

Draft Polar Bear Management Plan for Québec, the Eeyou Marine Region and the Nunavik Marine Region

For Discussion Purposes Only



2017-2027

Acknowledgements

DRAFT

Management Plan cover photo courtesy of Adamie Delisle-Alaku

This management plan is the result of a collaborative approach involving input and representation from each of the following groups:

- Cree Nation Government (CNG)
- Cree Trappers Association (CTA)
- Eeyou Marine Region Wildlife Board (EMRWB)
- Canadian Wildlife Service (CWS), Environment and Climate Change Canada (ECCC)
- Government of Nunavut Department of the Environment (GNDoe)
- Hunting Fishing Trapping Coordinating Committee (HFTCC)
- Makivik Corporation
- Ministère des Forêts, de la Faune et des Parcs (MFFP)
- Nunavik Hunters, Fishermen & Trappers Association / Regional Nunavimmi Umajulirijiit Katujjiqatigiinninga (NHFTA/RNUK)
- Nunavik Marine Region Wildlife Board (NMRWB)

Each of the organizations noted above has appointed representatives, in the capacity as an expert in the field of polar bears or polar bear management and not in the capacity of representing the views or opinions of their organization, to a working group tasked with the creation of this polar bear management plan. Consultations were undertaken throughout the region affected by the management plan, and we have endeavoured to make sure all relevant stakeholders have had an opportunity to provide input into the plan. To the extent possible, we have attempted to ensure that Inuit, Cree and scientific perspectives have been reflected appropriately. This management plan has not yet been reviewed or approved by the relevant governments and involvement in the writing process is not to be interpreted as endorsement of the plan in any way in advance of said review and in the absence of Ministerial approval.

Plan Duration and Review

The Polar Bear Management Plan for Quebec, the Eeyou Marine Region and Nunavik Marine Region will be in effect for a period of 10 years, subject to ongoing monitoring of its effectiveness and a full review and assessment after 5-years. Changes to the management plan may be proposed prior to its expiration should issues be identified in the course of these assessments.

Prior to the end of this 10-year period, a new management plan will be tabled for adoption, in accordance with applicable Land Claims Agreements.

Definition of Acronyms Used

AEOU	Areas of Equal Use and Occupancy
CAP	Circumpolar Action Plan for polar bear
CI	Confidence Interval
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CNG	Cree Nation Government
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COY	Cub-of-the-Year
CTA	Cree Trappers' Association
DLP	Defense of life and property
DS	Davis Strait
ECCC	Environment and Climate Change Canada
EMR	Eeyou Marine Region
EMRLCA	Eeyou Marine Region Land Claims Agreement
EMRWB	Eeyou Marine Region Wildlife Board
FB	Foxe Basin
JBNQA	James Bay and Northern Quebec Agreement
HFTCC	Hunting, Fishing and Trapping Coordinating Committee
IUCN	International Union for Conservation of Nature
LNUK	Local Nunavimmi Umajulirijiit Katujjiqatigiinninga
LSA	Labrador Settlement Area
MFFP	Ministère des Forêts, de la Faune et des Parcs
NHFTA	Nunavik Hunters, Fishermen and Trappers Association
NILCA	Nunavik Inuit Land Claims Agreement
NMR	Nunavik Marine Region
NSA	Nunavut Settlement Area
NQL	Non-Quota Limitation
NMRWB	Nunavik Marine Region Wildlife Board
PBAC	Polar Bear Administrative Committee
PBTC	Polar Bear Technical Committee
POP	Persistent Organic Pollutant
RNUK	Regional Nunavimmi Umajulirijiit Katujjiqatigiinninga
SHB	Southern Hudson Bay
TAT	Total Allowable Take
TK	Traditional Knowledge
SARA	Federal Species at Risk Act
WAPPRIITA	Wild Animals and Plant Protection and Regulation of International and Interprovincial Trade Act

Table of Contents

1. Introduction	9
2. Guiding Principles.....	11
3. Polar Bears and People	12
4. Species Description	13
4.1. Nomenclature.....	13
4.2 Legal Status / Designation in 2016.....	13
4.3 General Description	13
4.4 Biology.....	14
4.4.1 Life cycle and reproduction	14
4.4.2 Natural Mortality and Survival	14
4.4.3 Diet.....	14
4.4.4 Habitat.....	15
4.5 Abundance and Distribution	16
4.5.1 Population Delineation and Global Range	16
4.5.2 Range within the Management Area	18
5. Background – Polar Bear Co-management in the Management Plan Area.....	20
5.1 Chronology	20
5.1.1 James Bay and Northern Quebec Agreement.....	21
5.2.2 Nunavik Inuit Land Claims Agreement.....	21
5.2.3 Eeyou Marine Region Land Claims Agreement	21
5.3 Overlap Agreements	21
5.3.1 Reciprocal Arrangements Between Nunavik Inuit and the Inuit of Nunavut.....	22
5.3.2 A Consolidated Agreement Relating to the Cree/Inuit Offshore Overlapping Interests Area Between the Crees of Eeyou Istchee and the Nunavik Inuit	22
5.3.3 Nunavik Inuit Rights and Interests in the Labrador Inuit Settlement Area Portion of the Overlap Area	22
5.4 Legislation and Regulations	24
5.4.1 COSEWIC and the Federal Species At Risk Act (SARA)	24
5.4.2 An Act Respecting Threatened or Vulnerable Species (Québec)	24
5.4.3 An Act Respecting the Conservation and Development of Wildlife (Québec).....	25
5.4.4 An Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories (Québec)	25
5.4.5 Nunavut Wildlife Act	25
5.4.6 Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)	26

5.5	Other Polar Bear Management Frameworks.....	26
5.5.1	1973 Agreement on the Conservation of Polar Bears	26
5.5.2	The Federal/Provincial/Territorial Polar Bear Administrative Committee (PBAC) and the Polar Bear Technical Committee (PBTC)	27
6.	<i>Organizations involved in the management of polar bear within the Québec, the Eeyou Marine Region and the Nunavik Marine Region: their roles & responsibilities.....</i>	28
6.1	Partners with roles only in the onshore areas.....	28
6.1.1	Hunting, Fishing and Trapping Coordinating Committee (HFTCC)	28
6.1.2	Government of Québec - Ministère des Forêts, de la Faune et des Parcs (MFFP)	28
6.2	Partners with roles only in the Offshore Areas	29
6.2.1	Eeyou Marine Region Wildlife Board (EMRWB).....	29
6.2.2	Nunavik Marine Region Wildlife Board (NMRWB)	29
6.2.3	Government of Canada - Environment and Climate Change Canada (ECCC)	29
6.2.4	Government of Nunavut, Department of Environment	30
6.3	Partners with roles in both the onshore and offshore areas	30
6.3.1	Cree Nation Government (CNG).....	30
6.3.2	Local Cree Trappers' Associations (Local CTAs)	31
6.3.3	Cree Trappers' Association (CTA)	31
6.3.4	Local Hunting, Fishing and Trapping Associations (HFTA) / Local Nunavimmi Umajulirijiit Katujjiqatigiinningit (LNUKs)	31
6.3.5	Nunavik Hunting, Fishing and Trapping Association (NHFTA) / Regional Nunavimmi Umajulirijiit Katujjiqatigiinninga (RNUK)	31
6.3.6	Makivik Corporation	31
7.	<i>Conservation Issues</i>	33
7.1.	General Overview of Conservation Issues.....	33
7.2	Development	33
7.2.1	Hydroelectric Development.....	33
7.2.2	Natural Resource and Infrastructure Development	34
7.2.3	Shipping	34
7.2.4	Tourism	35
7.3	Pollution and Contaminants	36
7.4	Parasites and Disease	36
7.5	Climate Change	37
7.6	Bears and Zoos	38

8. Management Challenges	39
8.1 Research and Monitoring	39
8.2 The Human Dimension	40
8.2.1 Harvesting and Harvest Management	40
8.2.2 Changing Communities	42
8.2.3 Defence of Life and Property	42
8.3 Additional Considerations Related to Polar Bear Management	43
8.3.1 Population Boundaries	43
8.3.2 Inter-jurisdictional considerations	43
8.3.3 Legislative Gaps	43
8.3.4 International Trade	44
9. Management Plan Objectives	45
9.1 Harvest Management and Objectives	45
9.2 Management Approaches	46
10. Implementation Plan	47
11. References.....	48

1. Introduction

For as long as Inuit and Cree have inhabited the coastal region of Northern Québec (Nunavik and Eeyou Istchee) polar bears have been an important part of their cultures and livelihood. Inuit have used polar bear (*Nanuq* in Inuktitut, *Whabhskewh* in Cree) for food and clothing for millennia; the Crees of Eeyou Istchee, although less reliant on polar bear than the Inuit, also place a high value on polar bears as socio-cultural symbols. Accompanying these traditional usages and views have been traditional harvest management practices that largely remain in place to this day.

However, while traditional harvesting practices have existed throughout centuries, the context in which they occur has not. Following the signing of the *1973 Agreement on the Conservation of Polar Bears* by the five polar bear Range States (Canada, United States, Norway, Greenland, and Russia), formalized written management regimes were established in most Canadian jurisdictions, with Northern Québec being an exception. Since the 1973 Agreement was signed, polar bears and polar bear harvesting have come under increasing international scrutiny. The lack of a formally regulated harvest management regime in Northern Québec has raised some concerns at the international level, where questions concerning the sustainability of the polar bear harvest and about the robustness of Canada's polar bear management have been raised. These questions could in turn result in sanctions against the trade of polar bear parts, including hides, to foreign countries, and thereby deprive Inuit and Cree communities of important sources of income. It could also jeopardize an important component of their culture – the hunting of polar bears and transformation of their parts for traditional uses.

Partly in response to the above-noted concerns, on January 10, 2012, the Federal Minister of the Environment requested that the Nunavik Marine Region Wildlife Board (NMRWB) to establish a management regime, including a Total Allowable Take (TAT), for the three sub-populations of polar bear that occur in the Nunavik Marine Region (NMR). Given the need for a provincial polar bear management plan (see s.5.4.1), the distribution of polar bears and the jurisdictional complexities of Northern Quebec, it was deemed to be desirable and practical to develop a single management plan that could be applicable to both the onshore portion of Québec and adjacent marine regions (the NMR and the Eeyou Marine Region [EMR]). This plan is, therefore, intended to encompass the territories covered under the James Bay and Northern Québec Agreement (JBNQA), the Nunavik Inuit Land Claims Agreement (NILCA) and the Eeyou Marine Region Land Claims Agreement (EMRLCA). The management plan will be approved by the relevant management authorities in accordance with the decision-making mechanisms set out in each of these Agreements and will not be applicable beyond the boundaries defined within them (see Figure 1).

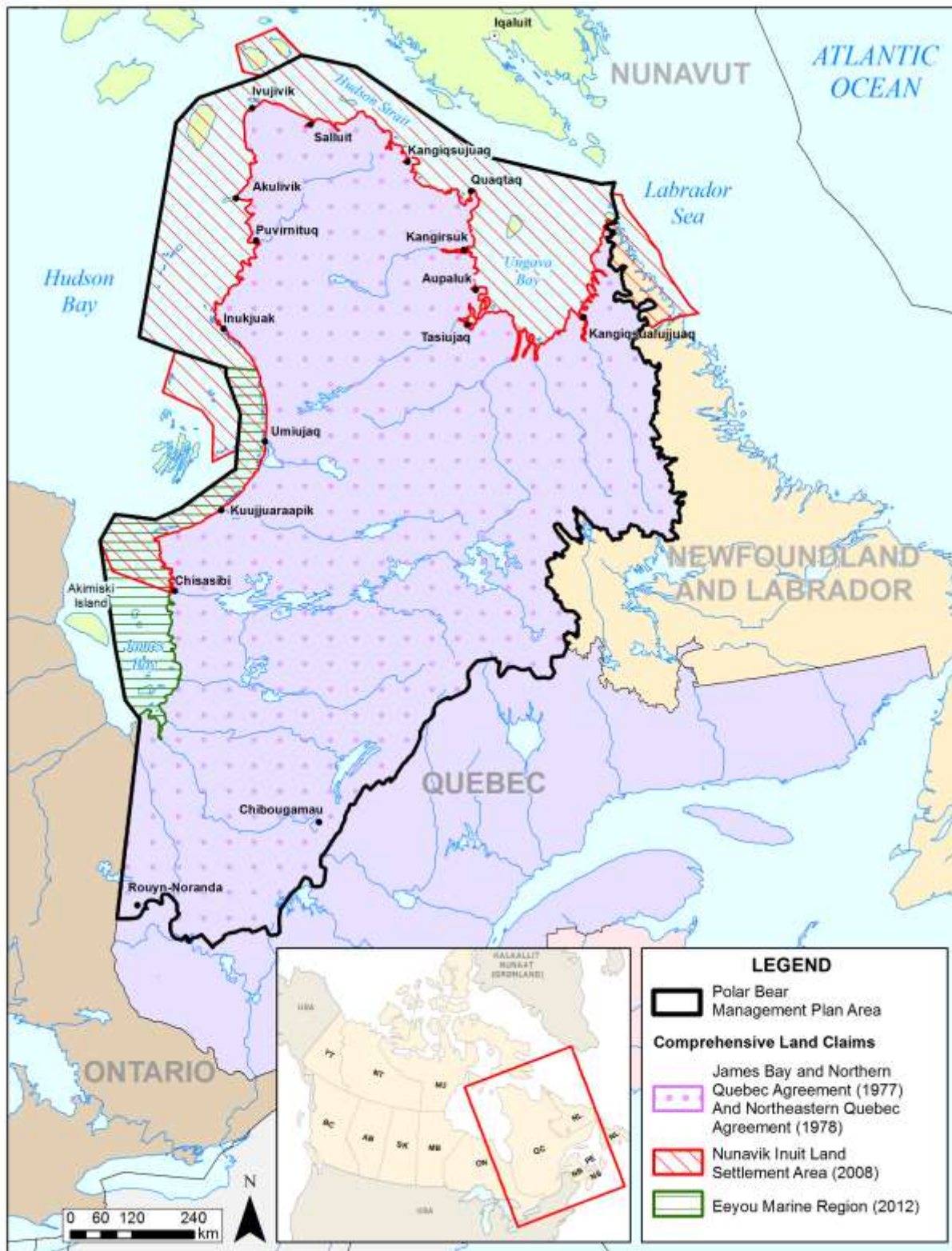


Figure 1. Management Plan Area Based on Relevant Land Claims Agreement Boundaries

2. Guiding Principles

This proposed polar bear management plan is guided by the following principles:

1. The polar bear management plan must recognize and respect the roles, responsibilities and authorities of each organization involved within its area of application (i.e. those areas defined under the Nunavik Inuit Land Claims Agreement (NILCA), the Eeyou Marine Region Land Claims Agreement (EMRLCA) and the James Bay and Northern Quebec Agreement (“JBNQA”)); collaboration and coordination between these authorities is important for effective polar bear management in Northern Quebec.
2. Planning and decision making with regards to the conservation and management of polar bears must be founded upon the best-available Traditional Knowledge (TK) and scientific information; when there is divergence between the two, both perspectives must be considered. Up-to-date information on the status and trends of each polar bear subpopulation is essential for effective management and conservation.
3. The protection of human lives and property is paramount and must be considered when discussing the management and conservation of polar bears.
4. The management plan must act in accordance with the wildlife management principles detailed in applicable Land Claims Agreements, including the principles of conservation.
5. Engagement and participation of Nunavik Inuit and the Crees of Eeyou Istchee during the development and implementation of this management plan is important to ensure that their approaches to wildlife management as well as their rights, priorities and concerns are fully considered.
6. Polar bear management in Quebec, the Nunavik Marine Region (“NMR”) and the Eeyou Marine Region (EMR) should be adaptive and able to respond in a timely manner to new information and changing conditions.

