to the community's stewardship of the wildlife. Other wildlife species such as musk–ox, geese, and

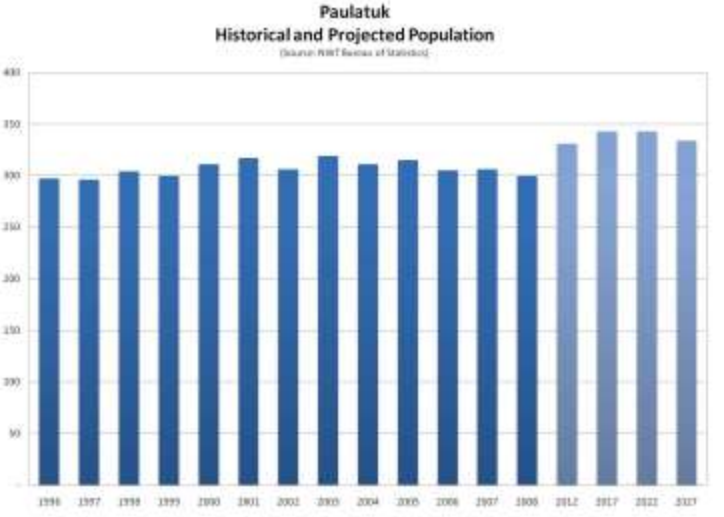


Figure 3a: Paulatuk Historical and Projected Population

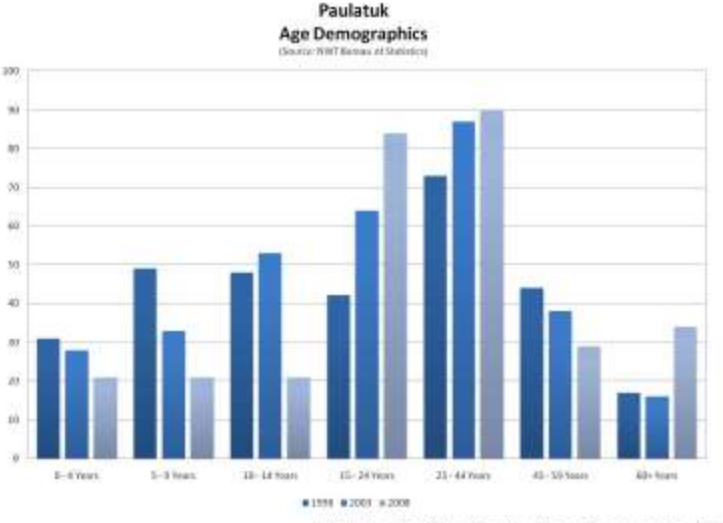


Figure 3b: Paulatuk Age Demographics

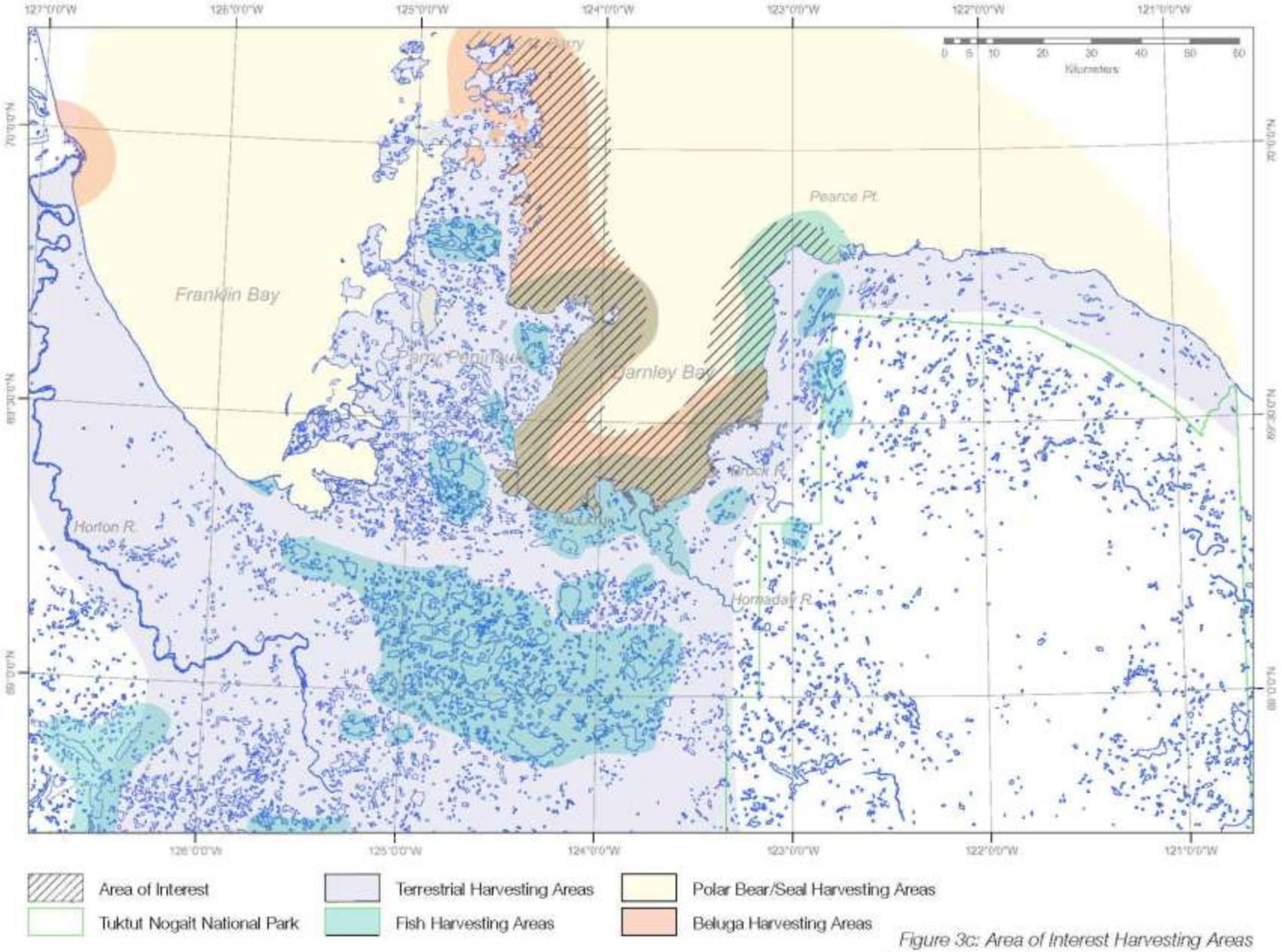


Figure 3c: Area of Interest Harvesting Areas
Paulatuk Community Conservation Plan, 2000

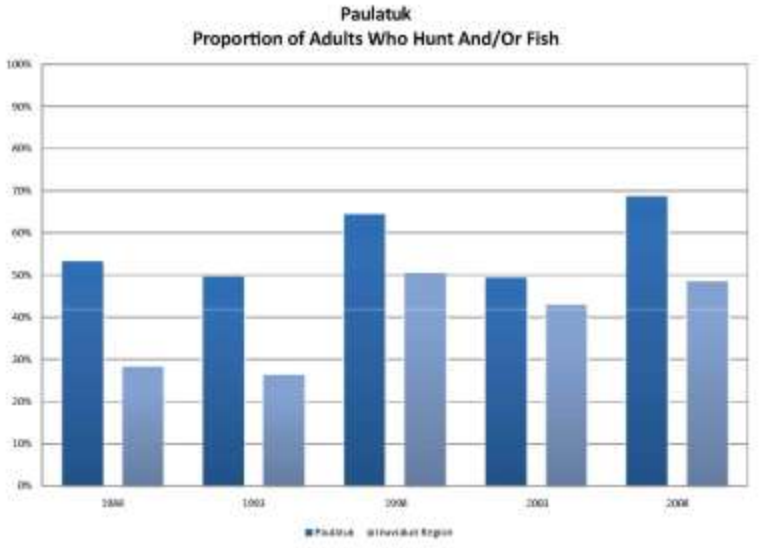


