

**A 5 Year Management Plan (2006-2011)
for the Polar Bear/Nanuk (*Ursus maritimus*)
in Newfoundland and Labrador**



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**On behalf of:
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Disclaimer:

This Management Plan for the polar bear has been prepared by the Wildlife Division, Department of Environment and Conservation, Government of Newfoundland and Labrador and the Department of Lands and Natural Resources, Nunatsiavut Government. It defines management goals, objectives and actions that are considered necessary to ensure the long term health and viability of the species in Newfoundland and Labrador. It does not necessarily represent official positions of the organizations or jurisdictions involved in the preparation of the document. The goals, objectives and management recommendations identified in the plan are based on available scientific, local and aboriginal knowledge and are subject to modifications resulting from new findings and revised objectives. Implementation of the plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

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Cover photo courtesy of Geoff Goodyear.

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Executive Summary:

The polar bear (*Ursus maritimus*) has been assessed by COSEWIC as a species of Special Concern, by the IUCN as Vulnerable and has been listed by the Province of Newfoundland and Labrador under its *Endangered Species Act* as a Vulnerable species. Reasons for listing include a slow reproductive rate, highly vulnerable to over harvest of adult females, contaminant levels, and the potential effects of climate change.

Polar bears are relatively large, sexually dimorphic (males larger than females) mammals which have evolved adaptations such as an almost completely furred body and significant fat reserves for survival in the north particularly on sea ice. Their diet consists primarily of seals. Females construct dens to have their young, emerging with the cub(s) in the spring. Adult survival rates are high.

Polar bears are found exclusively in the north. The worldwide population of polar bears is estimated to be 20,000 to 25,000 while within Canada it is estimated that there are about 15,000 polar bears. Polar bears found in Newfoundland and Labrador are part of the Davis Strait polar bear sub-population. While polar bears may range along the coastlines of Newfoundland and Labrador they spend most of the year in northern Labrador. Exact numbers of polar bears that inhabit the Labrador coastline are unknown but may number in the hundreds. Also unknown is the seasonal and/or year round occupancy of the Newfoundland and Labrador coast by polar bears. Denning activity is suspected. Polar bears are known to move between Newfoundland and Labrador, Quebec, Nunavut and Greenland with the availability of sea ice being the determining factor in terms of movement and distribution. This fact highlights the need to insure there is inter-jurisdictional cooperation when it comes to conserving the Davis Strait polar bear sub-population.

The polar bear is part of Labrador Inuit culture. Inuit have exclusive rights to harvest 6 polar bears under a quota system along the Labrador coast. While little has been written down regarding Inuit traditional knowledge elders from Nain are reporting an increase in polar bears in recent times. Polar bear populations face a variety of actual and potential stressors including over harvesting, contaminants, habitat disturbance and the effects of climate change.

Studies of polar bears along the Newfoundland and Labrador coasts have been carried out intermittently since the early 1970s primarily by the Canadian Wildlife Service and more recently by biologists from Nunavut with the support and collaboration of Wildlife Division staff, the Labrador Inuit.

A number of data gaps have been identified including population numbers, seasonal distribution, the percent of migrating animals in the population, the location of denning sites, impacts of climate change and contaminant levels.

Polar bears are managed through a series of agreements and legislative measures. The Province of Newfoundland and Labrador and the Nunatsiavut Government participate on national technical and administrative committees for polar bears. There is

an international agreement and there are ongoing discussions regarding an inter-jurisdictional polar bear conservation agreement. Polar bears are protected and managed under Newfoundland and Labrador's *Wild Life Act* and Regulations and provisions of the Labrador Inuit Land Claims Agreement and the soon to be Co-operative Management Board (CMB) for the Torngat Mountain National Park Reserve.

The goal of the management plan is "To maintain and enhance the sustainability of the Davis Strait polar bear sub-population through appropriate species and habitat management initiatives within Newfoundland and Labrador". To achieve that goal a series of objectives have been identified including equitable Labrador Inuit hunting access, continued cooperation, habitat protection, a better understanding of distribution and population numbers of polar bears, threat assessment and management and development of education and stewardship programs.

The management plan is for a 5 year period (2006-2010). The plan will be re-evaluated and revised accordingly at the end of that period however it can be revised before the end of the period if new information becomes available which would significantly alter the direction of the plan. This would be in keeping with the idea of treating plans such as these as living documents.

Species Information:

Common Name: Polar Bear

Scientific Name: *Ursus maritimus*

Canadian Range: Yukon, Northwest Territories, Nunavut, Manitoba, Ontario, Quebec, Newfoundland and Labrador, Arctic Ocean

Last COSEWIC Assessment and Date: Special Concern, November 2002

Reason for Assessment: This very large carnivore plays a key role in Canada's Arctic ecosystem and is of tremendous importance to northern native peoples. The wealth of long-term information available for this species indicates that most populations appear stable. A few populations have declined, and corrective measures are being taken to reverse those trends. This species, however, has a slow reproductive rate and is highly vulnerable to over harvest of adult females. Its conservation is therefore heavily dependent on appropriate management strategies. Polar bears are also affected by climate change. In the southern part of their distribution, a trend towards longer ice-free seasons has affected their life history. Additionally, as top predators, the bears concentrate a number of pollutants in their bodies, which could increase mortality if the levels become toxic.

(http://www.cosewic.gc.ca/eng/sct1/searchdetail_e.cfm?id=167&StartRow=1&boxStatus=All&boxTaxonomic=All&location=All&change=All&board=All&commonName=polar%20bear&scienceName=&returnFlag=0&Page=1)

Newfoundland and Labrador Legal Listing and Date: Vulnerable, July 2002

Introduction:

Throughout its range in the far north the polar bear is known by many names. *Nanuk*, *Pihoqahiak* - the ever-wandering one, *isbjørn* - the ice bear, *Tornassuk* - master of the helping spirits, *biely medved* - white bear, *gyp* - grandfather and *qoi* - stepfather. Even the very land, the Arctic where the polar bear lives derives its name from the Greek *Arktikos* "country of the great bear" (after the constellation that is found in the northern sky, Ursus Major, the Great Bear). The names speak to the spiritual, reverential and physical qualities of the polar bear and its habitat as ascribed to it by those who share its domain. There are however other qualities of the polar bear which have caught our national and international attention and have caused us to be concerned about its long term future. Polar bears evolved to exploit a sea ice habitat. As a habitat specialist they are particularly susceptible to changes in their environment. Being apical predators they may bio-accumulate a number of toxins and contaminants. They have an almost fearless, curious and predatory attitude towards humans and coupled with their imposing size make them animals to be respected. Human/bear encounters sometimes have tragic outcomes.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) initially assessed the polar bear as being 'not at risk' in 1986, re-assessed it as a vulnerable ('vulnerable' is now 'special concern') species in 1991, and in 1999 and 2002 re-confirmed that assessment (see **Species Assessment** box). Special Concern means "A wildlife species that may become a threatened or an endangered species because of a

combination of biological characteristics and identified threats.” In July, 2002 the Province of Newfoundland and Labrador listed the polar bear as Vulnerable under its *Endangered Species Act*. The listing was based upon COSEWIC’s recommendation. **One of the outcomes of a Vulnerable listing is the requirement to prepare a management plan.** In 2006, based on a review and recommendation of the International Union for Conservation and Nature and Natural Resources/Species Survival Commission’s Polar Bear Specialist Group (IUCN/SSC PBSG), the IUCN announced an up listing of polar bears from a species of Least Concern/Conservation Dependant to Vulnerable in the IUCN Red List (IUCN 2006). The assessment was based on a suspected population reduction of >30% within 3 generations due to decline in area of occupancy, extent of occurrence and habitat quality. The polar bear has a Nature Serve global rank of G3G4, a national rank of N3N4 and a Provincial General Status Rank of 3.