The goal of this plan is to maintain healthy polar bear populations which remain an important component of the local ecosystem and which will be available for use by current and future generations in a way that respects and embodies the rights, culture and traditions of the Nunavik Inuit and the Crees of Eeyou Istchee.

3. Polar Bears and People

For millennia, polar bears have played an important role in the lives of the Inuit and Crees of Northern Quebec, and continue to do so to this day. Whereas Nunavik Inuit have a long history of harvesting polar bears, the Crees of Eeyou Istchee do so only on occasion, usually in defense of life and property, and do not consider themselves polar bear hunters in the same sense as Inuit.

Today, many Inuit continue to eat polar bear, which is generally distributed throughout the community and shared according to traditional values. There is now less reliance on them for clothing, though a number of people, especially elders, continue to make use of the skins for clothing, equipment and crafts. Instead, most of the skins obtained from the polar bear hunt are now sold to southern and international markets. This allows hunters, who may otherwise have limited alternative sources of income, to finance other subsistence hunting activities or simply to purchase supplies and food for their families. Although the economic benefits of polar bear harvesting cannot be overlooked, it is important to recall that the sale of polar bear hides has existed since arrival of the first European fur traders and is not an emerging phenomenon.

The importance of polar bear to Nunavik Inuit, and to the Crees of Eeyou Istchee, goes far beyond food security and economic benefits. It is difficult to quantify the indirect benefits of polar bear to the Inuit and Crees of northern Quebec since they are so closely tied to the hunt itself, but the learning of survival skills and life skills, feelings of fulfillment (especially from sharing the meat) and of pride or accomplishment are all derived from polar bear hunting. For example, the danger of the animal, as well as the skill required to hunt it on the ice make polar bear hunting an efficient and disciplinary way for young hunters to learn invaluable life lessons, and traditional skills.

Further, polar bears are a part of the psyche of the peoples of northern Quebec. This is demonstrated in people's constant awareness of safety related to living with polar bears, especially when venturing outside of communities. Polar bears have a near-revered status with people often likening them to humans (e.g. referring to polar bears as fellow hunters). In communities that regularly hunt polar bears, harvesting a first polar bear is a coming-of-age experience and an important step in being recognized as a good hunter.

4. Species Description

4.1. Nomenclature

Taxonomic name: *Ursus maritimus* (Phipps 1774)

Inuktitut name: Nanuq, Nanuk

English name: Polar bear

French name: Ours blanc, Ours polaire

Cree name: Wabhskewh, Wâpaskw, Wâpiskw

4.2 Legal Status / Designation in 2016*

International Union for the Conservation of Nature (IUCN): Vulnerable (2015)

Canada (*Species at Risk Act*): Special Concern (2011)

Québec (*Loi sur les espèces menacées ou vulnérables*): Vulnérable (2009)

Nunavut: Not Assessed

* This list excludes the legal status / designation given to polar bears by other jurisdictions, which have no direct implication within the management plan area.

4.3 General Description

The polar bear is a top predator characterized by low reproductive rates, long life span, and late sexual maturity. It is a member of the taxonomic family *Ursidae* and is well-adapted to life on the sea-ice and in the water¹⁻³. It is comparable roughly in shape and size to the brown bear (*Ursus arctos*), from which it evolved within the last 400,000 years^{4,5}. However, its neck and nose (rostrum) are more elongated, it has a smaller and less dish-shaped head, and it lacks the characteristic shoulder hump. Its webbed and enlarged front paws make the polar bear a strong swimmer and its curved claws are well-suited for “hooking” seals, their primary food source. Other adaptations to the Arctic environment include furred foot pads and black skin. The black skin assists in absorbing solar energy, whereas the furred pads improve insulation and enhance traction on snow and ice. Polar bear fur appears sometimes white, but it also may be yellowish or off-white, depending on the time of year, and sometimes on the gender. Polar bears exhibit extraordinary strength when crushing through the sea-ice, digging into seal birth and haul-out lairs, or moving large boulders to uncover meat caches. As adults, males are larger and heavier than females: males can weigh around 800 - 1000 kg, and can be up to 300 cm long; females usually do not exceed 400 kg, and reach up to 250 cm in body length⁶⁻⁸.

4.4 Biology

4.4.1 Life cycle and reproduction

Breeding occurs between March and June. When a male mates with a female ovulation is induced, although implantation of the fertilized egg is delayed until October^{7,9–11}. Depending on the subpopulation, female age at first reproduction varies between 4 and 7 years of age; in most subpopulations females produce litters at relatively high rates by age 6¹². Male polar bears are also likely to become sexually mature by age 6, but younger males generally have low reproductive success because of competition from larger, older males. It appears that most males do not enter the reproductive segment of the population until they are 8–10 years old^{13–17}.

Pregnant females prepare and enter maternity dens in late fall and the young, normally 1–2, are born between November and early January. At birth, cubs weigh approximately 0.6 kg. They are nursed inside the den until sometime between the end of February and the middle of April, by this time cubs weigh 10–12 kg¹⁴. A new litter is produced after 3 years of raising cubs so average interval between litters is approximately 3.6 years.

4.4.2 Natural Mortality and Survival

For polar bears, natural mortality can occur from numerous causes. Polar bears have been observed and documented to pose a threat to other polar bears^{18–20}. Predation by wolves on polar bear cubs have been observed by Inuit and researchers²¹. Walrus have also been reported to kill polar bears in self-defence, but this is infrequent. Every life stage of a polar bear faces different challenges; therefore the survival rates vary accordingly. Moreover, the survival rates for these life stages also vary slightly in each polar bear subpopulation because of the differences in ecosystem productivity. In general, biologists recognize four important age categories: 1) cubs of the year (COYs), 2) yearlings and sub-adults, 3) prime-age adults, and 4) senescent adults. Survival rate also differ between genders with males generally having lower survival rates than females. In the wild, the maximum age a polar bear can attain is estimated at approximately 30 years^{22,23}.

Inuit, on the other hand, recognize several categories/class of polar bears. 1) Atiqtalik – female on route to sea ice, 2) Pingalujait - a female with two small cubs, 3) Nalitariit - a female with two cubs who are as big as the mother, 4) Avutinikuk - a young bear that has left its mother, 5) Nukaugaq - a young male, 6) Angujjuaq - full grown male, 7) Arnaluq - pregnant female. Although some of these are general and specific for the same age they represent the diverse understanding Inuit have of polar bears.

4.4.3 Diet

Although polar bear diet varies throughout the year and across its range, they are highly carnivorous with ringed, bearded and harp seals making up most of their diet. Polar bears are also known to frequently include birds (and their eggs) and beluga whale in their diet. Other species such as walrus, narwhal, bowhead whale, arctic charr, and harbour seal may also be preyed upon^{24–26}. Nunavik Inuit report that, after spending extended periods at sea, bears returning to land eat large amounts of vegetation as a means of preparing their body for life on land. Elders report that a similar behavior is observed in females preparing to enter maternity dens, and it is believed that their intake of moss and lichen allows them to better retain and absorb the oils contained in the seals that they have previously eaten (*Q. Tarriasuk, pers. comm.*).

Polar bears are well-adapted to times of food abundance and shortages. When food is in high abundance, polar bears can increase their body mass significantly. When food becomes scarce or unavailable, polar bears can live off their stored fat reserves^{14,27}. While polar bears will hunt and scavenge throughout the year, feeding opportunistically on almost anything they can find, spring represent a crucial feeding period. As seal pups are born and become abundant, polar bears enter a period of high food intake where they will accumulate most of the fat needed to survive through the summer and fall seasons, when food resources are harder to access. In seasonally ice-free areas where bears move on shore, vegetation, berries, eggs, birds, and other terrestrial or marine-based food items are consumed^{28–37}. Although the behaviour is not thoroughly documented, Cree and Inuit hunters report that fish and ringed seals are successfully preyed upon during summer, when there is little or no sea-ice^{37,38}. Inuit from Kangiqsualujjuaq report that bears have recently developed the behavior of catching arctic charr from rivers in a manner similar to that of brown bears catching spawning salmon²⁶. Marine mammal ice-entrapment events and Inuit marine mammal harvesting can also create an additional food source which polar bears access by scavenging.

One aspect to take into consideration when discussing foraging opportunities for polar bear in relation to Inuit subsistence harvesting practices is that Nunavik Inuit have resumed the tradition of harvesting bowhead whales and although the number of hunts has been limited, they remain interested in doing so. The importance of bowhead carcasses to polar bear diets has been demonstrated in other regions, but can also lead to a greater risk of human-bear encounters³⁹. The regulatory framework surrounding Nunavik's annual beluga hunt has, similarly, led to a change in the distribution and abundance of beluga carcasses. It is not known to what extent these supplementary food sources have impacted polar bear foraging habits.

4.4.4 Habitat

Polar bears utilize the marine environment for hunting marine animals, primarily when there is some degree of ice-cover. Polar bears have adapted to all different types of sea ice and are strong swimmers, capable of traveling long distances in open water. Inuit have indicated that bears can persist in open water and sea ice for the majority of their lives (the Inuktitut term for this is *Tulayuituq*). Inuit also recognize that different areas of the sea-ice habitat can be particularly important for separate aspects of polar bear life history (e.g. breeding areas, resting areas, feeding areas, etc.)^{26,40}.

Polar bears utilize most coastal areas of the Canadian subarctic and Arctic and occasionally travel considerable distances inland. In areas where there is only seasonal sea-ice, access to land is usually required for ice-free periods and for denning in winter. Although some denning does occur in packed snow drifts that have built up over pressure ridges in winter sea-ice, within the management area, polar bears den primarily on land. Dens are generally excavated in soil or snow, and are then covered and closed by snowdrifts. While they are frequently located on islands or on land adjacent to areas with high seal densities in spring, dens can sometimes be found far inland from the coast or in areas of annual rough ice. Nunavik Inuit have also observed bears denning in snow buildups around hills and mountains, as well as using excavated dens within the tree line²⁶. All maternity denning sites are important areas because they provide shelter for the mother and offspring^{40–53}. Satellite telemetry data from female collared polar bears indicate that they often return to the same area to den over the course of their lifetime.

4.5 Abundance and Distribution

4.5.1 Population Delineation and Global Range

There is an estimated world population of approximately 26,000 polar bears (95% CI = 22,000-31,000) occurring throughout the sub-arctic and Arctic regions of the northern hemisphere⁵⁴. This estimate excludes any bears from the Arctic Basin subpopulation for which no information on abundance is available. Polar bears are highly mobile and there is significant genetic exchange across the circumpolar region. However, they are not distributed evenly throughout the Arctic, but rather show seasonal fidelity to local areas based, to some extent on their use of sea-ice as a platform for feeding, mating, and denning⁵⁵⁻⁵⁷, but also by the availability and quality of sea-ice⁵⁸⁻⁶³. Given this, the global population has been divided into 19 “subpopulations”⁶⁴, 13 of which exist in Canada¹², and three within the area represented by this management plan (Figure 2).

The subpopulation boundaries that have become the basis for polar bear management were initially established by the Polar Bear Technical Committee (PBTC)* and have since been updated based on the movements of satellite radio-collared female polar bears, mark-recapture efforts (including hunter returns of ear tags or samples from marked bears), and according to the hunting practices and information of local people^{55,56}. However, the premise of identifying subpopulation boundaries continues to be disputed by Inuit, who maintain that polar bears do not stay within these boundaries and instead travel wherever they so choose. Given these diverging views, it is important to specify that subpopulation boundaries, although based on extensive information do not necessarily reflect ecologically meaningful separations. Rather, they are lines drawn on a map and used within a management context to track local trends in the polar bear population, to observe any changes in demographic parameters and behaviour as well as to conduct harvest monitoring. Doing so helps ensure that polar bear management is more practicable and better adapted to local conditions.

“Subpopulation boundaries...are lines drawn on a map and used within a management context to track local trends in the polar bear population, to observe any changes in demographic parameters and behaviour as well as to conduct harvest monitoring. Doing so helps ensure that polar bear management is more practicable and better adapted to local conditions.”