Figure 3d: Paulatuk Adults Who Hunt And/Or Fish

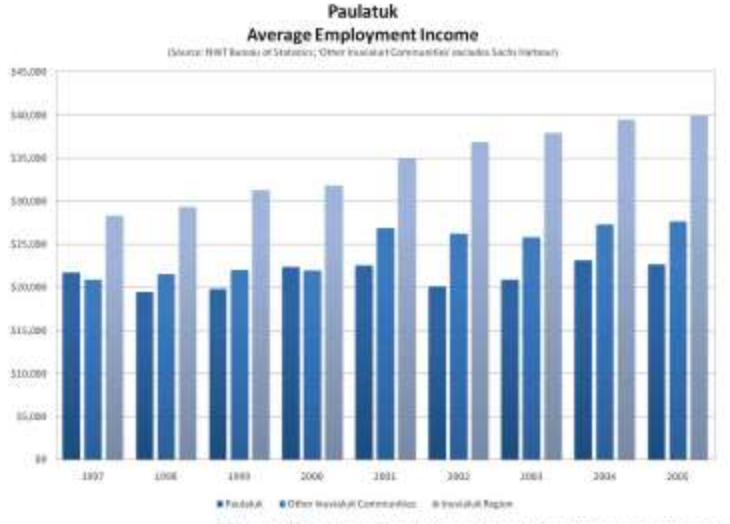


Figure 3e: Paulatuk Average Employment Income

other fish are still plentiful. Harvesting activities, in addition to being an important food source, provide a means of passing on traditional skills and knowledge to youth, and underpin much of Inuvialuit culture. Traditional subsistence harvesting is unlikely to have a negative impact on the AOI.