In Newfoundland and Labrador polar bears are considered to be part of the Davis Strait (DS) sub-population (Figure 1). The Davis Strait polar bear sub-population is shared by Newfoundland and Labrador, Quebec, Nunavut and Greenland.

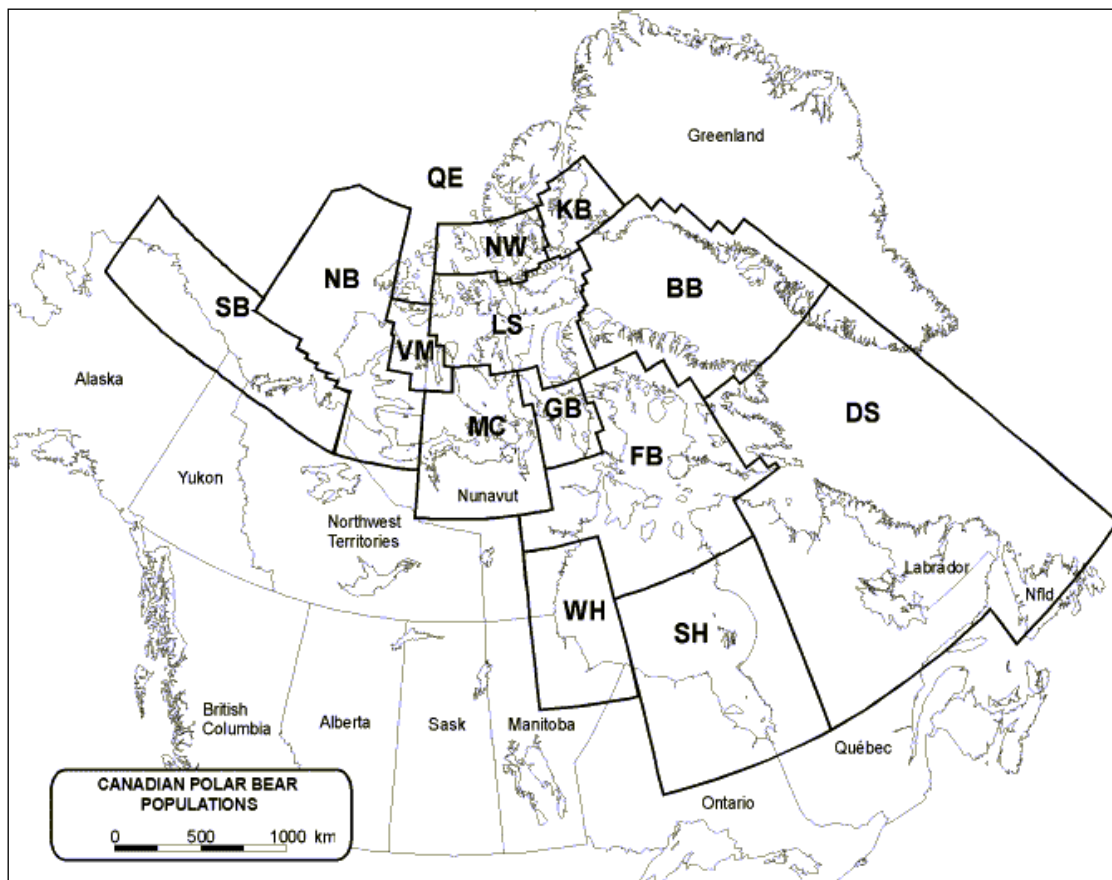


Figure 1: Canadian polar bear sub-populations. (COSEWIC 2002)

I. BACKGROUND

1. Biology

Except where indicated this description is taken from Amstrup (2003). The polar bear is one of eight species of bear worldwide, occurring only in the northern hemisphere (Figure 2). It shares a common ancestry with the brown bear (*Ursus arctos*).

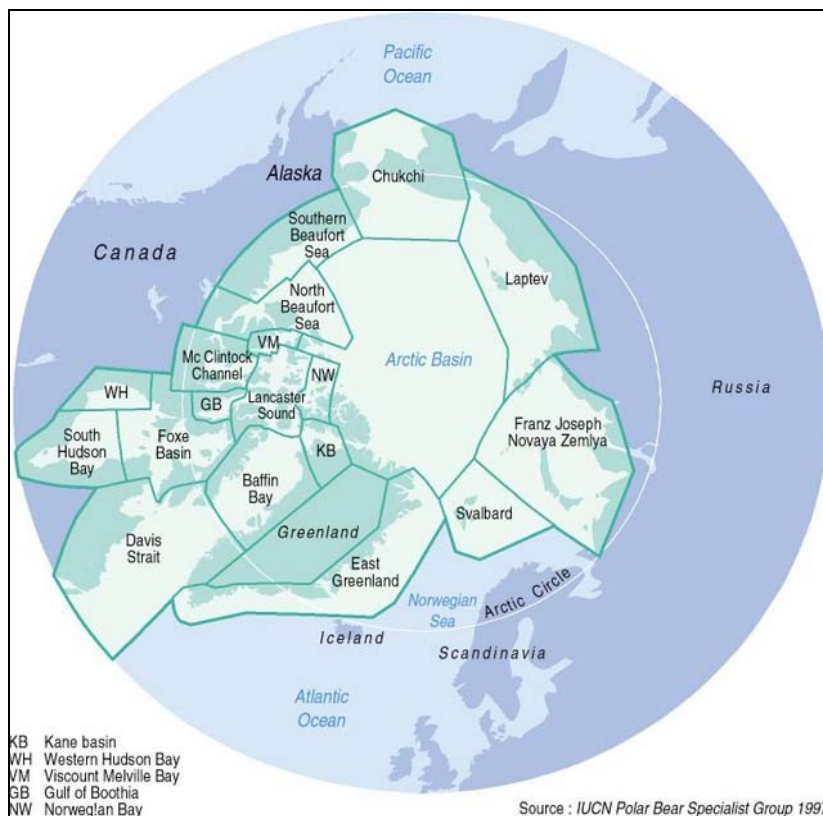


Figure 2: Worldwide distribution of the polar bear (*Ursus maritimus*). Range is subdivided according to observed movement patterns (IUCN Polar Bear Specialist Group)

Most of the time polar bears are found on sea ice visiting land for only short periods however they may be forced onto land for several or more months when sea ice is unavailable. Females come ashore to create a den in snow or ice in which they give birth. They depend on the sea for sustenance therefore their distribution depends on the availability (access) of food.