* For a complete description of the role and composition of the Polar Bear Technical Committee see section 5.5.2, below.

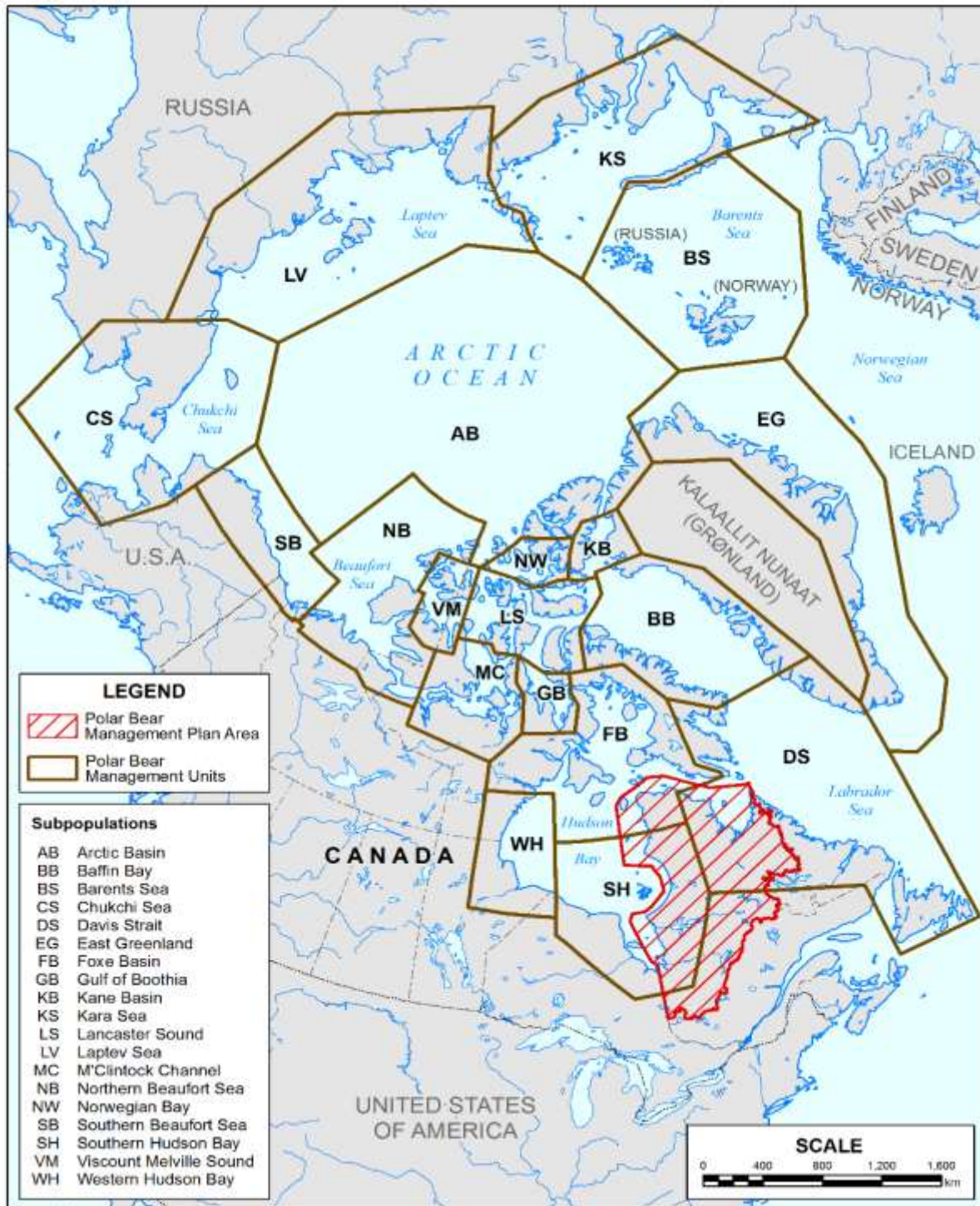


Figure 2. Global distribution of polar bear sub-populations

4.5.2 Range within the Management Area

Three of Canada's polar bear subpopulations (Southern Hudson Bay, Foxe Basin and Davis Strait) occur in northern Quebec and its adjacent waters. These are among the southernmost subpopulations in the world and all of them experience a seasonally ice-free environment, which forces the bears onto shore during late summer, where they remain for several months while awaiting freeze-up. The distribution of each subpopulation within the management plan area is described below and in Figure 3:

- The Southern Hudson Bay subpopulation includes all of the area of James Bay and the Hudson Bay south of the 60th parallel.
- The Foxe Basin subpopulation occupies the northern part of Hudson Bay and the Hudson Strait, until a point west of the village of Kangiqsujuaq. The Davis Strait subpopulation occupies the remaining portion of Hudson Strait and all of Ungava Bay. Because the Davis Strait region was not traditionally referred to as such by Inuit, there is no equivalent terminology in Inuktitut. Consequently, Inuit have suggested that referring to this subpopulation as the "Killiniq-waters subpopulation" is more appropriate.

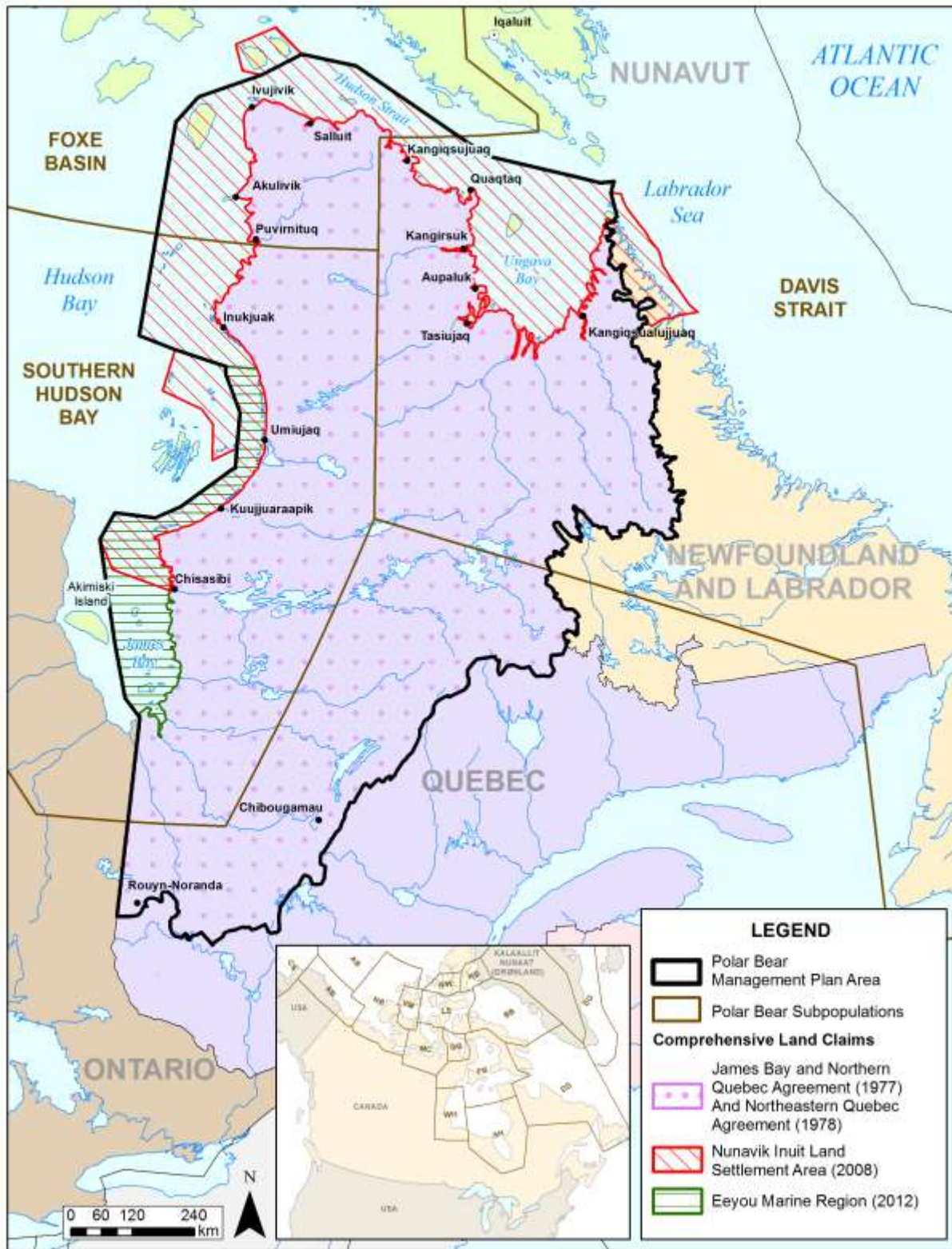


Figure 3. Polar Bear Subpopulations in the management plan area

5. Background – Polar Bear Co-management in the Management Plan Area

The following section outlines the polar bear management efforts applicable to the management area. While only modern management initiatives and frameworks are defined here, it is important to recognize that Inuit and Cree hunters have shared this region with polar bears for millennia. Throughout this time they have developed a formal code of conduct, which puts forth a set of rules that govern all interactions with polar bear. Despite the advent of modern management practices and regulations, hunters in the region continue to rely strongly on their traditional values and rules.

5.1 Chronology

The following chronology highlights significant initiatives over the past 45 years up until Winter 2016-2017. It is not inclusive of all work undertaken and in particular does not include specific LNUK initiatives or other similar community-based efforts. ***The chronology will be updated if other activities have been initiated or completed at the time of plan approval.***

- 1973 Agreement on the Conservation of Polar Bears (the Range State Agreement)
- Convention on the International Trade in Endangered Species of Wild Flora and Fauna - CITES - Appendix II listing (1975)
- Wild Animal and Plant Trade Regulations - WAPTR – added to Schedule I (1975)
- James Bay and Northern Quebec Agreement - JBNQA (1975)
- Nunavik Hunters, Fishermen & Trappers Association - NHFTA (*Anguvigaq*) - Polar Bear Regulations (1984)
- Nunavik Inuit Land Claims Agreement - NILCA (2008)
- Quebec Act Respecting Threatened or Vulnerable Species listing (2009)
- Davis Strait User to User Meeting (2010)
- Southern Hudson Bay Polar Bear Voluntary Agreement (2011)*
- Federal Species At Risk Act Listing as a species of special concern (2011)
- Eeyou Marine Region Land Claims Agreement - EMRLCA (2013)
- Nunavik Marine Region Wildlife Board South Hudson Bay Polar Bear Public Hearing (2014)
- 2nd South Hudson Bay Polar Bear Voluntary Agreement (2014)**
- 2nd Davis Strait Polar Bear User to User Meeting (2015)

* The 2011 Voluntary agreement was for one year (i.e. 2012), and was later extended for a second year (2013)**The 2014 Voluntary Agreement was for a period of two hunting seasons (2014-2016).

Land Claims Agreements

5.1.1 James Bay and Northern Quebec Agreement⁶⁵

The James Bay and Northern Quebec Agreement (JBNQA) was signed between the Crees of Eeyou Istchee, the Nunavik Inuit and the Governments of Quebec and Canada and is generally acknowledged as the first comprehensive land claims agreement reached in Canada. The JBNQA territory covers onshore Nunavik and Eeyou Istchee. Finalized in 1975, the JBNQA established certain rights for Nunavik Inuit and the Crees of Eeyou Istchee, including rights pertaining to hunting, fishing and trapping which are contained in Section 24 of the Agreement. Under the JBNQA, polar bear is a species that can be hunted exclusively by the Inuit and Crees. Furthermore, management decisions for polar bear in the territory covered by the JBNQA are taken via the Hunting, Fishing and Trapping Coordinating Committee (HFTCC), also established under Section 24. The HFTCC makes recommendations to the appropriate minister (in the case of polar bear, the Quebec Ministère des Forêts, de la Faune et des Parcs (MFFP)). The minister can choose to accept the recommendations of the HFTCC, or can put in place other measures, after a second consultation with the HFTCC.

5.2.2 Nunavik Inuit Land Claims Agreement⁶⁶

The Nunavik Inuit Land Claims Agreement (NILCA) came into force in 2008, and establishes rights for Inuit in the Nunavik Marine Region (NMR); the islands and waters offshore of Nunavik. The NILCA is an Agreement between the Inuit of Nunavik, the Government of Canada and the Nunavut Government. Similar to the JBNQA, polar bear is a species that is reserved exclusively for Nunavik Inuit under the NILCA. Established pursuant to Section 5 of the NILCA, the Nunavik Marine Region Wildlife Board (NMRWB) makes decisions on wildlife management issues in the NMR, including polar bear management. The relevant federal or territorial (Nunavut) Ministers (in the case of polar bear, the Minister of Environment and Climate Change and the Minister of Environment, respectively) maintain ultimate authority.

5.2.3 Eeyou Marine Region Land Claims Agreement⁶⁷

The Eeyou Marine Region Land Claims Agreement (EMRLCA) came into force in 2011, and establishes the rights of Cree in the Eeyou Marine Region (EMR); the islands and waters of eastern James Bay and a portion of eastern Hudson Bay. The EMRLCA is an Agreement between the Crees of Eeyou Istchee, the Government of Canada and the Nunavut Government. Polar bear is reserved exclusively for the Crees of Eeyou Istchee under this agreement. Established pursuant to Chapter 10 of the EMRLCA, the Eeyou Marine Region Wildlife Board (EMRWB) makes decisions on wildlife management issues in the EMR, including polar bear management. The relevant federal or territorial (Nunavut) Ministers (in the case of polar bear, the Minister of Environment and Climate Change and the Minister of Environment, respectively) maintain ultimate authority.