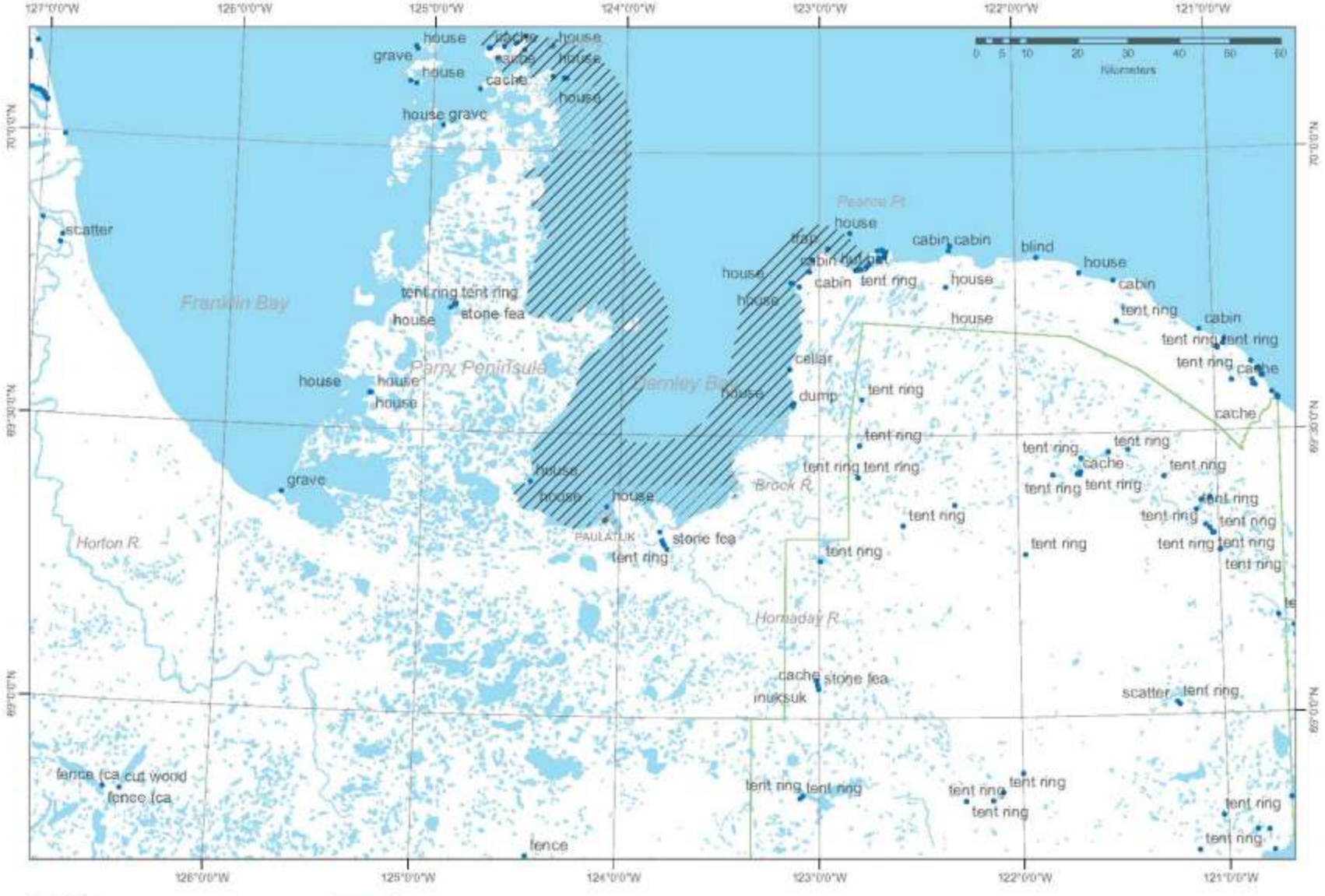
3.5 Archaeological and Historical Values

Numerous Thule, Copper Inuit and Inuvialuit occupations have been found throughout the area. The sites includes tent rings, caches, quarries, fences and man–made stone features. Later sites from the whaling and fur–trade periods are also present (Figure 3f). Future archeological and/or historic preservation activity is not likely to have a significant impact on the AOI.