Polar bears are sexually dimorphic with males being larger than females. Males have been estimated to weigh in excess of 800 kg however on average are a little less than 500 kg. A large female bear would not exceed 400 kg. Male polar bears can be up to

285 cm in length and 175 cm shoulder height. Polar bears are completely furred except for the tip of the nose. Their fur is white (without pigment) while the skin is black. The foot pads may be densely furred in winter. The claws are shorter (relative to other bears) and strongly curved. They share a general ursid dentition with powerful canines to penetrate deeply into their prey. The skull is also similar to other bear species with some unique differences such as the more pronounced nose. There is no evidence of significant genetic variation across the species range despite the fact that there is population segregation however genetic data does generally support existing population designations (Paetkau et al. 1999).

The polar bear has been described as an ‘apical predator of the arctic marine ecosystem’. Polar bears prey heavily on ringed seals (*Phoca hispida*) and most effectively on the young of that species. Depending on geographical location, polar bears also prey on bearded seals (*Erignathus barbatus*), harp seals (*Phoca groenlandica*), and harbour seals (*Phoca vitulina*). They have been known to kill walrus (*Odobenus rosmarus*) and belugas (*Delphinapterus leucas*). The value of terrestrial food (e.g. berries, human refuse) is not well understood but is not considered significant in the overall diet however Derocher et al. (1993) found that feeding on vegetation during the ice free period by polar bears in western Hudson Bay was common.

Polar bear distribution and movement is dependant on sea ice quality, quantity and timing. Data suggests that weekly movements can be in the thousands of kilometers while an activity area can be tens to hundreds of thousands of square kilometers. In parts of the range movement rates increase in the spring and summer. Ice normally appears in Labrador coastal waters by the third week of December although sheltered low-salinity coastal inlets usually begin to freeze over a month earlier (Farmer 1981). The ice edge advances southward until early April when a slow retreat begins. Usually by the end of July southern Labrador is ice free. Occasionally ice will persist north of 55° N after late July.

Only pregnant female polar bears den. Dens are excavated in snow and ice in early winter and usually inland near the coast although polar bears are also known to den on pack ice. The female will give birth in the den about mid winter and emerge with the cubs 3 months later. Successful denning requires a sufficient accumulation of snow.

Females reach breeding age at about 4 or 5 years of age. Breeding occurs in the spring and young are born late fall or early winter. The usual litter size is 2. Cubs are less than a kilogram and blind at birth. Young polar bears stay with their mother for the first 2 years of life. Adult females will usually breed again 3 years after their last successful litter. Productivity will largely depend on the availability of food.

Cub and yearling survival rates appear to be variable between regions. Adult survival rates generally are quite high, usually >90% (Lunn et al. 1997) as would be expected in a species with a low reproductive output. While human harvest is currently the most significant cause of mortality other causes for the most part have to be interpreted from few observations. Age specific causes are expected as for example

accidental death and starvation would be anticipated among young inexperienced animals. Some animals may succumb to injuries as a result of fights for mates. Deaths as a result of certain maladies may also occur but would not be expected to be significant. Male polar bears will kill cubs.

2. The Inuit of Labrador and the Polar Bear

*“If a polar bear was killed by three hunters, let the pelt be shared equally” –
extract from Nain Elders’ Rules 1946 (Brice-Bennett 1977)*

The polar bear is a part of Labrador Inuit culture and mythology (Brody 1977). Polar bears are parts of tales of revenge and strength. Other stories relate how polar bears turned to stone in the pursuit of humans. These stories illustrate that the polar bear has found a unique and mythical place in the oral traditions of the Labrador Inuit.

The polar bear to the Inuit of Labrador belong to 3 classes of animals, *nunamiutak* (land animals), *imanimiutak* (creatures of the water) and finally a class described only as ‘dangerous’ animals (Brice-Bennett 1977). Historically the Inuit and the polar bear have shared the sea and ice. The polar bear was considered a dangerous animal and was only taken for sustenance when the opportunity arose or other wildlife was scarce.

Until 1989 there were no written accounts of interactions with polar bears by Inuit peoples. Accounts were passed down orally through the generations. From Inuit oral tradition we learn that polar bears in the past were not nearly as common as today on the coast of Labrador. It is only after the communal polar bear hunt was established in 1989 that polar bear sightings have been on an increase. Because of the hunt, records are kept of kill locations, sex etc... Also animals that were killed outside of the license such as in self defense or an animal wandering to close to human habitation, are also recorded. Chance encounters or sightings have been recorded in the log books of Labrador Inuit Association fisheries guardians on their daily patrols of coastal areas.

3. Historical Accounts

Smith et. al (1975) provides an excellent review of historical accounts of polar bears along the Newfoundland and Labrador coasts dating back to 1497 with John Cabot’s visit. Other accounts reference Jacques Cartier recording polar bears on the Funk Islands off the coast of Newfoundland in 1534, William Cartwright along the southern Labrador coast in the 1770s with an interesting reference to 32 white bears observed in one day feeding on salmon in the Eagle River. Other references as reported by Smith et al. (1975) are Low’s 1894 account of polar bears near Northwest River and Sir Wilfred Grenfell’s accounts of polar bears landing every year along the coast from St. John’s to Cape Chidley. Bangs (1898) described the polar bear as a common resident of northern Labrador.

4. Current Population Estimates, Distribution and Trends

There are an estimated 20,000 to 25,000 polar bears in the world (IUCN/SSC PBSG, in press). Within Canada it is estimated that there are about 15,000 polar bears distributed within 13 recognized sub-populations. Bears that occur in Newfoundland and Labrador are considered to be part of the Davis Strait polar bear sub-population. During the late 1970s there were an estimated 60-90 bears inhabiting the northern Labrador coast during March-April (Stirling and Kiliaan 1980). In 1993 the PBTC estimated there were 1400 polar bears in the Davis Strait polar bear sub-population COSEWIC (2002). A 2004 'knowledge-based' estimate of the Davis Strait population was 1650 bears (Lunn et al. DRAFT). In 2005, a mark-recapture program to estimate the size of the Davis Strait polar bear sub-population was begun. Eighty one of the 623 bears captured in 2005 came from the Labrador coast (Mitch Taylor, pers. comm.). There is no estimate of the number of polar bears in Labrador however it might be reasonable to expect that there may be hundreds of bears when ice conditions are favorable.

Polar bears range along the entire Labrador coast and occasionally into the eastern coastal areas of Newfoundland (internal Wildlife Division files). For the most part however they are probably residents of northern Labrador with seasonal movements to the south. In summer most polar bears of the Davis Strait sub-population occur on the windward shores of Baffin Island and the Labrador coast (Taylor et al. 2001). The distribution of polar bears is significantly influenced by the movement of pack ice and formation of land-fast ice. The pack ice which brings the seals southward in the early spring also brings polar bears. As the ice breaks up and disappears polar bears move back north (Harrington 1994) although there are a few cases of polar bears hanging about coastal areas in southern Labrador and northeastern Newfoundland in the late spring and summer. What remains unclear are what percent of the bears are year round residents and what percent are migrants or transients.