5.3 Overlap Agreements

The geographical range of harvesting activities by Crees and Inuit were not historically constrained by the jurisdictional boundaries that exist today. As such, and in accordance with Section 35 of the *Constitution Act, 1982*, Inuit and Crees have protected harvesting rights within the NMR and/or EMR, as well as in other jurisdictions where they have traditionally engaged in harvesting. Within the NMR, the EMR, the Nunavut Settlement Area and the Labrador Settlement Area (LSA) there exist areas where these reciprocal rights have been further defined within a number of overlap agreements which form an integral part of

each Land Claims Agreement. Three such agreements, between the relevant parties, apply within the geographic area addressed within this management plan:

5.3.1 Reciprocal Arrangements Between Nunavik Inuit and the Inuit of Nunavut⁶⁸

Two areas within the NMR are shared by Nunavut and Nunavik Inuit; these are referred to as areas of equal use and occupancy (AEUO). The first is at Nottingham and Salisbury Islands and is within the range of Foxe Basin polar bears. The second is within the Southern Hudson Bay subpopulation area, and includes a number of islands situated between the communities of Umiujaq, QC and Sanikiluaq, NU. Within these AEUO, Inuit from Nunavik and Nunavut have equal harvesting rights. Until a formal process to govern wildlife management within the AEUO is established, the Nunavut Wildlife Management Board retains exclusive jurisdiction over this area but the NWMB's membership is varied to allow for Nunavik Inuit representation through the appointment of members by Makivik (see NILCA Part 27.6).

5.3.2 A Consolidated Agreement Relating to the Cree/Inuit Offshore Overlapping Interests Area Between the Crees of Eeyou Istchee and the Nunavik Inuit (The Cree/Inuit Overlap Agreement)⁶⁹

Similarly, the Crees and Inuit traditionally used and occupied overlapping areas in Southern Hudson Bay and James Bay. Because traditional ties to these areas were not uniform, three separate overlap areas were created (i.e. the Inuit Zone, the Joint Zone and the Cree Zone) to reflect the latitudinal gradient of occupancy by each group. Throughout the overlap area, the Nunavik Inuit and the Crees of Eeyou Istchee have the same rights respecting the harvest of wildlife; these rights being exercised in accordance with each group's respective customs and traditions, in a manner so as not to compromise each other's harvesting activities.

Although harvesting rights are equal within all zones, the management regime applicable to each is not. For the Inuit Zone, the NMRWB maintains wildlife management responsibilities, but a Cree Nation Government observer is entitled to replace a Makivik appointed board member during any vote. For the Joint Zone, wildlife management decisions are to be made jointly and equally by the NMRWB and EMRWB. Within the Cree Zone, the EMRWB maintains wildlife management responsibilities, but a Makivik appointed observer is entitled to replace a Cree board member during any vote.

5.3.3 Nunavik Inuit Rights and Interests in the Labrador Inuit Settlement Area Portion of the Overlap Area⁷⁰

The last overlap area included within this management plan's area of application is situated along the Quebec/Labrador border and into the adjacent offshore areas. Pursuant to this agreement, Nunavik Inuit and Labrador Inuit have equal harvesting rights within the area of overlap. Although Labrador Inuit and Nunavik Inuit may share the right to harvest, their combined take shall not exceed the total allowable take (TAT) in either region and is subject to any other obligations in effect. As such, the bodies responsible for wildlife management in the NMR (NMRWB) and in the LSA (Torngat Secretariat) must take into account each other's current and historic harvesting levels, as well as those of other groups (e.g. Nunavut Inuit) when setting harvest limits.

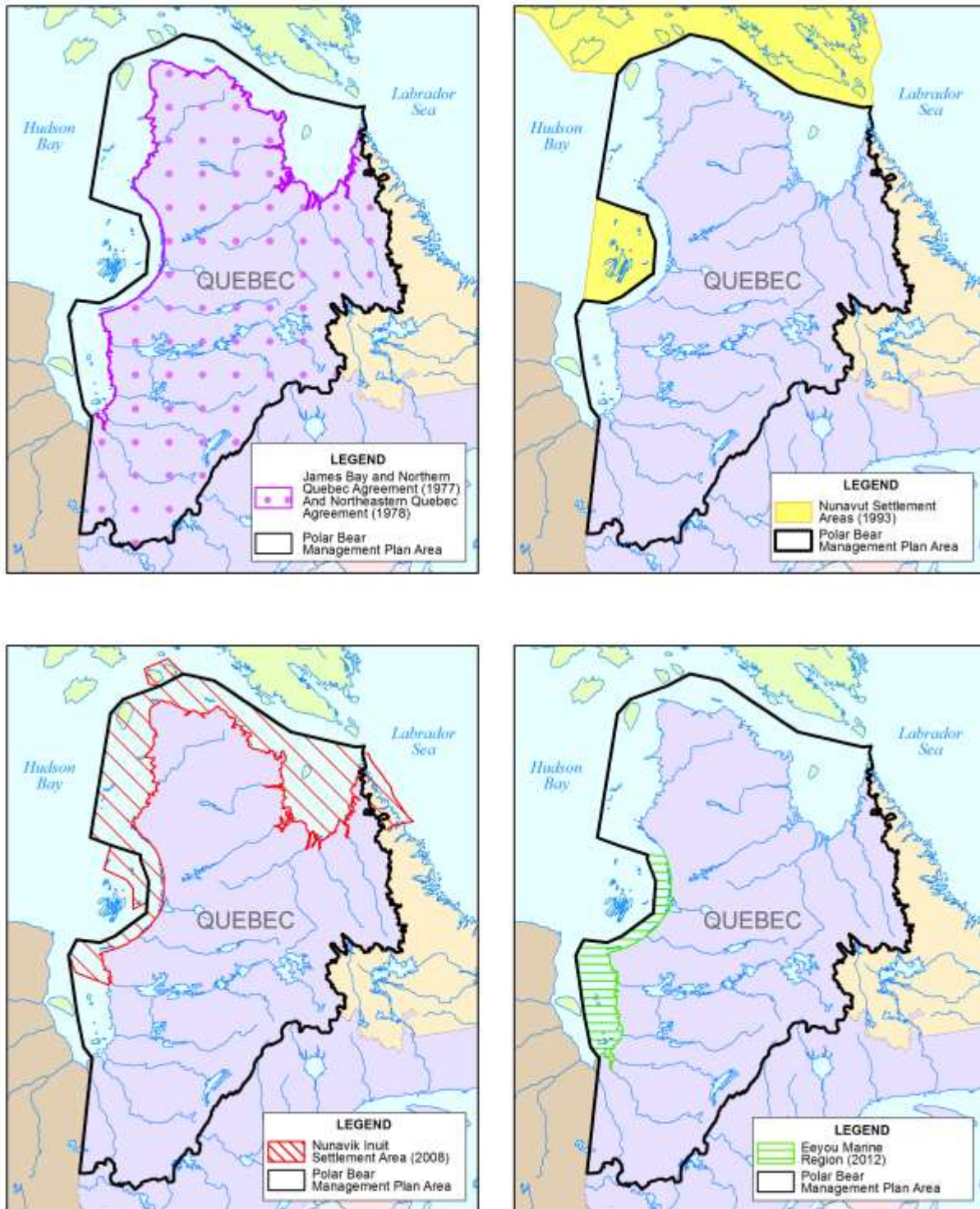


Figure 4. Individual Lands Claim Agreement Boundaries within the management Area

5.4 Legislation and Regulations

5.4.1 COSEWIC and the Federal Species At Risk Act (SARA)⁷¹

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC)⁷², established in 1977, is the independent body responsible for identifying and assessing species considered to be at risk in Canada. COSEWIC uses best available information, including science, Aboriginal Traditional Knowledge and community knowledge. Membership consists of members from each of the 13 provincial and territorial government wildlife agencies, 4 federal agencies (Canadian Wildlife Service of Environment and Climate Change Canada, Parks Canada, Department of Fisheries and Oceans, and the Canadian Museum of Nature), 3 non-government science members, 10 Co-chairs of the Species Specialist Subcommittees and 1 Co-chair from the Aboriginal Traditional Knowledge (ATK) Subcommittee. The assessments made by COSEWIC are forwarded to Canada's Minister of Environment and Climate Change and to the Canadian Endangered Species Conservation Council, who decide whether or not to add the species to the federal List of Wildlife Species at Risk, or to refer the matter back to COSEWIC. In other words, if COSEWIC classifies a species as *Endangered* it does not automatically become a Species at Risk. As a legislated requirement, COSEWIC reviews species assessments at least every 10 years, or earlier if new information suggests a change in status may be warranted.

In 1986⁷³, after the first COSEWIC assessment, it was determined that polar bears were *Not at Risk*. This was changed to a designation of *Special Concern* in 1991⁷⁴, a status which was confirmed by assessments conducted in 1999⁷⁵, 2002⁷⁶, and 2008⁷⁷. Following the 2008 assessment public consultations were held to inform the possible listing of polar bear as a species of Special Concern under SARA. These consultations were completed in 2011.

Despite disagreement from most Inuit, the polar bear was listed federally as a species of Special Concern under SARA in 2011. The listing does not impose any restrictions on the harvest, nor does it require the identification and protection of critical habitat. However, under SARA (S.C. 2002, c.29), Environment and Climate Change Canada is responsible for the preparation of a management plan and is required to report on progress five years after the publication of the final document on the SAR public registry. Once the present plan is finalized it is expected that it will be incorporated, in part, or in whole, within the SARA Management Plan. The SARA Management Plan will also include other provincial and territorial management plans.

5.4.2 An Act Respecting Threatened or Vulnerable Species (chapter C-61.1) (Québec)⁷⁸

The objective of this Act is to protect biological diversity and to prevent the extinction of wildlife and plant species within the province of Québec. It is meant to prevent the decline of previously-listed species and to ensure the protection of their habitats, as well as to prevent any other species from becoming threatened or vulnerable.

In accordance with the Act Respecting Threatened or Vulnerable Species, the Quebec government listed the polar bear as a vulnerable species in 2009 (Regulation respecting threatened or vulnerable wildlife species and their habitats).

Established under article 6 of this Act, the 1992 Québec Species at Risk Policy stipulates that a vulnerable species is one whose survival is at risk even if its disappearance is not foreseen. This category includes species whose medium- and long-term survival is not guaranteed. Downward population trends or habitat degradation may occur if no action is taken to ensure the species survives.

Identification of prohibited activities for listed species must take into account the level of risk they face. In the case of vulnerable species, their survival is not threatened in the short or medium term, but could become threatened if no measures are taken to reverse the factors affecting them. Therefore, certain species, particularly if listed as vulnerable, are able to undergo some level of exploitation if it can be demonstrated that such activities in no way harm the current state of affairs and if all possible measures are taken to restore balance.

In Northern Quebec, provisions dealing with threatened or endangered species (e.g. polar bear) are also subject to the terms of the Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories (see 5.4.4).

5.4.3 An Act Respecting the Conservation and Development of Wildlife (chapter C-61.1) (Québec)⁷⁹

The objective of this Act is the conservation of wildlife and its habitat, their development in keeping with the principle of sustainable development, and the recognition of every person's right to hunt, fish and trap in accordance with the law. To that end, this Act establishes various prohibitions that relate to the conservation of wildlife resources and various standards of safety, and sets forth the rights and obligations of hunters, fishers and trappers. According to this Act, the hunting and trapping of animals is prohibited. However, the Minister may, by regulation, allow the hunting and trapping of any animal or any animal of a class of animals determined by the Minister. In the case of polar bear, sport hunting is prohibited as harvesting is reserved exclusively to the beneficiaries of the James Bay and Northern Quebec Agreement pursuant to the Act Respecting Hunting and Fishing Rights in the James Bay and New Quebec Territories. Where any provision of the Act Respecting the Conservation and Development of Wildlife is incompatible with any provision of the Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories, the latter prevails.

5.4.4 An Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories (chapter D-13.1) (Québec)⁸⁰

The Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories implements Section 24 of the James Bay and Northern Québec Agreement. The Hunting, Fishing and Trapping Regime established by this Act applies in the Territory and is subject to the principle of conservation. "Conservation" means the pursuit of the optimum natural productivity of all living resources and the protection of the ecological systems of the Territory so as to protect endangered species and to ensure, primarily, the continuance of the traditional pursuits of the Native people, and, secondarily, the satisfaction of the needs of non-Natives for sport hunting and fishing. According to this Act, beneficiaries of the James Bay and Northern Québec Agreement (Crees, Inuit and Naskapi) have exclusive access to polar bear and hunting is allowed all year round. A guaranteed harvest level of 62 is distributed among Inuit (58) and Crees (4). This harvest level is guaranteed before any sport or commercial activity would be permitted, but is still subject to the principle of conservation if necessary.

5.4.5 Nunavut Wildlife Act⁸¹

On July 1, 2015, several new wildlife harvesting regulations⁸²⁻⁸⁴ and orders under the Nunavut Wildlife Act came into effect within the Nunavut Settlement Area (NSA). At the time of writing, the Wildlife Transitional Regulations⁸⁵ remain in effect within the NMR and EMR. Pursuant to these transitional regulations, only regulations that were previously in force through the Northwest Territories *Wildlife Act*⁸⁶ are currently enforceable within the NMR and EMR lands; the new Nunavut Wildlife Regulations not having been implemented outside of the NSA. This section will be amended once a permanent

arrangement has been made with regards to the application of the Nunavut Wildlife Act and its regulations within the NMR and EMR.

5.4.6 Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)⁸⁷

Canada meets its obligations under The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) through WAPPRIITA.

WAPPRIITA applies to the following animal and plant species: species on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) control list; foreign species whose capture, possession, and export are prohibited or regulated by laws in their country of origin; Canadian species whose capture, possession, and transportation are regulated by provincial or territorial laws; species whose introduction into Canadian ecosystems could endanger Canadian species.