3.6 Economy

Hunting, fishing and trapping are Paulatuk's major economic activities, with limited wage employment opportunities in the public and private sectors. In 2004, 24% of Paulatuk's employed population was employed in the private service sector, the lowest level among the six Inuvialuit communities (NWT Bureau of Statistics, 2011). The community depends heavily on harvesting activities, with more than half of households in 2004 relying on country foods for the majority of the food they consumed, and sports hunting constituting a significant part of the local wage economy (NWT Bureau of Statistics, 2011).

Paulatuk's average employment income reflects the low level of wage employment in the community. Paulatuk was outpaced in employment income by other Inuvialuit communities in 2001–2005. (See Figure 3e; 'Other Inuvialuit Communities' removes the skew caused by Inuvik, as compared to the Inuvialuit Region as a whole; Sachs Harbour is also not included in 'Other Inuvialuit Communities' due to a lack of data.) The increasing cost of harvesting equipment and supplies such as fuel may mean that limited employment income will negatively affect the



Area of Interest

Tuktut Nogait National Park

Archeological/Heritage Site

Note: "fea" is an abbreviation of *feature*.

Figure 3f: Area of Interest Archeological and Heritage Sites

Source: Inuvialuit Land Administration

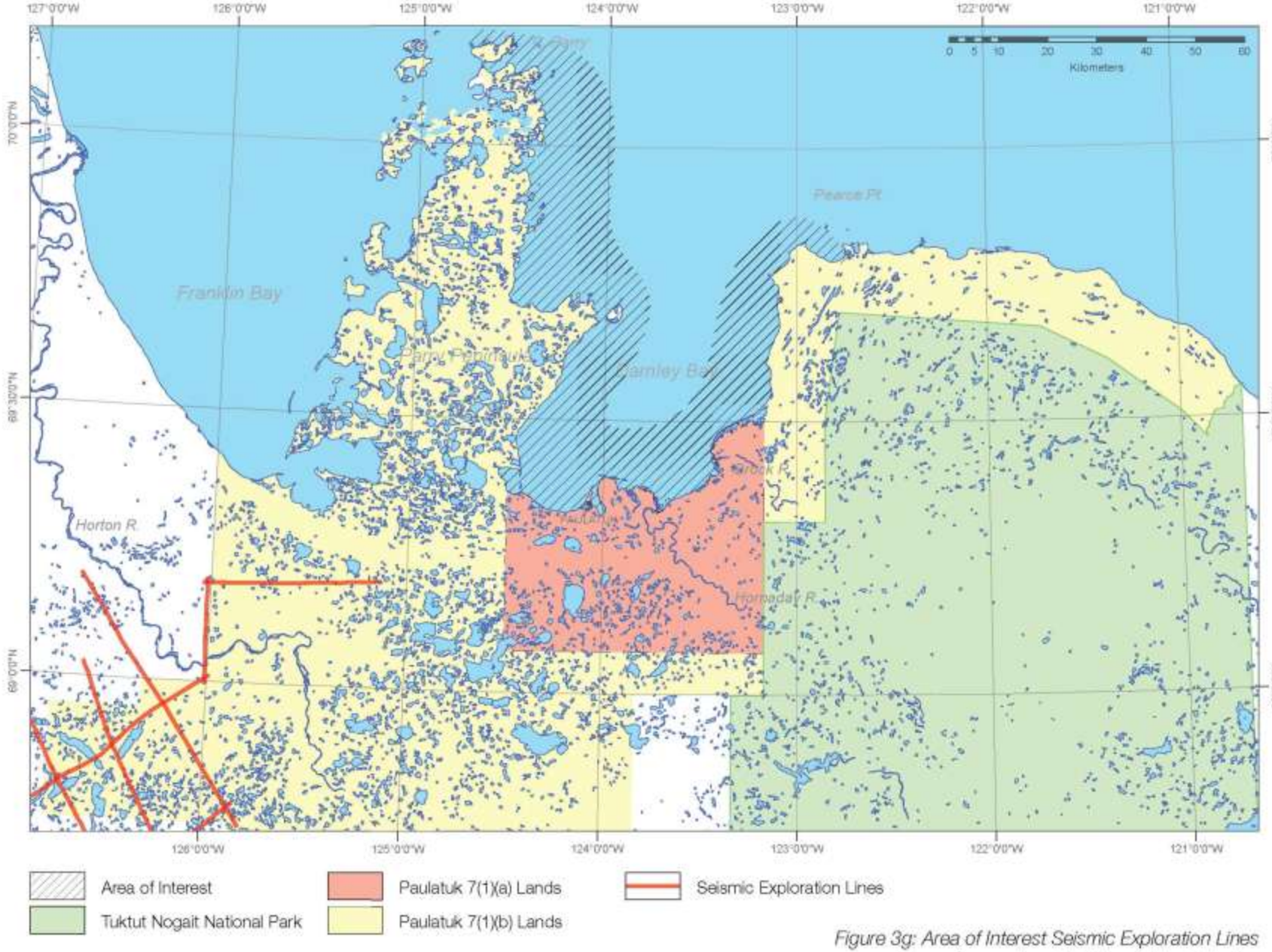


Figure 3g: Area of Interest Seismic Exploration Lines
Source: Inuvialuit Land Administration

community's ability to purchase these equipment and supplies, and therefore to engage in traditional harvesting activities.