Hunting for polar bears by Labrador Inuit has focused on the islands and headlands from Kangalaksiorvik Fiord south to Napartok Bay and along the stretch of outer islands from the mouth of Napartok Bay south to the Kiglpait Mountains. Core hunting areas in the south have centred on the Kaumajet Mountains, Nanuktut Islands, small outer islands in the vicinity of Cutthroat, and along the coast of the Kiglapait Mountains. In the north, core areas have been on the islands and headlands between Napartok Bay and Saglak Fiord and the mouth of Nachvak Fiord. The largest concentration of bears is believed to range north of North Aulatsivik Island (Brice-Bennett 1977).

Inuit have reported polar bear denning sites (Figure 3) on the Nanuktut Islands, Soapstone Island, at the mouth of Napartok Bay, the mountains and coastal cliffs between Saglek and Nachvak Fiords, Iron Strand, north of Kangalaksiorvik Fiord and North Aulatsivik Island (Brice-Bennett 1977). Harrington (1994) however reports that 2 recent

reports of maternity dens may suggest that few females choose to den in coastal Labrador.

Recent interviews with several Nain Inuit elders (Jim Goudie pers. comm.) indicate that polar bear numbers in the Nain and surrounding area are on the increase.

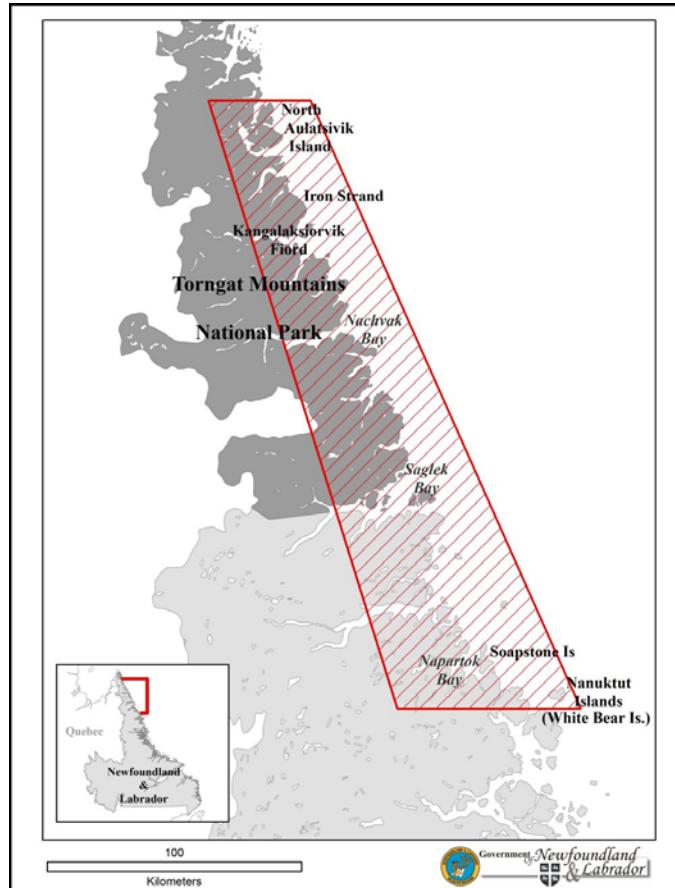


Figure 3: Aboriginal knowledge of the range of denning by polar bears in Labrador. Adapted from Brice-Bennett (1977).

5. Threats – Direct and Indirect

The IUCN Polar Bear Specialist Group has identified five main threats to polar bears: climate change, pollution, oil development, over-harvest, and tourism (<http://pbsg.npolar.no/>).

Climate change

There is considerable debate as to the potential implications of climate change on polar bears with expert predictions of pending local extirpations and extinction to little or no effects to even short term increases in more southerly parts of the range such as Labrador. Polar bears are dependant on sea ice for hunting and travel. Predicted declines

in sea ice (Figure 4) are likely to have consequences for polar bears as it will interfere with their ability to get food especially in the spring when females with new cubs will be most vulnerable (ACIS 2004). How the consequences may manifest themselves at the population level is a point of discussion. For example Stirling et al. (1999) noted a correlation between spring break up and the condition of female polar bears, the earlier the break up the poorer the condition of the polar bears. There may be a shift in populations or densities of bears if bear social organization and available resources permits that to happen which may mean a decline in one area and/or an increase in numbers in another area. On the other hand we may witness a decline in local or regional populations with no subsequent increase elsewhere. Climate change may also alter the distributional patterns of a host of other species which may directly or indirectly affect primary prey species of the polar bear. Another aspect of climate change might be a change in snow accumulation which would have an effect on denning sites. Denning may also be affected if dens collapse or become unusable as a result of increased rain or early thawing. If as the models suggest the extent of sea ice retreats northwards over the coming decades then the effect on the distribution of polar bears in Labrador may be more immediate than elsewhere. Vibe (1967 *in* Harrington (1994)) on the other hand suggests that in the short term as the climate warms more ice is freed to drift south thus expanding the range of polar bears.

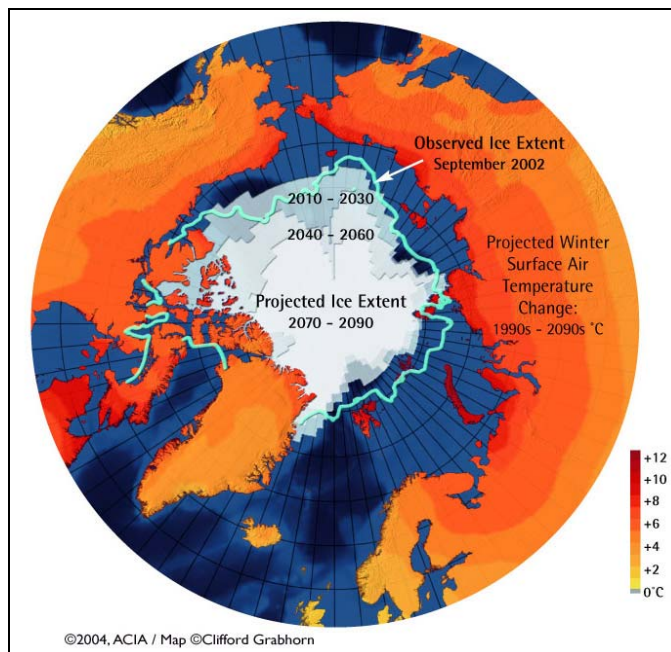


Figure 4: Predicted declines in sea ice (ACIS 2004)