The purpose of WAPPRIITA is to protect Canadian and foreign species of animals and plants that may be at risk of overexploitation due to illegal trade and also to safeguard Canadian ecosystems from the introduction of species considered to be harmful. It accomplishes these objectives by controlling the international trade and interprovincial transport by issuing licenses or permits for certain wild animals (including polar bears) and plants, as well as their parts and derivatives.

5.5 Other Polar Bear Management Frameworks

5.5.1 1973 Agreement on the Conservation of Polar Bears⁸⁸

The need for an international convention or agreement for polar bear conservation was originally recognized and pursued in the mid-1960s. Increased hunting of polar bears had led to severe pressure on the species in some regions of the Arctic. The Arctic Range States (Canada, Greenland [Denmark], Norway, the Union of Soviet Socialist Republics [U.S.S.R., now Russia] and the United States) recognized the need for improved management of polar bears based on scientific knowledge. The *Agreement on the Conservation of Polar Bears* (the 1973 Agreement) was signed in Oslo on November 15, 1973, and entered into force on May 26, 1976. According to the 1973 Agreement, the Range States recognize that the polar bear is a significant resource of the Arctic Region that requires protection. By signing the Agreement, the Range States agreed to undertake coordinated action pertaining to the management of polar bears throughout the circumpolar range.

At the time the 1973 Agreement was signed, the most significant threat facing the polar bear was overharvesting, and populations in some areas were considered to be substantially reduced. However, over 40 years have since passed, harvest control measures have been implemented, and harvest is no longer considered to be the most significant threat to the species. Today, most scientific experts agree that the major threat facing the polar bear is loss and fragmentation of sea ice, its key habitat, resulting from climate change fueled by greenhouse gas emissions.

In 2009 the Range States started to develop a Circumpolar Action Plan (CAP)⁸⁹ to address the threats referred to above. The CAP, approved by the Range States in 2015, is a range-wide strategy designed to guide the mitigation of those threats. It recognizes that there are already effective management systems in place in each Range State, and therefore focuses on issues that are best coordinated at the bilateral or multilateral level. The CAP identifies general actions to be undertaken over the next ten years (2015-2025) and is accompanied by a more detailed implementation plan for the first two years. Progress will be

reviewed every two years by the Range States at their Meetings of the Parties and the implementation plan will be updated accordingly. Progress reports and action tables will be made public.

5.5.2 The Federal/Provincial/Territorial Polar Bear Administrative Committee (PBAC) and the Polar Bear Technical Committee (PBTC)

In Canada, the ultimate management authority for polar bears lies with provincial, territorial and federal governments who are informed and advised by constitutionally recognized land claim bodies and Aboriginal governments. Canada's commitment to a cooperative approach to polar bear research and management began almost 45 years ago with the establishment of the PBAC and the PBTC. The PBAC provides a forum for provincial, territorial and federal jurisdictions to work together to manage polar bears, and to ensure that Canada fulfills its obligations to the 1973 *Agreement on the Conservation of Polar Bears*. In this capacity, the PBAC plays a key role in national coordination and cooperation within and between jurisdictions. The PBTC is composed of experts from Canadian jurisdictions and co-management partners, in both TK and science, who review and evaluate new information in order to provide status and trend updates annually, and to advise the PBAC on technical matters.

6. Organizations involved in the management of polar bear within the Québec, the Eeyou Marine Region and the Nunavik Marine Region: their roles & responsibilities

Wildlife co-management can be defined as a flexible and cooperative management of the wildlife resources by the user groups and the government(s). The concept of co-management represents a shared management according to the roles and responsibilities of the different stakeholders or governmental organisations. Although the parties involved in the development of this management plan have varying levels of management authority and, though the scope of their involvement is not uniform, the sum of their parts is essential to the implementation of an effective polar bear management plan. From the involvement of hunters whose constitutional harvesting rights stand to be affected by any future regulations, to governments who are the ultimate authorities responsible for the implementation and enforcement of any conservation and management measures that will arise from this process, this has been a collaborative effort throughout. The management plan area is governed according to a complex jurisdictional framework and, in order to provide some clarity about the processes at play, the following section provides an overview of the role that each organization plays with regards to the planning, approval and implementation of the Quebec-EMR-NMR Polar Bear Management Plan.

6.1 Partners with roles only in the onshore areas

6.1.1 Hunting, Fishing and Trapping Coordinating Committee (HFTCC)

The HFTCC is a consultative body created as part of the JBNQA. Its authority therefore is restricted to the mainland – the James Bay and Northern Quebec Territory as defined in the Agreement. The Coordinating Committee has been given the responsibility to review, manage, and in certain cases, supervise and regulate the hunting, fishing and trapping regimes established pursuant to the JBNQA. It also acts as a privileged consultative body for governments wishing to implement measures related to wildlife management, but can also initiate, discuss, review, and propose all such measures. The HFTCC members are appointed as follows: Government of Quebec appoints 4 members, Government of Canada appoints 4 members, the Inuit (Makivik Corporation) appoint 3 members, the Crees (Cree Nation Government) appoint 3 members and the Naskapi (Naskapi Nation of Kawawachikamach) appoint 2 members. Naskapi members sit on the HFTCC by virtue of the JBNQA Complementary Agreement # 1 – the Northeastern Quebec Agreement (NEQA).

6.1.2 Government of Québec - Ministère des Forêts, de la Faune et des Parcs (MFFP)

The Ministère des Forêts, de la Faune et des Parcs (MFFP) has the ultimate authority on the management of wildlife within Québec (under the authority of MFFP Minister) and therefore participates in interjurisdictional processes related to polar bear management. In onshore Eeyou Istchee and Nunavik, the management regime is defined by the James Bay and Northern Quebec Agreement (JBNQA, 1975). The management of the polar bear harvest is implemented by the MFFP at the community level through representatives of the Hunter Support Program in each of the 14 Inuit communities and through the Cree Trappers Association for the five coastal Eeyou Istchee Cree communities. The MFFP is responsible for the distribution of tags which are mandatory for any non-Native person having a raw polar bear hide in his possession as well as for the sale of hides. The MFFP is also responsible for issuing export permits for interprovincial trade (these are also necessary to obtain international export permits), the registration of harvested polar bears as well as the compilation and analysis of harvest information. There is currently no mandatory registration of polar bear harvests by Inuit or Cree in Quebec. The MFFP shares responsibility

for the monitoring of polar bear population abundance and trends with other jurisdictions. The wildlife protection division of MFFP is responsible for enforcement and investigations concerning the registration and the trade of polar bear pelts within its jurisdiction in collaboration with Environment and Climate Change Canada. Protection officers are also involved in the promotion of wildlife conservation and have developed education and awareness initiatives for this purpose. MFFP has posted protection officers in some Cree and Inuit communities to fulfill the above-noted roles.

6.2 Partners with roles only in the Offshore Areas

6.2.1 Eeyou Marine Region Wildlife Board (EMRWB)

The EMRWB is a co-management body established under the EMRLCA. The Board has primary responsibility with regards to wildlife management and the regulation of access to wildlife within the EMR. All decisions of the EMRWB are subject to approval by the responsible Minister(s), and must limit Cree harvesting only to the extent necessary to affect a conservation purpose, to give effect to a Total Allowable Take (TAT), or for public health/safety reasons. For polar bears, EMRWB responsibilities include establishing, modifying or removing levels of TAT and non-quota limitations (i.e. seasonal harvest restrictions, prohibitions against shooting cubs, etc.) for the EMR, as well as approval of this management plan before it is implemented in the EMR. Members of the EMRWB are appointed by Canada (2), the Government of Nunavut (1) and the Cree Nation Government (3), with the members nominating a chair who is appointed by the Minister of Fisheries and Oceans (Canada).

6.2.2 Nunavik Marine Region Wildlife Board (NMRWB)

The NMRWB is also a co-management body, but was established under the NILCA. The Board has primary responsibility with regards to wildlife management and the regulation of access to wildlife within the NMR. All decisions of the NMRWB are subject to approval by the responsible Minister(s), and must limit Nunavik Inuit harvesting only to the extent necessary to affect a conservation purpose, to give effect to a Total Allowable Take (TAT), or for public health/safety reasons. In the case of polar bears, the NMRWB responsibilities include establishing, modifying or removing levels of TAT and non-quota limitations for the NMR, as well as approval of this management plan before it is implemented in the NMR. Members of the NMRWB are appointed by Canada (2), the Government of Nunavut (1) and the Makivik Corporation (3), with the members nominating a chair who is appointed by the Minister of Fisheries and Oceans (Canada).

6.2.3 Government of Canada - Environment and Climate Change Canada (ECCC)

Under the NILCA and EMRLCA, the Canada's Minister of Environment and Climate Change retains the ultimate authority over wildlife management for species that fall under his or her authority. In the case of polar bears, this authority applies when bears are situated on sea ice, or in the waters of the NMR and EMR. The Minister responsible for ECCC is therefore involved in the approval and implementation of decisions stemming from either the NMRWB or EMRWB as they pertain to polar bears.

Under the federal *Species at Risk Act* (SARA), ECCC is responsible for completing a national management plan for polar bears. The Government of Canada has responsibilities for the management of listed species such as polar bears where they occur on federal land. The Government of Canada is responsible for managing polar bears and their habitat on federal lands under the jurisdiction of the federal Minister of Environment (e.g. National Wildlife Areas and Migratory Bird Sanctuaries) and the Minister responsible for the Parks Canada Agency (e.g. National Parks, National Park Reserves and National Historic Sites). The Government of Canada contributes to scientific knowledge of polar bears through research and helps to

coordinate polar bear management across the country. Canada signs international agreements on behalf of all jurisdictions and has responsibilities to coordinate international management actions for polar bears, with the advice of the co-management boards and jurisdictions. It is therefore involved in international polar bear management fora including the Convention on International Trade in Endangered Species (CITES) and the 1973 *Agreement on the Conservation of Polar Bears*. Polar bears are listed under Schedule I of the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRITA), which is the legislation through which Canada meets its international obligations under CITES. Environment and Climate Change Canada's Enforcement Branch - Wildlife Enforcement Directorate, is responsible for enforcing laws that protect and conserve migratory birds, and protect habitats and endangered species under federal mandate.

Environment and Climate Change Canada and the Government of Quebec (represented, at the time, by: the Minister of Natural Resources and Wildlife, the Minister of Sustainable Development, the Environment and Parks, the Minister of Agriculture, Fisheries and Food and the Minister responsible for Canadian Intergovernmental Affairs and the Canadian Francophonie) entered into a cooperation agreement for the protection and recovery of species at risk in Quebec in 2012⁹⁰. The purpose of this agreement is to establish the methods by which the Parties will coordinate their activities in relation to the protection and recovery of species at risk of common interest and their habitats and will collaborate in order to avoid duplication. Its purpose is also to encourage the exchange of information and to improve knowledge about species at risk and wildlife species.

6.2.4 Government of Nunavut, Department of Environment

Under the NILCA and EMRLCA, the Nunavut's Minister of Environment retains the ultimate authority over wildlife management for species that fall under his or her authority. In the case of polar bears, this authority applies when bears are situated on lands of the NMR and EMR. The Minister of Environment is therefore involved in the approval and implementation of decisions stemming from either the NMRWB or EMRWB as they pertain to polar bears. This process is complex and yet to be formalized although open dialogue and discussion with all stakeholders is currently undertaken.

Department of Environment staff conduct research and undertake population assessments collaboratively on shared populations, providing information for decision-making to all jurisdictions. This information is used by the respective jurisdictions to inform their own processes within their specific context.

6.3 Partners with roles in both the onshore and offshore areas

6.3.1 Cree Nation Government (CNG)

The CNG is the successor to the Cree Regional Authority and plays several complementary roles in the context of polar bear management. First, it is the Cree agency with representatives on the Hunting, Fishing and Trapping Coordinating Committee (HFTCC) created by the JBNQA. It also has responsibilities defined by recent provincial and federal legislation relating to resource management (including wildlife) and planning responsibilities in the major land categories (I, II and III) in the James Bay Territory, or Eeyou Istchee. In the offshore region, covered by the EMRLCA, the CNG is the holder of title to the Cree offshore islands (shared in part by corresponding Inuit entities); it has responsibilities for, and membership in, the Institutions of Public Government created by the EMRLCA – for wildlife management, land use planning, and impact review. The CNG thus has cross-cutting involvement, as a representative of Cree interests, in range of matters contemplated by this management plan.

6.3.2 Local Cree Trappers' Associations (Local CTAs)

The Cree Communities of Eeyou Istchee have local CTAs, which are represented on the regional CTA. The local CTAs can play a significant role in the implementation of the Polar Bear Management Plan, as the agencies best placed to keep track of observations of polar bear movements and behaviour in the Cree coastal environment, and to address issues arising from 'Defense of Life and Property' kills, including the planning and implementation of relevant public safety initiatives. The Eeyou Marine Region Wildlife Board also has employees who work at the community level (EMR officers), and who have responsibilities for linkages with the Regional CTA on matters of shared concern or responsibility.

6.3.3 Cree Trappers' Association (CTA)

The CTA was originally incorporated to implement provisions of the JBNQA relating to the fur trapping economy, with responsibilities which included the registration of pelts and more generally the advancement of the fur trapping industry. The EMRLCA, approved in 2013, added a number of responsibilities to the role of the CTA. As of 2016, it was working to implement these added responsibilities by building capacity and effective working relationships with the EMRLCA boards and the CNG.

6.3.4 Local Hunting, Fishing and Trapping Associations (HFTA) / Local Nunavimmi Umajulirijiit Katujjiqatigiinningit (LNUKs)

Each Nunavik community has a local HFTA, composed of members elected within the community. These organizations were first established to act as consultative bodies for issues pertaining to wildlife management within Nunavik (i.e. on the mainland). Later, the HFTAs assumed the functions of *Local Nunavimmi Umajulirijiit Katujjiqatigiinningit* (LNUKs), as specified by the Nunavik Inuit Land Claims Agreement (NILCA). LNUKs are responsible for the management of harvesting by their community members (Inuit), they act as consultative bodies on wildlife matters, can make recommendations about wildlife management measures and are responsible for the management of community allocations made by the RNUK.