Present economic activity is not likely to have a significant negative impact on the AOI. The community of Paulatuk has demonstrated tremendous stewardship of the surrounding natural resources, as evidenced by the Paulatuk Char Management Plan and other conservation measures adopted by the community. However, careful consideration must given to ensure that an MPA designation does not also inappropriately limit future opportunities for economic diversification of the local economy.

3.7 Economic Sectors

3.7.1 Hydrocarbon Exploration and Production

Significant oil and gas exploration has taken place in the Beaufort Sea beginning in the mid-twentieth century and continuing into the past decade (Figure 3g). While significant hydrocarbon deposits were discovered elsewhere in the Inuvialuit Settlement Region, the AOI does not contain discovered hydrocarbon deposits of sufficient magnitude to attract commercial exploitation, and there has been no recent exploration activity in the area. Consequently, hydrocarbon exploration and production are not likely to have a significant impact on the AOI.

3.7.2 Mineral Exploration and Production

There was little mineral exploration in or near the AOI prior to the 1990s. A large gravity anomaly and coincident magnetic anomaly in the Darnley Bay area were discovered in 1969 and 1970 respectively. In 1994 the Geological Survey of Canada stated there was a moderate to high probability that the anomaly was a major mineral complex similar to some of the most significant known deposits of nickel, copper, and platinum/palladium. Subsequent to this determination, there has been considerable exploration for deposits of these metals, as well as diamonds. (See Figure 3h.) While the impact of continuing exploration is likely to be small, a viable discovery could lead to substantial, long-term mineral exploitation, with attendant significant impacts on the AOI. (See Section 4.1.)

3.7.3 Commercial Fisheries

No commercial fishing currently takes place within or near the AOI. Commercial fishing of Arctic char in the Hornaday River led to their decline in the 1980s. While the Paulatuk Char Management Plan does not completely close the door to a future Arctic char commercial fishery, it is unlikely that such a fishery would develop again due to the importance of the subsistence fishery to the community. Other species of commercial value seem to be largely absent from the area.

3.7.4 Tourism

In 1996, Tuktut Nogait National Park was established approximately 45 kilometres to the east of Paulatuk, while the park visitors' centre is located in the community itself. The park encompasses 18,190 square kilometers and offers a tremendous range of outdoor activities for visitors. Paulatuk is also situated close to a number of rivers that attract paddlers from around the world. However, the significant cost of travel to Paulatuk means that tourism within the AOI is currently extremely limited. Few tourists come to the area, and tourist ships rarely enter the waters of Darnley Bay. Impacts from tourism on the AOI are therefore extremely limited and probably will remain so. Although the creation of an MPA could be a potential tourist draw, it is doubtful that tourism of this type would have any long-term detrimental affects. (Issues associated with large tourist ships are discussed in Section 4.2.) Tourism therefore poses a low risk of negative impacts to the AOI.

Sport fishing is governed by territorial regulations which limit the number of fish that can be taken daily. As Paulatuk is not a fishing destination, it is very unlikely that the current level of sports fishing will increase to the point that it could be considered a threat to any fish stocks in the