Human-polar bear interactions

Fleck and Herrero (1988) did a review of aggressive polar bear – human interactions over a 20 year period in the Northwest Territories and Manitoba. Of the 373 aggressive interactions 20 people were injured or killed and 230 polar bears had to be destroyed. They however noted that far more people are killed by black and grizzly bears

than by polar bears. None the less human – polar bear interactions will occur sometimes with tragic consequences. Reports compiled by Department of Natural Resources staff over a 6 year period (2000-2006) from the northeast coast of Newfoundland and the south coast of Labrador indicate that most encounters are not aggressive and rarely lethal (3%) for the polar bear. Fleck and Herrero (1988) recommend focusing on 5 areas to reduce conflicts; alertness, avoidance, attractants, detection and deterrents.

a) Eco-tourism

With any increase in eco-tourism along the north coast of Labrador it is inevitable that human-polar bear encounters will increase as well. While no one can predict the outcome of these encounters events in recent years have demonstrated that polar bears will be killed.

b) Torngat Mountains National Park Reserve

The Torngat Mountains National Park Reserve in part presents a paradox in that it will provide long term protection to polar bear habitat but will also become a magnet for those who wish to visit the Park. Part of the Park's mandate is to protect the 'natural and cultural heritage' but also to 'foster public understanding, appreciation and enjoyment'. Increased visitation to the area will lead to increased polar bear-human encounters which may lead to bear mortalities. Visitors to the Park are not permitted to carry firearms. They will be encouraged to engage the use of an appropriately licensed guide who is authorized to carry a firearm in the National Park and has experience in polar bear territory.

c) Residents/Work camps

Polar bears occasionally roam into coastal and even some inland communities in Newfoundland and Labrador as well as exploration and resource development camps. They have also approached or have been in the vicinity of occupied cabins and summer fishing camps. Most encounters end peacefully with either the bear passing through the area or being live captured and moved to a remote non-inhabited area. For example, reports of polar bear sightings (n=35) compiled by DNR staff for the period 2000-2006 along the northeast coast and northern peninsula of Newfoundland and southern Labrador showed that 66% of bears moved out of the area without the need for intervention, 11% of the polar bears had to be encouraged to move by the use of noisemakers, 20% of the bears had to be live-trapped and relocated north to a less inhabited area and 3% or 1 polar bear had to be shot.

Exploration and resource extraction

Exploration and resource extraction has 2 possible threat outcomes. The first is that the activity itself may displace polar bears from areas which may be important to their survival such as preferred denning sites or sites which provide important access to food. A second threat is the possibility of direct human-polar bear encounters which may lead to bear mortalities.

Contaminants

Most pollutants which find their way into polar bears are a result of long range airborne transport or in the large rivers which drain into the Arctic. There may also be

point sources of pollution such as toxic storage areas or waste sites. Polar bears being at the top of their food chain bio-accumulate contaminants. Polar bears may contain several hundred chemicals that originate from humans (IUCN Polar Bear Specialist Group). There are the commonly known contaminants such as PCB and DDE however recent entries into the polar bear's food chain include brominated flame retardants or polybrominated diphenyl ethers (Muir et al. 2005). Bears which live in Northeastern Greenland, the Barents Sea and Kara Sea are the most polluted. Impacts of elevated contaminant levels include effects on the immune system, growth, reproduction and survival rates. It would be expected that contaminant levels in polar bears found in Newfoundland and Labrador would be similar to those found in the overall Davis Strait polar bear sub-population. Recent information from Inuit Elders indicates that polar bear meat is now rarely eaten if at all (Jim Goudie, pers. comm.). The effects of various compounds in the tissues of polar bears are unknown (COSEWIC 2002).

Over harvesting

Polar bears, like any harvested species can be negatively affected at a population level if hunting is carried out in an unsustainable manner. Managing a sustainable harvest for polar bears is made a little more complex by the fact that populations are shared by jurisdictions within Canada and between Canada and other countries. Quotas for each population are reviewed by the Federal-Provincial-Territorial Polar Bear Technical Committee for Management. Newfoundland and Labrador shares the Davis Strait polar bear sub-population with Nunavut, Quebec, and Greenland and de facto shares in the responsibility for maintaining a sustainable harvest. Important to maintaining a sustainable harvest is knowledge of population numbers, ratio of males to females in the kill, and movement of animals between jurisdictions.

6. Existing Protection Mechanisms and Agreements

There are 2 forms of protection to be considered; direct protection of the polar bear and polar bear populations, and protection of polar bear habitat. Direct protection of polar bears can be accomplished through legislation, agreements and stewardship. The Labrador Inuit Land Claims Agreement requires that Conservation and the Precautionary Approach are priorities in the decision making that relates to or directly affects wildlife, plants or habitat in the Labrador Inuit Settlement Area.

Newfoundland and Labrador *Wild Life Act and Regulations*

Section 5 of the *Wild Life Act* provides the authority to the Minister for the management and control of measures for the protection, preservation and propagation of wild life". Section 7 of the *Act* allows the Minister to make regulations for among other things the establishment of seasons and quotas. Sections 39 and 114 of the *Wild Life Regulations* allow for the setting of hunting seasons and quotas for big game animals (including polar bears). The *Regulations* allows for the establishment of an annual *Hunting Order* which provides specifics in terms of season dates, bag limits, location, method of harvest and any other detail considered appropriate.

Labrador Inuit Land Claims Agreement

Section 12.3.6 of the Labrador Inuit Land Claims Agreement (the Agreement) states “Inuit have the exclusive right to Harvest, throughout the Labrador Inuit Settlement Area, the Total Allowable Harvest of polar bears established by the Province or in or for Newfoundland and Labrador”.

Section 12.3.7 of the Agreement states “If, in addition or in place of the Total Allowable Harvest referred to in Section 12.3.6, a Total Allowable Harvest of polar bears is established by or for Canada, Beneficiaries are entitled to an equitable share of that Total Allowable Harvest and have the right to Harvest polar bears that may be taken in the Labrador Inuit Settlement Area or Waters Adjacent to the Zone on a representative basis. For purposes of this section “Representative basis” means the ratio of Beneficiaries to the total number of:

- (a) Beneficiaries; and
 - (b) Inuit other than Beneficiaries,
- in the Labrador Inuit Settlement Area. The definition of “Inuit” in section 1.1.1 does not apply in subsection (b).”