6.3.5 Nunavik Hunting, Fishing and Trapping Association (NHFTA) / Regional Nunavimmi Umajulirijiit Katujjiqatigiinninga (RNUK)

The NHFTA is a regional body established to represent the harvesting rights of Nunavik Inuit. The role of the NHFTA is restricted to matters that affect wildlife harvesting in Quebec (i.e. onshore Nunavik). Like the Local HFTAs, the NHFTA assumed the responsibilities of the *Regional Nunavimmi Umajulirijiit Katujjiqatigiinninga* (RNUK) after signing of the NILCA; the RNUK's mandate is limited to matters affecting the NMR. Among its responsibilities, the organization acts as a consultative body to the NMRWB on all wildlife matters in the NMR. It can recommend management measures to the NMRWB and is responsible for the allocation of harvest among the LNUKs.

6.3.6 Makivik Corporation

The Makivik Corporation (Makivik) is the legal entity mandated to protect the rights and interests of Nunavik Inuit as they are defined in the *James Bay and Northern Quebec Agreement (JBNQA)* and, more recently, in the NILCA. In this capacity, Makivik is responsible for the appointment of Inuit members to the HFTCC and to the NMRWB. Through its Renewable Resources Development Department, Makivik strives to ensure that the traditions and rights of Nunavik Inuit are respected in all aspects of polar bear

management. The department also operates the Nunavik Research Centre, which coordinates a number of programs including those aimed at the collection of biological samples from harvested polar bears.

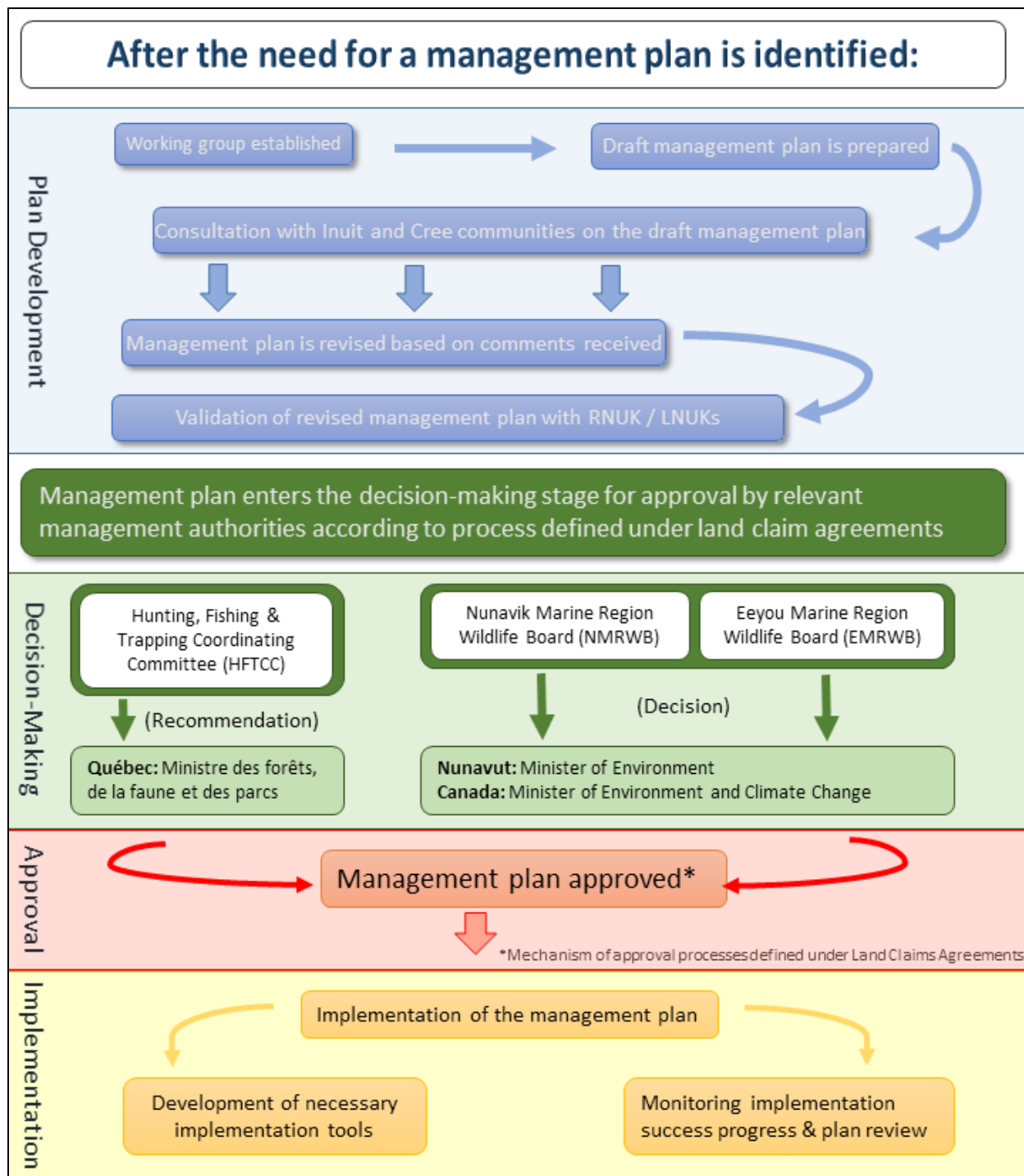


Figure 3. Illustration of process for the development, approval and implementation of the Polar Bear Management Plan for Québec, the Eeyou Marine Region and the Nunavik Marine Region

7. Conservation Issues

7.1. General Overview of Conservation Issues

In developing a polar bear management plan, it is important to consider all known, anticipated, or possible threats to polar bears, including all human caused mortality and removals. This section provides an overview of the known conservation issues at play within the management plan area, or those that are anticipated to occur within its initial 10-year period of application.

Although each issue is described individually, and while investigations into the effects of an exploration or development project typically focus on local, direct effects, it is important that their cumulative effects be considered by decision-makers, especially as northern communities continue to grow. Cumulative effects are changes that are caused by a project-specific action when the effects are combined with other past, present and future human actions. Cumulative effects can occur in several ways but one of the most common forms is associated with development and arises whereby one particular project induces other projects to occur. While it is difficult to tease out climate induced pressures, these should not be overlooked during cumulative impact assessments.

7.2 Development

7.2.1 Hydroelectric Development

Northern Quebec, particularly the James Bay region is well known for the La Grande hydroelectric complex. However, a number of other river systems are identified as having strong hydroelectric potential; these could be developed in the future as energy demands (within or outside of the region) increase⁹¹.

Flow modifications in the James Bay and Hudson Bay watersheds have significantly changed the timing and magnitude of freshwater discharge into the Bays. Because water is stored in reservoirs during the spring and summer for release in fall and winter (when energy demands are highest) these hydroelectric developments have reduced the intensity of the spring freshet and resulted in the flattening of the annual hydrograph, when compared to naturally flowing rivers⁹²⁻⁹⁴. While there have been numerous predictions about the consequences that such changes would engender within the marine ecosystem⁹⁵⁻⁹⁸, the impacts of hydroelectric development are complex and discerning them from naturally occurring phenomena is difficult⁹⁹ and very few studies have actually assessed the direct impacts related to hydro development^{100,101}.

That said, Inuit and Cree communities in James Bay and Hudson Bay have raised numerous concerns about the changes in sea ice dynamics that have arisen since the 1970's and their impacts on wildlife and wildlife habitat. They have observed direct linkages between the changes to oceanographic parameters within James and Hudson Bays and changes in the frequency of wildlife ice-entrapments, the texture of sea ice and the quality of wildlife habitat (e.g. disappearance of eelgrass beds¹⁰¹). The observed change in surface salinity has also been attributed to reduced buoyancy in polar bears and ringed seals, who must now expend additional energy to stay afloat. On the other hand, hunters from Inukjuak have reported that the dams led to an increase in open-water areas during winter (because of changes in currents), which provides polar bears a better access to ringed seals¹⁰².

7.2.2 Natural Resource and Infrastructure Development

Many mineral deposits in the sub-Arctic and Arctic remain undeveloped due to the lack of infrastructure (e.g., inexpensive and abundant electricity, roads, and ports to bring in supplies and ship out the ore). Other deposits have yet to be discovered owing to the remoteness of the region, the cost of exploration and challenges associated with developing a deposit in the region. Once a single mine is built the associated infrastructure may then be used to develop other nearby mineral deposits. This can lead to cumulative effects on wildlife and their habitat. These effects can take on many forms including habitat destruction, and animal/human interactions.

In addition to development occurring in neighbouring jurisdictions, there are two operating mines within the Quebec range of polar bears as of 2015^{103,104}. The Raglan Mine (Glencore Xstrata) has been in operation since 1997 and the Nunavik Nickel (Canadian Royalties Inc.) shipped its first load of ore in 2014. Both are located in the Deception Bay area, within Hudson Strait. There are other known mineralized areas in coastal Quebec, and likely additional as yet undiscovered resources that could be developed in the future. Northern Quebec and the adjacent offshore is a vast remote area and much of it has yet to be explored using modern technologies. Furthermore, as global demand and commodity prices increase, mining and processing technology advances, and infrastructure becomes more widespread, interest in mineral development will increase. What qualifies as a mineral occurrence today could become a mineral resource in the future. According to “The Plan Nord toward 2035 – 2015-2020 Action Plan” released by the Quebec Government in 2015, many investments and the development of the mineral and energy potential of northern Québec are expected in the upcoming years. The extent of the impacts of such development on polar bears habitat is difficult to predict.

To date most exploration and mining has been inland¹⁰³, outside of the most frequently used polar bear habitat, and there has been no documented evidence of negative impact on polar bears. That said, given the general absence of roads in the region, most mines will construct infrastructure from the mine to the coast and rely on ships to supply fuel and equipment to the mine and transport the ore to market. Such infrastructure within the range of the polar bears has the potential to impact polar bears if not managed appropriately. The effects of an individual project may be less significant but, when taken into consideration along with other projects or activities in an area, the cumulative effects can become more significant. It is important therefore to take into account the impact of exploration and mining projects, and all other associated impacts within the area occupied by a polar bear sub-population.

7.2.3 Shipping

The potential consequences of shipping on polar bear are numerous and occur as both direct impacts and indirectly via impacts on prey species (i.e. whales, seals, etc.)¹⁰⁵. The noise associated with passage of a ship can in itself disturb wildlife in the vicinity of the vessel, particularly during icebreaking activities when disturbance is at a peak. Noise associated with shipping and icebreaking have the potential to alter marine mammal behavior and can mask biologically significant sounds by disrupting their hearing and vocalization abilities^{105–107}. During the ice-free season polar bears tend to be on land or close to shore so the potential for shipping to disturb polar bears is confined to these areas. In periods of extensive ice cover, bears can be found far from shore, hence the likelihood of ships encountering bears is greater. Under such circumstances shipping may pose a direct threat to polar bears via the possibility of ship strikes, which are also a threat to polar bear prey species, or by causing family groups to become separated. Ice-breaking can also affect the survival and habitat use of ringed seals, and may influence the distribution of their

birthing lairs and disrupt mother-pup linkages^{108–112}. Since ringed seals represent a crucial food resource for polar bears, they could be indirectly affected by such impacts.

Given the relatively low frequency of shipping in ice-filled waters to date, within the management area, routine shipping is of little concern to the polar bear. However, given that the number of shipping transits has increased substantially in recent years¹⁰⁴, it is safe to assume that community and natural resource development will lead to a further increase in seasonal shipping and possibly year round activity in the future. As vessel traffic increases, the likelihood of wildlife disturbances can also be expected to increase so the potential effects of such activity would need to be carefully examined and mitigation measures may need to be put in place.

With shipping comes the potential for unanticipated events such as collisions and groundings on shoals. There can also be fuel spills during the transfer of fuel from a vessel to an onshore fuel storage tank. These situations can, if bears are in the vicinity, lead to them becoming covered in oil. Research has shown that such incidences can lead to mortality¹¹³.

7.2.4 Tourism

Tourism brings more people into areas frequented by polar bears, which can lead to increased disturbance and harassment of the bears, and an increased likelihood of human-bear interactions.

Tourism can be both land-based and marine-based. It can involve individual tourists who travel on their own or in very small groups. They could be hikers or people in kayaks or other small boats. Large groups of tourists may also visit an area at one time (e.g., in one or more tundra buggies or on a cruise ship). While tourist-related activities tend to be confined to particular areas and times of the year they are often planned so as to maximize the likelihood of bear encounters and photographic opportunities. For this reason the chances of human-bear interactions and disturbance of the bears are elevated by tourism activities. These effects on their own may not have a major impact on the bears but when combined with other activities or stressors the impacts can become serious¹¹⁴.

As of 2016, tourism within the region is relatively limited, but as more infrastructure becomes available (e.g., access roads, better airport and harbour facilities, more frequent flights and a longer ice-free shipping season) and communities seek out this economic opportunity the industry will likely grow. It is important to bear in mind that bringing more tourists into the north increases the potential for human-bear conflict and that this can put people's lives at risk, if not properly mitigated¹¹⁵. It can also lead to increased bear mortality as a result of the need to protect these people. It is important to minimize the risks to both people and bears associated with this activity. This can be done in several ways including public education, requirements for trained bear monitors and the development/availability and use of bear deterrent measures (e.g., stun guns, cracker shells, pepper spray and portable electric fences around campsites).

Little is known about the long term effect of polar bear viewing in specific locations where bears are known to congregate¹¹⁴. Some people have suggested that the bears in these areas become habituated to the sight of humans and lose their fear of people. If true, this could lead to increased human-bear conflicts.