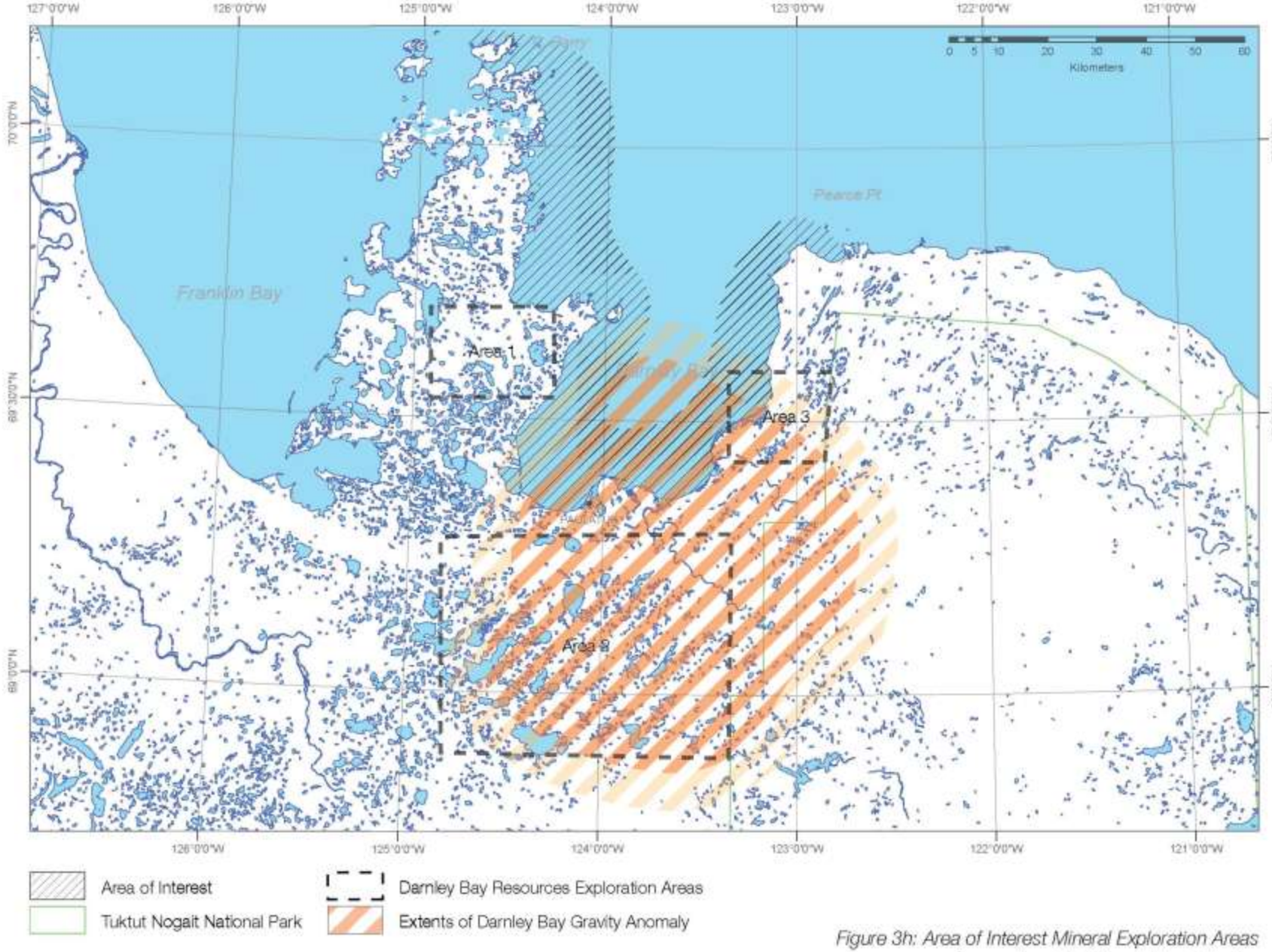


Figure 3h: Area of Interest Mineral Exploration Areas
Source: Inuvialuit Land Administration

AOI. Considering the low likelihood of commercial or sport fisheries developing in the AOI, there is a low risk of negative impacts to the AOI from this activity.

3.7.5 Transportation

Transportation services to and from Paulatuk are mainly by air, with three scheduled flight services per week out of Inuvik as well as less frequent charter flights. Shipping within the AOI is currently almost exclusively limited to community resupply by barges which bring in needed fuel and building supplies. NTCL currently provides annual barging services to the community. However, the opening of the Northwest Passage to a larger volume of shipping and tourist vessels, as well as the marine activities associated with large-scale mining activity could impact the AOI in the future. (See Section 6.2.)

3.7.6 Military and Coast Guard Activities

Sovereignty exercises and military presence are limited to patrols and maintenance of the North Warning System (NWS) site at Cape Parry. Due to its non-strategic location, it is unlikely that any large-scale sovereignty exercises would take place near the AOI.

The Coast Guard moves through the region three times per season to maintain navigational buoys. This low level activity does not have a significant impact on the AOI.

4.0 ASSESSMENT OF IMPACTS

4.1 Mineral Exploration and Production

The area just south of Paulatuk sits above one of the largest magnetic anomalies in North America, meaning that the potential exists for a very large, very long–term mine. To date however, attempts to reach the anomaly have proven unsuccessful and the reality of a mine seems to have diminished. Should a mine develop however, there would be many changes, with most industrial development occurring at the southern end of Darnley Bay within the AOI. Some type of docking facility would need to be constructed both to offload materials required to construct the mine as well as loading facilities to get the ore to market. Dredging of the area could be required for ship accessibility with resulting sedimentation likely affecting benthic organisms and fish within the area, which would have a cascading upwards impact on the distribution of some marine mammal for at least a short period. The creation of roads increases the potential for localized sedimentation and the increased need for fuel oils for heating and electrical creation increases the risk of spills and shipping accidents.