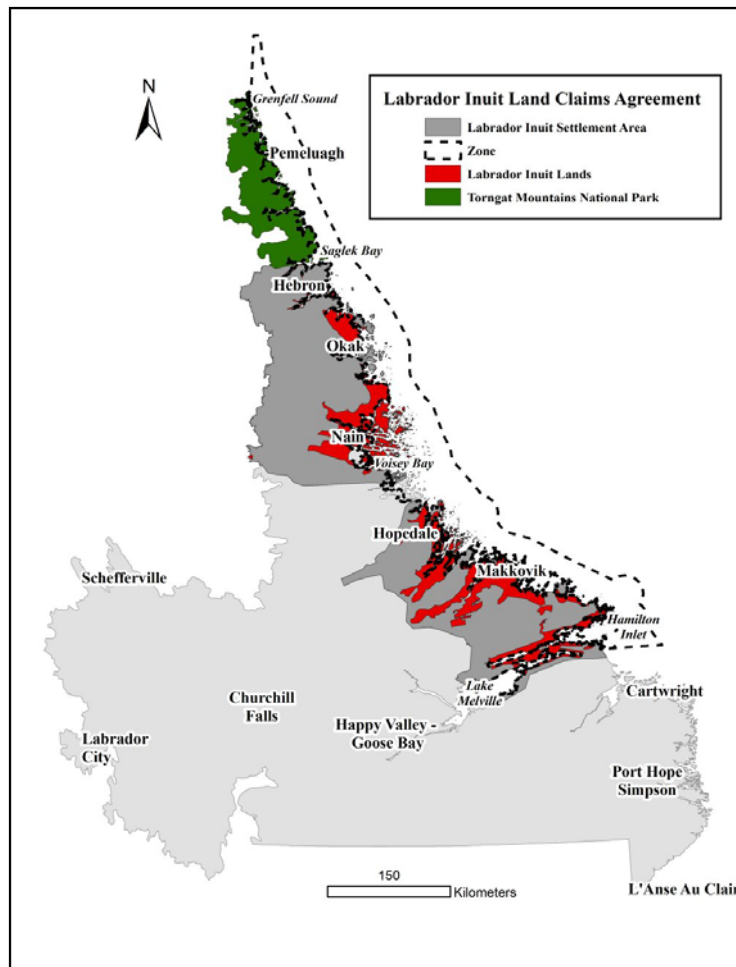


Figure 5. Lands covered by the Labrador Inuit Land Claims Agreement.

In addition to providing for Inuit harvesting rights, the Labrador Inuit Land Claims Agreement also provides for a co-operative management regime for fish, wildlife and plants and fish, wildlife and plant habitat within the settlement area, including the Torngat Mountains National Park Reserve.

Newfoundland and Labrador Endangered Species Act

The polar bear is listed as a Vulnerable species under the *Newfoundland and Labrador Endangered Species Act*. This does not afford the polar bear any additional legal protection however it does mandate the development of a management plan and it allows for the development of additional regulations for the protection of polar bears, if they are deemed necessary.

Agreement on the Conservation of Polar Bears and Their Habitat

This is an international Agreement between the Governments of Canada, Denmark, Norway, the Union of Soviet Socialist Republics and the United States of America. The agreement was signed in 1973, ratified by Canada in 1974 and came into force in 1976. The Agreement deals with the taking and trafficking of polar bears, protection of habitat, research, and consultation. The Government of Canada signed the Agreement on behalf of all provinces and territories that have polar bears.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

This is an international agreement between national governments of which Canada is a signatory. Its aim is to ensure that trade between countries does not threaten the survival of species. Plants and animals are placed in Appendices (I, II, III) according to the degree of protection required. Polar bears are in Appendix II. Species in this Appendix are not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival. Appendix II species require an export permit from the country of origin. In Canada CITES is implemented through the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act. Permits for export are issued by the Province.

In addition to the above mentioned laws and agreements, preliminary contacts have been made on the need for bi-lateral or multi-lateral agreements between jurisdictions on the management and conservation of the Davis Strait polar bear sub-population.

Habitat is normally considered protected if it is a reserve, park or some other management zone dedicated to maintaining natural landscapes. There is only 1 area in northern Labrador which offers such a high level of protection, the Torngat Mountains National Park. Habitat however can also be protected on landscapes which are managed for multiple resource values provided the habitat needs of polar bears are taken into consideration.

7. Current Management

Federal-Provincial-Territorial Technical and Administrative Committees for Polar Bear Research (PBTC) and Management (PBAC)

These 2 committees are made up of representatives from provincial, territorial and federal jurisdictions as well as co-management boards and resource user groups. The PBTC is composed of technical experts whereas the PBAC is composed of senior wildlife managers and a senior manager from Parks Canada. The committees meet annually to discuss research results and make management recommendations. One of the key responsibilities of the committees is an annual review of polar bear quotas.

Torngat Wildlife and Plants Co-Management Board (WMB)

In the near future polar bear issues will be managed through the Torngat Wildlife and Plants Co-Management Board (WMB). The board consists of Inuit, federal and provincial government representatives. The board makes recommendations to the appropriate Provincial or Federal Minister on all wildlife management issues including conservation. The board also has powers and responsibilities concerning all matters pertaining to wildlife and plant species, including designating protected areas and species at risk.

Torngat Mountains National Park Reserve Cooperative Management Board

A Co-operative Management Board (CMB) for the Torngat Mountain National Park Reserve will be established through the *Labrador Inuit Park Impacts Agreement for the Torngats Mountains National Park Reserve*. The CMB is an advisory board to the federal Minister responsible for national parks. The Nunatsiavut Government, Makivik and Parks Canada Agency will appoint 2 people to the CMB and there will be an independent chair. The CMB may provide advice to the Torngat Wildlife and Plant Co-Management Board as appropriate and it is anticipated that there will be cooperation between these 2 boards with respect to the management of polar bears and polar bear habitat.

Hunting

As a result of the abandonment of Port Burwell, Northwest Territories in the 1970s, the quota of 8 polar bears for that community was divided equally between Quebec and Newfoundland and Labrador (Urquhart and Schweinsburg 1984). This initial quota of 4 polar bears was later increased to 6. The hunting of polar bears is controlled through Newfoundland and Labrador's *Wild life Act and Regulations* however the administration of the hunt is carried out by the Nunatsiavut Government which issues a licenses to its members. Six allocations are distributed among 5 communities, 1 to each community, except for the larger community of Nain, which receives 2 allocations. The Season starts in the beginning of February and continues till the end of June. All members 18 years and older are eligible to hunt for a polar bear, however the member has only a 72 hour time limit on that license, if the time is up and the hunt is unsuccessful the license must be returned to the issuing office. The individual may ask for the license again if there is space available on the designation/time sheet. Bears of either sex may be hunted, however female polar bears accompanied by cubs are not allowed to be hunted or disturbed. Polar bears encountered in or near den sites are also not to be hunted or

disturbed. The successful hunter must report date and location of the kill, as well as the sex of the animal. Skulls of the polar bear must be sent to the Provincial Wildlife Division office in Happy Valley-Goose Bay. Since 2001 the annual hunting quota for Labrador has been 6 bears.

'Nuisance' Bears

Over the years the Wildlife Division has drafted a policy for the handling of polar bears in situations where there is concern for human safety as well as the safety of the bear. The policy recognizes that human safety takes precedence however where there is an eminent threat efforts should be directed towards darting and relocating the animal except when it is not feasible or likely to result in a successful conclusion, then the bear is to be destroyed. There have also been discussions regarding the need for education on safety and avoidance measures and the need to have capture equipment and trained personnel located in remote areas.

The PIBA contains a commitment for Parks Canada Agency and the Nunatsiavut Government to develop an education awareness program for potential encounters with polar bears to be included as part of the visitor orientation to the park which will include measures to reduce the possibility of emergency kills of polar bears. There is also a provision to address emergency kills in the park in the future should the share of the Total Allowable Harvest for polar bears to which the Inuit are entitled under sections 12.3.6 and 12.3.7 of the Labrador Inuit Land Claims Agreement increase significantly.