7.3 Pollution and Contaminants

Arctic marine mammals acquire chemical contaminants through their diet. Polar bears, being at the top of the Arctic marine food chains, accumulate one of the largest contaminant loads amongst all Arctic marine mammals. The Arctic marine environment has a high-fat food web and the great majority of persistent organic pollutants (POPs) accumulate in the fat of all Arctic animals. Most of these chemicals are highly persistent and continue to build up in the animals throughout their lifespan. The chemicals found in polar bear tissues are complex, with over 250 chemicals having been detected. These include POPs such as polychlorinated biphenyls (PCBs) and chlorinated pesticides as well as brominated flame retardants (BFRs) and perfluoroalkyl substances (PFASs). Redistribution of accumulated POPs to target organs such as the liver due to mobilization of fat reserves during fasting and starvation is of particular concern. Although POPs have been detected in tissue samples of all polar bears examined throughout the Arctic, polar bears from the Canadian Arctic appear to have lower chemical loads than elsewhere. As of 2016, Canadian researchers funded by the Northern Contaminants Program are at the early stages of comprehensively establishing spatial and temporal trends of chemical contaminants in polar bears of the Canadian Arctic¹¹⁶.

A high contaminant load in polar bears might impact their hormonal and immune systems and potentially can affect growth, development, reproduction and resistance to diseases; subsequently lessening their survival ability in face of other environmental challenges. Despite high contaminant loads often reported in polar bears, it is difficult to verify a direct link between contaminants and the survival of polar bears at the present stage of research¹¹⁷. Some studies reported correlations between contaminant loads and occurrence of physiological and morphological anomalies such as weakened bones and decreases in levels of certain antibodies in blood and changes in vitamin levels. However, the cause-effect relationship between these observations and contaminants has yet to be established. At this point, no neurological or behavioral manifestations of polar bears in the wild can be indisputably attributed to chemical contaminant exposure. Because of the iconic status of the polar bear and the intense media attentions on the subject, implications of subtle changes detected at biochemical and molecular levels are often loosely extrapolated to predict serious adverse effects on the survival of the species.

Within the management plan area, there is a considerable knowledge gap as far as contaminant research is concerned in comparison with the rest of the Canadian Arctic. Mercury is the only metal contaminant that also biomagnifies up food chains like POPs. The target organ of mercury toxicity is the central nervous system. The only published study of contaminants in Nunavik polar bears^{118,119} studied the effects of mercury exposure on polar bear brain chemistry and found that mercury concentration in polar bear brains was over 600 times lower in Nunavik than on Eastern Baffin Island.

7.4 Parasites and Disease

Although infectious agents such as parasites and disease can have important effects on the health on individual animals and at the population level, very little research has been directed at understanding their epidemiology and ecological significance in polar bears¹²⁰. That said, polar bears are known hosts for zoonotic parasites such as *Trichinella* and *Toxoplasma*^{121–123} and to a variety of other diseases¹²⁰ including rabies¹²⁴ and canine distemper virus¹²⁵, many of which can have impacts on human health if polar bear meat is consumed without proper preparation or individuals are exposed to a virus through human-bear interactions.

It is possible that a warming Arctic environment will increase the number of pathogens that polar bears are exposed to in the management plan region through mechanisms such as range expansion or increased polar bear density, resulting from reduced habitat during summer. It is also anticipated that, as more invasive species occur in the region, and as new pathways for pathogen transmission are opened up, polar bears will be increasingly at risk of higher prevalence of parasites and disease^{120,126–129}. The impacts of parasites and diseases may also be exacerbated by the other pressures (shipping, habitat loss, dietary changes, pollution, etc.) facing polar bears¹²⁷.

7.5 Climate Change

In addition to observed trends^{130,131}, climate models are used to create projections of future climate scenarios. They utilize historical data to predict what changes in climate may be anticipated in the future, and usually they predict a range of scenarios. Although climate models are generally accurate at predicting near-term changes, their predictive ability decreases the longer they project into the future; they are also of limited use when used to predict precipitation patterns¹³². Despite the limitations of climate models, almost all models currently being employed indicate a warming of the Arctic in the near to long term^{133,134}. Many Inuit and other northern inhabitants have already noticed these changes taking place¹³⁵. Along with warming temperatures, one of the other consistent predictions of the climate models is an increase in the variability of weather patterns, which Inuit have also witnessed in the last 15-30 years^{132,135}.

Many scientists consider climate change to be the most critical long-term threat to polar bears and their habitat^{54,64,136–138}. Projected warming over much of the polar bear's range and associated reductions in the thickness, duration and extent of sea ice will have both direct and indirect effects on polar bear. Direct effects could include loss of habitat (i.e. extent and composition of sea ice) whereas indirect effects could include ecosystem-level changes affecting the availability of prey species¹³⁹. Earlier melting of sea ice in the summer and later formation of sea ice in the fall will likely also result in greater reliance by bears on terrestrial coastal areas^{140,141}. However, habitat changes do not necessarily have negative impacts on polar bears. For instance, loss of multi-year ice is usually accompanied by an increase in annual sea-ice, and annual sea-ice is thought to be more optimal habitat for polar bears^{137,142}. As well, variability within each ecosystem means that some years will be more productive for polar bears than others, and although there might be a general trend towards warmer temperatures and less sea-ice, ecosystem responses and trophic relationships are currently poorly understood.

In addition to habitat alterations noted previously, climate change is also expected to influence the energy budget of polar bears as the abundance of prey species and access to them changes. It is generally accepted that ringed seals predominantly hunted from a sea ice platform constitute the bulk of polar bear diets in many parts of their range^{24,28}, and that bears rely heavily on accumulated energy reserves to survive the ice-free summers that occur within the management plan area. That said, it is known by the Crees and Inuit that polar bears can effectively hunt seals in open water, this behavior has rarely been documented³⁸ so its contribution to the annual energy budget of polar bears is not well understood. It should be noted that polar bears in Davis Strait rely less heavily on ringed seals and have a higher proportion of harp seals in their diet than any other polar bear subpopulation²².

Reduced ringed seal foraging opportunity may also result from impacts of climate change on the seals themselves. Although there is some uncertainty regarding how ice-dependent prey species (i.e. bearded seals, ringed seals, walrus, etc.) will respond to changes in snow and ice conditions, an overall reduction in their abundance is expected^{139,143}.

Although polar bears are known to forage on a multitude of other prey species^{24,25,28–37,102,144}, their ability to compensate for a reduced availability of ringed seals by increasing their take of other species remains contentious among scientists and the full effects of a shift in polar bear diet due to climate change are currently unclear^{145–147}.

Climate change could also affect polar bear maternity dens. Within the region covered by this management plan, female polar bears den on both the offshore islands and onshore, and create dens in large snow drifts or by excavating soil and peat. Increased variability of temperatures and precipitation could damage the structural integrity of these dens under certain conditions¹⁴⁰.

7.6 Bears and Zoos

Some polar bear biologists in academia, government and working in zoos and aquariums are of the view that placing and raising polar bears in zoos and aquariums contributes to polar bear conservation. They argue that having bears in these facilities enables the general public to see polar bears, learn about the impact climate change is having on sea ice, and how this in turn could threaten survival of the polar bear. It has also been stated that in so doing the public will support and take action to reduce greenhouse gas emissions.

Proponents of placing polar bears in zoos and aquariums also point out that re-locating orphaned cubs to these facilities gives them a new lease on life. In contrast, most Inuit believe that placing bears in zoos shows a fundamental lack of respect for the animals and disrupts the harmonious balance of humans, animals, and the environment in which they exist. Consequently, many Inuit are of the view that killing an orphan bear is more humane than sending it to a zoo.

Proponents of keeping bears in zoos and aquariums also emphasize the value of captive breeding in order to maintain the gene pool as the wild population declines due to the effects of climate change. Other biologists argue that the number of polar bears is not declining across the circumpolar arctic and that such measures are not required.

Consultations over the Winter of 2016-2017 will determine whether the Inuit and/or the Crees support the capture and transfer of polar bears to zoos and aquariums.

8. Management Challenges

8.1 Research and Monitoring

The conduct of scientific research and the documentation of traditional knowledge are the cornerstones of sound polar bear management. Although both fields have undergone significant changes in recent years, they continue to face a number of challenges and criticism of research techniques are common in each.

In the case of Traditional Knowledge studies, there has been a marked effort to ensure that research results will be considered as more than anecdotal accounts and rather as validate representations of a knowledge system¹⁴⁸. More structured and replicable study methods, including pre-study community consultations, reflective development of interview guides, and rigorous post-analysis validation and verification workshops with participants have allowed Traditional Knowledge to be assessed quantitatively and viewed as a valuable source of reputable information^{149–151}. Traditional Knowledge study methodology continues to grow, with many researchers using spatial methods, such as participatory mapping, to aid in the transmission of knowledge beyond interviews and surveys^{152,153}.

For scientific research the obstacles have been different. For many years, Inuit communities have been opposed to the handling of polar bears for research because doing so is directly at odds with their fundamental values, of which respect for wildlife is paramount. Most Inuit view invasive research on animals as a form of disrespect to the animal. Because Inuit consume the polar bears that they have harvested, the use of tranquilizers also directly affects food security since most hunters and Inuit families will not eat a polar bear that has previously been drugged. Hence, for Inuit the harm associated with handling polar bears often outweighs any knowledge gains. Conversely, for the scientific community, capture and handling is seen as the most reliable means (and in some cases the only way) of collecting biological information, especially as it relates to research on body condition and survival, or for habitat and movement studies. As such, the effects of capture are often considered acceptable relative to information needs and the risks posed by harvesting¹⁵⁴. This divergence between the two perspectives has often led to frictions between the scientific community and Inuit, but has also led to innovative and less intrusive scientific research methods (e.g. aerial surveys, biopsy darting, hair snags, etc.). Given these issues, it is important to review some of the facts surrounding the various research methods and the consequences of moving towards less intrusive techniques.

One of the major research-related concerns raised by Inuit communities has been the use of immobilizing drugs during physical mark-recapture and telemetry studies which leads to the wastage of polar bear meat, because most Inuit consider it unfit for consumption due to fears of contamination and/or a different taste^{26,102,155}. While few studies have directly assessed the withdrawal time for immobilizing drugs in polar bears, one revealed that Telazol® was almost entirely cleared from the body within 24 hours but that some metabolites remained at very low levels for an indeterminate period of time¹⁵⁶. Health Canada had originally recommended a 1-year waiting period before consuming the meat from a polar bear that had been immobilized¹⁵⁷, but later revised this time frame to 45 days after a review of the scientific data and extensive consultations, consistent with the withdrawal period recommended by the United States Centre of Veterinary Medicine. Any animal immobilized using Telazol® must therefore be identified by some external marker that indicate the date of the latest treatment with the drug. Despite these guidelines, most Inuit will refrain from eating a polar bear if it has ever been immobilized.

Hunters have also reported physiological and/or behavioural changes in bears that have previously been handled by researchers, especially those having been marked with collars or ear tags, and call for the use of less invasive methods²⁶. In contrast, assessments of the impacts of chemical immobilization on the movement rates of polar bears found that movement patterns generally returned to normal within a few days after capture^{136,158}, though for some bears it took up to 21 days before normal movement patterns resumed¹⁵⁹. A similar study on grizzly bears and black bears found that their movements were reduced for 3-6 weeks after capture and that, individuals having been captured on multiple occasions had poorer body condition than bears of the same age that had been captured on only once¹⁶⁰. While this suggests long-term effects of capture and handling may also exist for polar bears, recent findings indicate that this is not an issue in the southern Beaufort Sea subpopulation¹⁵⁸.

In response to the concerns expressed about chemical immobilization by aboriginal groups, and also to address the logistical complexities of carrying-out physical mark-recapture studies in some parts of the Arctic, significant effort has been dedicated towards developing less invasive monitoring techniques. For example, hair samples provided by hunters, or those that have been collected with the use of hair snags have proven useful for studying stress levels in polar bears¹⁶¹ and show promise with regards to genetic mark-recapture studies^{39,162}. More significantly, population estimates in most areas have evolved from physical mark-recapture to the less invasive methods of genetic mark-recapture (using biopsy darts)¹⁶³ or aerial surveys^{164,165}. These methods can also be used to obtain information on body condition, litter size, and cub survival rate but provide considerably less information than traditional mark-recapture studies¹⁵⁴.

8.2 The Human Dimension

8.2.1 Harvesting and Harvest Management

At the time this document was prepared, there was no formal polar bear management system for the region. However, an agreement between the Nunavik Hunting, Fishing and Trapping Association (Anguvigaq) and the government of Quebec has played a significant role in shaping polar bear hunting practices since the 1980's. Among others, the agreement sets out harvesting seasons, prohibits the harvest of cubs or females with cubs (although cubs were traditionally harvested for their more tender and better tasting meat) and prohibits the disturbance of denning bears. In addition to this, polar bear harvesting is guided by the age-old stewardship practices that require hunters to take only what they need, and to always show respect to animals with whom they share the habitat.

Harvest management represents a critical requirement for the long-term maintenance of healthy wildlife populations. While the current informal management system has been sufficient to manage the polar bear harvest in the past, changes in current practices and realities have to be considered and the management of wildlife resources have to be adapted to the present situation. Communities are growing, hunting equipment is modernized and the trade in polar bear parts has seen an increase over the past decade. Hence, proper monitoring and management of the resource is essential to ensure that polar bears will be available for use by future generations of Crees and Inuit, while taking necessary steps to avoid human/bear conflicts in this ever evolving landscape.

Anguvigaq Polar Bear Regulations – 1984

1. That a closed season on polar bear hunting be in effect from June 1st to August 31st.
2. That female bears with cubs not be killed at any time of the year unless they are problem bears.*
3. That polar bears not be killed in their dens. Further, that no one, including scientists and Inuit, disturb a bear in its den unless authorized after consultation with Anguvigaq Wildlife Management Inc. and review by the Hunting, Fishing and Trapping Coordinating Committee.
4. That polar bears less than 2 years old not be killed at any time of the year unless they are problem bears.*
5. That polar bear cubs not be sold to any person or organization unless authorized after consultation with Anguvigaq Wildlife Management Inc. and review by the Hunting, Fishing and Trapping Coordinating Committee.
6. That the responsibility for issuing polar bear tags to Inuit hunters rests with the local government municipal corporations in northern Quebec.
7. That the moratorium on drugging polar bears in northern Quebec be continued.
8. That each Inuit community will recognize the right of all other Inuit communities to harvest polar bears and will continue to help each other in matters relating to polar bears.