The discovery of diamonds in surface till and the discovery of numerous kimberlite pipes south of Paulatuk and on the Parry Peninsula suggests that diamond mining could be a possibility in the future. While less is hauled out of a diamond mine than a base metal mine, the infrastructure required to mine diamonds is similar to that required to mine metals. Therefore issues associated with a port to allow offloading of materials required to create a mine, the possibility of introducing new species to the area through shipping, potential ice breaking (late or early season movement) affecting marine mammal habitat and ship strikes of marine mammals are all possible with the early stages of a diamond mine. The destruction of entire lakes which often sit over kimberlite pipes increases the possibility of sedimentation.

Facing Image: Blythe Browne

It is expected that some of these potential impacts could be mitigated through application of appropriate legislation, industry best practices and spill response planning. Activities related to construction of mines and related infrastructure such as ports would be of a short term duration and could be timed to avoid peak periods for fish or marine mammals, while mineral extraction and associated activities such as shipping are long–term activities. Most of the infrastructure developed for mine construction (e.g. ports, roads, the mine itself) is unlikely to be removed or restored resulting in a high risk of irreversible habitat alteration or destruction.

Considering the likelihood, severity and reversibility of impacts, should mining proceed, it would likely cause a significant negative impact on the AOI due to the long–term duration and inability to reverse the impacts.

4.2 Transportation

Marine vessels entering the AOI from other areas carry the potential risk of invasive species which could arrive either attached to hulls or within ballast water. Ships bringing in supplies, such as for a potential mine, would take in ballast water before going back to sea so would pose only the risk of hull attached organisms. However, if a mine did develop and a ship entered the area to take on a load of ore, as an example, ballast would have to be dumped and a new species or pathogen to the area could be introduced. There are currently requirements for ships entering Canadian waters to exchange ballast water far from shore in deep water areas which should minimize risks. Tourist, research and military ships all carry the potential for hull attached organisms to release. It is currently unknown how likely such an event is or what the chances of successful colonization are, however once invasive species are established in an area removal is either very difficult or impossible.

All ships carry the risk of introducing contaminants to the waters they travel whether these are accidental oil discharges due to malfunctions or catastrophic accident or grey water from crew and passenger requirements. Ships staying within prescribed shipping routes are least likely to encounter or create problems. Tourist ships that deviate from shipping routes and instead bring tourists close to scenic areas or areas with concentrations of wildlife are more likely to create problems, especially in the many uncharted waters of the Arctic. However, even these concerns are minimal within the AOI. The proximity of the AOI to a proposed Northwest Passage route could result in the introduction of some pollutants from passing ships, but barring a large accident, the risk would seem limited. Should a large oil spill occur, depending on the time of year, oiling of sea birds could be a significant impact as the AOI is important staging habitat for migratory species. There would also be significant impacts on marine mammals, including species resident in the area year–round.

Ship noise could interfere with cetacean communication and there could be ship strikes, especially of slow moving species like bowhead whales. Greater use of the area by ships, even in the Northwest Passage, could reduce ice stability which might in turn have a negative impact on seal and polar bear denning and hunting success by polar bears.

The likelihood of invasive species, large spills, ship strikes or reduced ice stability occurring resulting from shipping is either unknown or low. Impacts from invasive species and large spills could be of a long–term duration. Impacts from invasive species are generally irreversible though ecosystems may adapt to the new species, and while spills may be partly cleaned up, much of the effect is irreversible. Ship noise, ship strikes and reduced ice stability are technically reversible effects as stopping shipping would stop the impacts, however should the Northwest Passage open, ceasing shipping would be unlikely so the effects would continue for the long–term. Additionally, the lure of the Northwest Passage lies, in part, on the belief that ice will be greatly diminished if not completely eliminated for most of the year. Therefore, ice stability is probably already greatly impacted by climate itself even if ships don't use the Passage as much as might be expected.

Considering the likelihood, severity and reversibility of the impacts, overall, shipping poses a moderate risk of negative impacts to the AOI.

4.3 Climate Change

Climate change could negatively impact many important aspects of the AOI. A warmer climate could change precipitation levels resulting in less or more freshwater input affecting salinity of the area and the distribution of anadromous fish species and benthic organisms. Changes in temperature might be so slight as to not affect most organisms immediately and it would take many years to affect ocean temperatures except those near shore. However, changes to things like wind strength, prevailing wind direction, amount and type of precipitation and possible erosion (with release of nutrients and sediments) from slowly thawing soils could have near shore impacts which could affect ice, productivity, species distribution and contaminant levels.