8. Monitoring and Research History

Spring denning surveys and tagging of polar bears were carried out in Quebec and northern Labrador from 1973 to 1975 (Smith et al. 1975). As part of the same program a single sub-adult male was tagged near Saglak in May 1974. The sub-adult male was recaptured in Ungava Bay in August 1974 and subsequently killed by hunters 32 km northeast of Payne Bay in September of that same year. A possible maternity den was observed in Seven Islands Bay in 1973. Smith et al. (1975) also reported George River Inuit reporting tracks of a female and young in the same area and the taking of a female and 2 small cubs in the Eclipse Sound area in 1970. Smith et al. (1975) suggested the lack of large numbers of polar bears may not necessarily be the result of over harvesting but due to long term changes in climate.

Between 1976 and 1979, 37 polar bears (including 8 adult males, 8 adult females) were tagged between Hebron and Seven Island Bay in northern Labrador (Stirling and Kiliaan 1980) with an additional 2 bears tagged in 1974/75. Most polar bears were found between the coastal and drifting pack ice. A mark-recapture estimate of 60-90 polar bears for northern Labrador was derived from this study. Stirling and Kiliaan (1980) concluded that the density of polar bears along the northern Labrador coast was much lower than in other areas of the polar bear range. A total of 13,507 km of potential polar bear habitat was surveyed. Number of polar bears seen per 100 km of habitat surveyed was 0.47.

Number of tracks seen per 100 km of habitat surveyed was 3.46. Based on a limited number of re-captures it was determined that some polar bears showed a high degree of fidelity to the northern Labrador coast while others were re-captured outside the study area of northern Labrador. One bear had a westerly movement of over 1050 km from the spring of 1977 to October 1978.

In late February and early March 1982, 4 polar bears were outfitted with satellite radio transmitters between Hebron and Eclipse Sound (Andriashek 1982) as part of a study to look at the potential impact of a well blow out or oil spill. A total of 14 bears were seen during the collaring effort. One of the bears, a female was found dead 5 days after capture after an apparent accident. A total of 1,854 km of habitat were flown north of Hebron and 14 bears were sighted. A total of 331 km of habitat south of Hebron was surveyed and no bears sighted. Tracks of polar bears indicated that a majority of bears were moving south. Five of the 14 bears were adult males, 2 were females with cubs, 1 a single adult female, 1 a sub-adult male and 1 a sub-adult female, 2 yearling males and 1-2 year old female and 1-2 year old male.

Between 1989 and 1998 one hundred and fifty two female polar bears were fitted with satellite transmitters (Figure 6) and monitored (Figure 7) as part of a study to delineate the movements of bears in Canada and adjacent Greenland (Taylor et al. 2001). As part of that study 8 females were collared and monitored along the coast of Labrador (Harrington 1994). In the same study a total of 48 polar bears were captured and tagged in April 1991, 1992 and 1993.

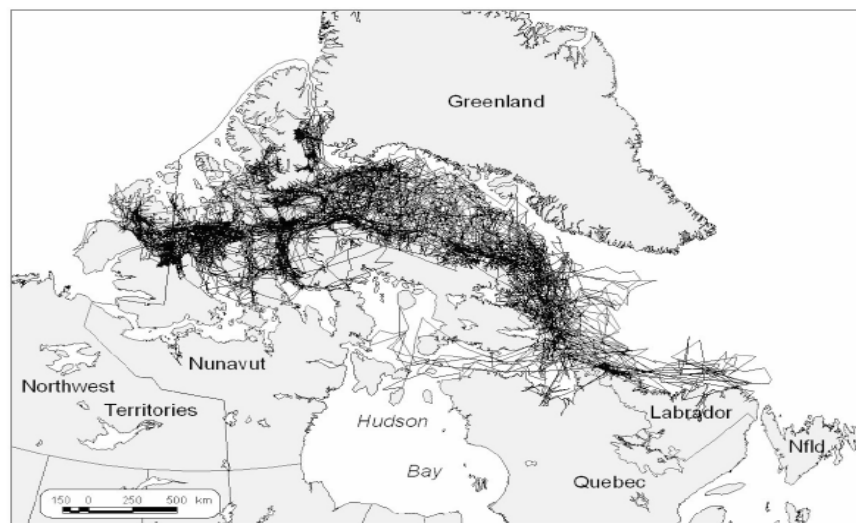


Figure 6. Initial capture locations for adult female polar bears, 1989-1998. (Taylor et al. 2001)



Figure 7. Movement of adult female polar bears, 1989-1998.
(Taylor et al. 2001)

In 2005, 81 polar bears were tagged in northern Labrador as part of a study of the Davis Strait polar bear sub-population. The study, which is an initiative of the Government of Nunavut with the cooperation of the Government of Newfoundland and Labrador and the Nunatsiavut Government, is a mark-recapture program with the objective of a scientific-based estimate of the size of the Davis Strait sub-population. Field work commenced in 2005 and is scheduled to be completed in 2007.

9. Knowledge Gaps

- What is the seasonal distribution of polar bears along the Newfoundland and Labrador coast.
- What is the number of polar bears found in Newfoundland and Labrador at different times of the year and how is the population structured (sex, age).
- What animals are year-round residents.
- What percent of the polar bears found in Newfoundland and Labrador are transient at different times of the year.
- What is the number of females which den and give birth in Labrador and where does denning occur.
- What are the levels of contaminants in the Davis Strait polar bear sub-population and are they of concern for the long term sustainability of polar bears.
- What are the impacts of climate change on polar bears in Newfoundland and Labrador.

II. MANAGEMENT

10. Goals and Objectives

Goal:

To maintain and enhance the sustainability of the Davis Strait polar bear sub-population through appropriate species and habitat management initiatives within Newfoundland and Labrador.

Objectives:

1. Identify and protect important polar bear habitat.
2. Determine and monitor seasonal use, distribution and numbers of polar bears along the Labrador and Newfoundland coasts.
3. Better understand, mitigate and manage where possible the various threats to polar bear populations.
4. Develop and implement education, stewardship and communication programs.
5. Ensure that the Inuit of Labrador have fair and equitable access to the Davis Strait polar bear sub-population.
6. Continue and strengthen inter-jurisdictional, national and international cooperation on joint research and management of the trans-boundary polar bear population.

11. Management Actions

Habitat Protection

Currently the only significant area of habitat that is under protection is the Torngat Mountains National Park Reserve. While the Park does capture what may be considered important polar bear habitat we do know that polar bears range further south of the Park boundary. The far ranging movements of polar bears makes it virtually impossible to protect all of the polar bears' range nor may that be necessary however there may be specific areas where they return to habitually and which may be critically important to their survival. Females for example may return to the same general areas on a regular basis to den and have their young. Certain locations may offer important feeding opportunities. **Prior to putting in place a habitat protection strategy such important areas have to be identified and mapped.** Already there is a body of traditional knowledge which can be used to delineate important areas (e.g. Our footprints are everywhere: Inuit land use and occupancy in Labrador). This knowledge however has to be updated and put into a format readily accessible to managers and others. Also there has been a limited amount of scientific research and inventory which has generated some potentially useful information. Additional inventory and research is required to complement existing scientific and traditional knowledge. Once these important habitat

areas have been identified and mapped appropriate protection mechanisms should be considered by the appropriate resource management agencies. Protection will be viewed in the context of meeting the goal and objectives of the management plan.