* Problem bear is defined as any polar bear that is a threat to life or property.

As was evidenced in the agreement established between the NHFTA (Anguvigaq) and the government of Quebec, harvest management can imply various restrictions on the harvest such as seasonal limits, protection of certain segments of the populations (i.e. females, cubs). It can also imply the imposition of a limit on the total number of individuals that can be removed from the population, based on a predetermined management objective. Harvest management also includes the distribution of the products of the harvest among the various users.

The challenge with implementing such a comprehensive management system in Nunavik is that the region's primary experience with a formal management system (implemented since the 1980's for beluga whales) has been highly controversial and with profound impacts on Nunavik Inuit¹⁶⁶. As a consequence, Nunavik Inuit are generally wary whenever there are talks of implementing harvest restrictions for polar bear, as they worry that similar circumstances will arise. A primary concern relates to possible impediments on the transfer of knowledge and on use of traditional hunting areas, resulting in a young generation without a full complement of land skills. Further, the imposition of quotas is believed by many Inuit to have inadvertently caused an increase in harvesting pressure as hunters have rushed to fill quotas and maintains their access. During interviews with Nunavik Inuit there was widespread concern that the implementation of a quota system for polar bear may have the same unintended effects^{26,102}.

8.2.2 Changing Communities

In recent times, the communities of Northern Quebec have undergone, and continue to undergo, a number of significant changes¹⁶⁷. Aside from the drastic changes that came with a more sedentary way of life, today's communities are growing very quickly. The region's birthrates are among the highest in the country and the demographic structure has shifted to one dominated by youth¹⁶⁸. Unfortunately these changes have not been accompanied by an increase in job opportunities and social issues are numerous¹⁶⁹. Among the main hardships faced by residents in many communities is the extremely high cost of living, driven by high prices for food, fuel and equipment^{170,171}. Despite these significant changes, subsistence harvesting has persisted as one of the most important threads of society. It allows for a source of healthy nutrition and instills a source of pride and fulfillment to the harvesters.

The modernization of equipment has impacted harvesting practices in Northern Quebec. Modern equipment such as snowmobiles and all-terrain vehicles has improved access to wildlife and, along with more technologically advanced firearms, has, in some sense, made harvesting more efficient. However, the high costs associated with this equipment means that such hunting practices have become unaffordable for many Inuit and Crees.

8.2.3 Defence of Life and Property

Although Crees and Inuit have co-existed alongside polar bears for millennia, their interactions have been changing in recent years to the point that they no longer feel safe while camping on the land^{26,102}. The changes to communities, noted above, are one of the key factors driving these conflicts. Growing settlements and changing lifestyles have certainly created conditions in which there is a greater likelihood of encounters between humans and polar bears. Among these factors are the growing number of cabins/tents on the land, growing landfills and, generally, a greater human-presence. In the case of Inuit and Crees, the advent of snowmobiles means that protection from polar bears by dog teams is no longer a reality for most people when they travel outside their community.

That said, Inuit and Crees continue to feel that many of these encounters are the result of a significant increase in the number of polar bears present in the region compared to the 1950's and 1960's. Polar bears are now a regular occurrence in areas where they were once a rarity. Lengthening of the ice-free season means that polar bears spend more time on land, which also increases the likelihood of encounters; a problem that is likely to worsen under projected climate change scenarios. The depredation of seabird/waterfowl colonies by polar bears has become a regular occurrence¹⁷² and, given the importance of these colonies (e.g. eggs, feathers, meat, etc.) to the subsistence of Inuit and Crees, is likely to lead to increased human-bear encounters. Their inquisitive nature means that polar bears are naturally drawn to human settlements (camps, cabins, communities, butchering sites, etc.), and therefore towards situations of possible conflict. In addition to a number of known attacks on humans, the destruction of cabins, food caches, and equipment by polar bears is a growing concern. Some hunters have noted that bears are more aggressive in recent years, so what may previously have been a harmless encounter may now be deadly (for humans and bears). Should bears become nutritionally stressed in the future, these problems are expected to be intensified.

Conditions are such that human-bear interactions have become unavoidable, and are a key consideration and priority in the management of polar bears, for both Crees and Inuit. As well, an increased human presence in the North has resulted from the presence of outfitting camps, tourism operations and mineral prospecting sites (among others), and will continue to grow in the future.

8.3 Additional Considerations Related to Polar Bear Management

8.3.1 Population Boundaries

As explained previously, the current polar bear sub-population boundaries, based largely on movement patterns, mark-recapture and harvest data, are disputed by aboriginal harvesters who have a more holistic view of polar bear distribution. Despite significant data on the movements and distribution of female polar bears, males are poorly studied in this regard since they cannot be fitted with satellite collars, due to their large necks relative to their head size. Consequently, it is possible that boundaries are biased by the weight of data obtained from females. Although assessments of population structure based on genetics show some degree of genetic structuring between subpopulations, they also exhibit extensive gene flow amongst them^{173–175}. Nunavik Inuit reported common polar bear travel routes that cross sub population boundaries. This includes routes over land across Nunavik, from Ungava Bay to Hudson Bay hundreds of kilometers inland^{26,102}.

8.3.2 Inter-jurisdictional considerations

Considering that polar bears present in the area of application of this plan are shared with several other jurisdictions, it is essential that management actions by individual jurisdictions are established in a co-ordinated manner for a successful management of the species. The three polar bear subpopulations in the region are shared with Nunavut, Ontario, Newfoundland & Labrador, and/or Greenland as well as falling under the management authority of at least three other wildlife co-management boards and multiple Inuit and Aboriginal stakeholders. In the past, when management decisions have occurred, they have usually been taken independently and with little or no coordination with other jurisdictions. This has led to situations where management objectives between jurisdictions might not be shared, resulting in higher harvests in some areas than would normally be sustainable. However, since 2012, greater coordination has taken place in the form of user-to-user meetings with stakeholders from all jurisdictions, as well as greater awareness and communication between wildlife co-management boards in their decision-making processes.

8.3.3 Legislative Gaps

Legislation (laws passed by local, provincial, territorial, and federal governments) and the regulations that flow from it are the instruments used to give effect to management plans. Without legislation and regulations, the restrictions included within a management plan cannot be enforced. Although legislation and regulations within the management plan area in 2016 (i.e. *An Act Respecting the Conservation and Development of Wildlife*, CQLR c C-61.1, *An Act Respecting Threatened or Vulnerable Species*, CQLR c E-12.01, *An Act Respecting Hunting and Fishing Rights in the James Bay and New Québec Territories*, CQLR c D-13.1, *Nunavut Wildlife Act*) will allow effective implementation of the plan throughout most of the region (see section 6, above), there remain some legislative gaps due, primarily, to the complex jurisdictional framework described previously. Consequently, as of 2016, there is still uncertainty over the state of legislation and regulations that would be in effect on the open water and sea ice of the NMR and EMR.

A number of Inuit hunters, in particular, have demonstrated interest to explore the option of establishing a polar bear sport hunt in Nunavik as a means to promote traditional skills and values related to polar bear hunting (e.g. dog sledding) and to optimize the economic returns associated with each bear that is harvested in the region. However, according to section 24.7.1 of the JBQNA, the polar bear is a reserved species for the exclusive use of Native people and, at the time of writing, the regulations in place under

the *Act Respecting the Conservation and Development of Wildlife (chapter C-61.1) (Québec)* forbid any hunting of polar bears in Quebec by non-Native people. Additionally, the Quebec Government, based on requests made via the HFTCC has implemented a moratorium on issuance of any new outfitting licenses on Category 3 Lands. That said, sport hunting of polar bears is permissible under the NILCA and EMRLCA and, subject to certain provisions, Nunavik Inuit and the Crees of Eeyou Istchee can allocate a portion of their allowable harvest to sport hunting if they choose to do so.

Consultations over the Winter of 2016-2017 will determine whether the Inuit and/or the Crees want to be able to conduct sport hunts within their respective territories.

8.3.4 International Trade

Although international trade has no direct control over polar bear management decisions made in Canada, international decisions regarding the trade status of polar bears can have indirect consequences on Canada's domestic polar bear management efforts, including within the management plan area¹⁷⁶. International trade is largely governed by the *Convention on the International Trade in Endangered Species of Wild Flora and Fauna* (CITES), of which Canada is a signatory. As of October 2016, polar bears are listed under Appendix II of CITES and, as a result, any international trade of polar bears or parts thereof requires a CITES export permit.

In Canada, CITES is implemented through national legislation (WAPPRIITA). As the responsible authority for the implementation of CITES, Environment and Climate Change Canada must determine whether the export or import of a particular species would be detrimental to its survival; non-detriment findings (or NDFs) are a requirement of the Convention and used by Canada to attest that international trade is not detrimental to a species' survival. The issuance of NDFs depends largely on a demonstration that sound harvest management practices and reporting are being implemented and that harvest levels are sustainable. This must be true for all jurisdictions in order to be successful and, in part, explains the need for elaboration of this management plan.

It should be noted that in recent years, a number of submissions to uplist the polar bear onto CITES Appendix I have been made; if adopted in the future, such an uplisting would effectively end international trade of polar bear skins and other parts. The Government of Canada and Inuit organizations have argued consistently that listing polar bear under CITES Appendix I would almost certainly be of minimal conservation value since international trade is not the main driver behind Inuit harvesting. As well, in September 2015 the Animals Committee of CITES determined that the current trade in polar bear hides and parts is not detrimental to the survival of the species in the wild. International trade does, however, offer a significant source of income to some Inuit and is therefore an important incentive to adopt enhanced conservation measures; eliminating the potential for international trade would severely reduce this incentive.

Consultations over the Winter of 2016-2017 will determine whether the Inuit and/or the Crees want to be able to export polar bear hides and other bear parts to other countries.

9. Management Plan Objectives

*Based on the information that has been shared with the Working Group to date, and on our understanding of polar bears, their habitat and the issues facing them in Nunavik and Eeyou Istchee we have tentatively proposed, as a starting point, four main objectives for this management plan. **Input from Nunavik Inuit and the Crees of Eeyou Istchee is essential at this stage in order to confirm that these proposed objectives are in fact appropriate, or whether changes need to be made.***

9.1 Harvest Management and Objectives

The fundamental mechanism of a management plan is to identify a small number of overarching objectives that should be met in order for the plan to be deemed successful. For each of these objectives, the plan identifies specific approaches that must be implemented in order to accomplish each of the broader objectives. Because there has historically been a form of polar bear management in Nunavik, both via traditional hunting rules and through more formal voluntary restrictions, it can be said that a number of such approaches have already been completed, or are ongoing. These have been structured around a few informal objectives such as maintaining respect for polar bears, ensuring a sustainable harvest, training future generations of polar bear hunters, etc. Once formal objectives are set out in this management plan, new approaches will need to be initiated in order to fill important information gaps and management needs.

Proposed polar bear management plan objectives:

1. Developing and implementing an adaptive co-management system that ensures the long-term maintenance of healthy polar bear subpopulations capable of sustaining harvesting needs, and preserves the ability to export polar bear products.
2. Gathering traditional and scientific knowledge of polar bears on a regular basis in order to inform management decisions.
3. Encouraging wise-use and stewardship of polar bears.
4. Establishing strategies to minimize the effects of human activities on polar bears and their habitat.

9.2 Management Approaches

The approaches identified within the final management plan will ultimately be based on community input received during the consultation tour (we don't expect communities to formulate approaches in the language of a management plan, only to provide the Working Group with the ideas and information that it needs to put them into writing). The following examples illustrate the type of approaches that could be used to attain each of the management objectives identified above, and are intended only to encourage discussion around this aspect of the management plan.

Objective 1: Establish a management system based on the best available information, and adapt it as necessary, in order to ensure the long-term persistence of healthy polar bears in the management plan area.
Example 1: Recognizing the value of Nunavik Inuit and Cree of Eeyou Istchee approaches to wildlife management, as well as their knowledge of wildlife and wildlife habitats: integrate those approaches with knowledge gained through scientific research
Example 2: Periodically review new information to determine whether changes to the management system are necessary
Objective 2: Collect traditional and scientific knowledge of polar bears to inform management decisions
Example 1: Conduct population assessment surveys on a periodic basis to determine status and trends
Example 2: Collect and analyse Cree and Inuit observations related to polar bear
Objective 3: Encourage wise use and stewardship of polar bears
Example 1: Identify and implement strategies to engage youth in polar bear management
Example 2: Report all polar bears that have been harvested, including those killed in defense of life and property
Objective 4: Establish strategies to minimize the effects of human activities on polar bears and their habitat, without compromising public safety
Example 1: Explore research methods that provide the required information while respecting Inuit and Cree views and minimizing detrimental effects on polar bears
Example 2: Develop and implement human-bear conflict management methods and programs for protection of people, property, and meat caches

10. Implementation Plan

The final element in a management plan is to agree on a set of concrete actions that can be taken in order to give effect to the management approaches that have been identified as a means of meeting the management objectives (e.g. actions related harvest management, information gathering, environmental stewardship, etc.). These actions can be short-term, medium-term or long-term and can range from very small, targeted actions to broader actions that address a suite of issues. There is no pre-defined limit as to what may be considered as an appropriate management action, the only requirement is that there be a way to measure whether or not it has successfully been implemented.

Based on the input received during the public consultations, the Working Group will draft a list of action items that could be included within the plan. These will be subject to verification by the communities prior to submitting the plan to the relevant management authorities for approval.

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