There is the potential for significant impacts to marine mammals. With less ice coverage, melting of multi-year ice and longer open water periods expected as a result of a warming Arctic climate, mammals such as seals and polar bears that depend on ice to fulfil habitat needs will be significantly negatively impacted. However, the effect of reduced ice on bird populations may be mixed. Birds staging off Cape Parry use polynyas and open-water areas, so an increase in open water might not cause negative impacts although foods which are now concentrated by polynyas might be spread over a larger open water area resulting in more time and energy spent foraging. Despite some potential positive impacts, climate change is likely to cause global changes such as changes in ocean current circulation patterns, and could trigger effects in single species that will cascade through entire ecosystems.

While the impact of climate change to the area of the AOI is highly speculative and it is unknown when changes might become measurable, it is highly likely that long-term irreversible changes are to be expected. Climate change thus poses a threat of significant negative impacts.

4.4 Cumulative Impacts

Climate change has the potential for cumulative impacts with all other activities. Impacts from climate change can cause stress on individuals and populations which may affect their ability to adapt to or cope with other stressors, such as impacts from contaminants or pressures of commercial fishing.

Climate change will also enable other activities to occur. For example, less ice cover and a longer ice-free season would enable shipping which would increase the potential for impacts to the Area of Interest.

Developing a mine in the Paulatuk area would result in other activities such as port construction, transport flights, possible seasonal road construction, and other potential developments. These activities have the potential to incur cumulative impacts in the vicinity of Paulatuk.

4.5 Compatibility with proposed Marine Protected Area

Most activities have minimal or no expected significant impacts on the AOI and other activities can be largely mitigated. There are activities that are incompatible with the Area of Interest due to their likelihood of causing non-mitigatable significant impacts. Mining and mineral exploration have the potential for long-term activity with a high risk of impacts. Shipping related activities including port construction, release of ballast water or other substances in the AOI would carry a high risk of impact.

5.0 LITERATURE CITED

BirdLife International. 2009. Important Bird Areas. www.birdlife.org. Accessed: November 19, 2009.

Canada. 1984. The Inuvialuit Final Agreement.

Canada. 1997. The Oceans Act.

Canadian Wildlife Service. 2005. Migratory Bird Sanctuaries – Northwest Territories. http://www.cws-scf.ec.gc.ca/habitat/default.asp?lang=en&n=E30FCEB1. Accessed November 19, 2009.

Cobb, D., H. Fast, M.H. Papst, D. Rosenberg, R. Rutherford and J.E. Sareault (Editors). 2008. Beaufort Sea Large Ocean Management Area: Ecosystem Overview and Assessment Report. Can. Tech. Rep. Fish. Aquat. Scie. 2780: ii–ix + 188 p.

Community of Paulatuk, Wildlife Management Advisory Council (NWT), and Joint Secretariat. 2000. Paulatuk Community Conservation Plan. 140 p.

DFO. 1999. Hornaday Arctic Char. DFO Science Stock Status Report D5–68. (1999).

DFO. 1999. National Framework for Establishing and Managing Marine Protected Areas. Fisheries and Oceans Canada Website. Accessed 16 April 2009.

Environment Canada. 2007. Migratory Bird Sanctuaries. http://www.mb.ec.gc.ca/nature/whp/sanctuaries/dc01s00.en.html Accessed November 18, 2009.

Fisheries Joint Management Committee (FJMC). 2001. Beaufort Sea Beluga Management Plan, amended third printing 2001. FJMC, Box 2120 Inuvik, Northwest Territories, X0E 0T0.

GNWT. 2010. Paulatuk Community Profile. Legislative Assembly of the NWT Website. Accessed 10 Jun 2010.

GNWT. 2011. Population Estimates. NWT Bureau of Statistics Website. Accessed 5 Jul 2011.

Important Bird Areas of Canada. 2004. www.ibacanada.com/. Cape Parry Site: (http://www.bsc-eoc.org/iba/site.jsp?siteID=NT041). Accessed November 6, 2009.

NWT Bureau of Statistics. 2011. Inuvialuit Indicators Master File: (http://www.inuvialuitindicators.com). Accessed October 5, 2011.

Parks Canada. 2009. "Tuktut Nogait National Park of Canada: History and Culture". Parks Canada Website. Accessed 5 Jun 2010.

Paulatuk Char Working Group. 2003. Paulatuk Char Management Plan 2003–2005. (2003).

Paulatuk Hunters and Trappers Committee. Undated. Beluga Hunting Bylaws.

Paulatuk Hunters and Trapper Committee. Undated. Beluga Hunting Guidelines.

Paulic, J.E., Papst, M.H., and Cobb, D.G. 2009. Proceedings for the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea Large Ocean Management Area. Can.Manuscr.Rep.Fish. Aquat.Sci. 2865: ii + 46 p.