Education and Stewardship

One of the key outcomes of a successful education and stewardship program should be a reduction in the number of polar bear mortalities as a result of human-bear encounters. People have to be made aware of steps that can be taken to avoid polar bear problems and how to respond in the event of a polar bear encounter. Target audiences would be coastal communities, eco-tourism companies, National Parks staff, resource management employees, and companies working in areas frequented by polar bears. Another facet of education and stewardship will be to inform the public, stakeholders and other target groups of the facts surrounding polar bears. The polar bear can also be a good source point for discussing the arctic ecosystem and the challenges facing it into the future. An education and stewardship program will be developed over the next 5 years.

Research, Inventory, Monitoring and Assessment

Besides the ongoing cooperative research initiative with Nunavut there are a number of other proposed research, inventory and monitoring questions which are identified in the **Knowledge gaps** section. Upon completion of the current research initiative slated to be completed in 2007, and in consultation with the Torngat Wildlife and Plants Co-Management Board and the National Park CMB, a re-assessment of the current list of knowledge gaps will be carried out and a suite of studies will be prioritized and developed to address remaining gaps. The collection of local and traditional knowledge will continue to be gathered on a regular basis. Standardized data gathering and management protocols will be developed and implemented. It may however be difficult to develop appropriate research programs and protocols if projected climate change impacts to polar bear populations occur (Derocher et al. 2004). Impact research and monitoring as well as priorities may have to be constantly re-evaluated as a result of large scale changes to the polar bear's habitat. Those changes in themselves may become the focus of research efforts. As well several of the knowledge gaps are regional and even global in nature (climate change, contaminants) so will have to be carried out collaboratively with other jurisdictions.

The Wildlife Division in conjunction with the Atlantic Canada Conservation Data Centre (ACCDC) will begin to collate the existing information available on polar bears in Newfoundland and Labrador. The other responsible management agencies, the Department of Lands and Natural Resources, Nunatsiavut Government and Parks Canada will be approached to participate in joint data management for polar bears. Mapping data that is geo-referenced will allow managers to identify important polar bear areas.

Evaluation

There are a number of evaluation processes already in place to track the status of the polar bear. There will be a re-assessment of the national status of the polar bear by COSEWIC every 10 years, assuming it maintains a COSEWIC status. The next re-assessment is expected to be completed in the next several years. There are the ongoing

annual assessments done by the polar bear technical and administrative committees. The management plan itself is for a 5 year period at which time it will be reviewed and modified as necessary. All of the above processes will be improved with the gathering of timely population and distributional information.

Sustainable harvest

Outside of natural mortality causes, polar bears are killed as a result of a controlled hunt and because of human safety concerns. The total number of polar bears humans remove from the population should not exceed that which is un-sustainable. As discussed earlier, polar bears in Labrador are part of the larger Davis Strait sub-population which is hunted by people from Nunavut, Quebec, Greenland and Labrador. Several steps are necessary in establishing a sustainable quota for the Davis Strait polar bear sub-population and subsequently for Labrador. A current population estimate with an understanding of population structure and a good knowledge of seasonal distribution is required. A second step is to allocate in an equitable manner, a partitioning of the quota among the jurisdictions. At the moment the quota for the Labrador Inuit is 6 bears. Part of the management of a sustainable kill should also be a reduction or elimination of bear mortalities as a result of human-bear encounters. This could be accomplished through stewardship, education, training and ensuring that support for the live capturing and transporting of polar bears is strategically placed throughout the Province. There is currently an effort underway to provide resource managers with an updated population estimate for the Davis Strait polar bear sub-population. Once the surveys are completed new quotas based on the best scientific and aboriginal knowledge will be able to be determined.

Cooperation

Successful conservation and management of polar bears is dependant on the cooperation and in many instances collaboration of various governments, responsible management agencies and others with a stake or legitimate interest in polar bear conservation. Mechanisms are now in place such as national technical and administrative committees to foster inter-jurisdictional cooperation. The Torngat Wildlife and Plants Co-Management Board will be the instrument to implement polar bear conservation in the Labrador Inuit Settlement Area. The CMB for the Torngat Mountains National Park Reserve will also be important for addressing Inuit harvesting of polar bears in the Park area. All parties are encouraged to continue on with this current level of cooperation. In addition a multi-jurisdictional agreement which is currently under discussion should be pursued so as to ensure the joint management and conservation of the Davis Strait polar bear sub-population is carried out in a sustainable manner with a fair and equitable sharing of the resource.

Table 1. Summary Table

| Priority | Objective number | Broad Approach | Threat Assessed | Specific Steps | Outcomes |
|-----------------|-------------------------|--|--------------------------------------|--|---|
| necessary | 5, 6 | Education and stewardship | Human-bear conflicts | -develop interaction guidelines - provide training and resources -meet with affected parties | Reduced conflicts and bear mortalities |
| necessary | 1, 4 | Determine seasonal distribution | Over harvesting, habitat disturbance | - gather local and traditional knowledge - carry out distributional surveys | More informed decision making |
| necessary | 1, 4 | Determine population including residents | Over harvesting | - gather local and traditional knowledge - carry out population surveys | More informed decision making, set sustainable quotas |
| necessary | 3, 4 | Delineate important polar bear areas | Habitat disturbance and/or loss | - gather local and traditional knowledge - carry out | Habitat protection |
| necessary | 1, 2 | Inter-governmental cooperation | Over harvesting | - continued participation on PBTC and PBAC | More informed decision making, set sustainable quotas |

Table 2. Implementation Schedule

| Action | Objective # | Lead | Other | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|--------------------|----------------------|---------------------------------|-------------|-------------|-------------|-------------|-------------|
| Draft interaction guidelines | 5, 6 | WD, NG | PC | | X | | | |
| Inter-governmental cooperation | 1, 2 | WD, NG | PBTC, PBAC PC, EC Nu, Que | Ongoing | | | | |
| Population and distribution surveys | | NG Nu, WD | PC | X | X | | | |
| Gather local and aboriginal knowledge | | NG | WD, PC | Ongoing | | | | |
| Re-assess hunting quotas | | NG, WD, PBAC PBTC | | | | X | | |
| Develop and implement education and stewardship programs | | NG, WD PC | | | X | X | X | X |
| Protect important polar bear areas | | NG, WD PC | | | | X | X | X |

EC – Environment Canada

NG – Nunatsiavut Government

Nu – Government of Nunavut

PBAC – Polar Bear Administrative Committee

PBTC – Polar Bear Technical Committee

PC – Parks Canada

WD – Wildlife Division, Government of Newfoundland and Labrador

Que – Government of Quebec

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