

**WWF-Canada Submission on the Draft Nunavut Land Use Plan
Presented to the Nunavut Planning Commission
February 14, 2014**

1. Introduction and Overview

WWF is an international conservation organization that was established in 1961. Our mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by conserving the world's biodiversity, ensuring that the use of natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

WWF has supported community-based conservation initiatives in Nunavut since its inception, by helping to collect, document and share the knowledge needed to make wise decisions about land use in the territory, including scientific knowledge and Inuit Qaujimanituqangit. In 1999, at the suggestion of Inuit leaders, WWF-Canada issued a Statement of Commitment to Nunavut—co-drafted with those leaders on the occasion of the founding of Nunavut. We opened an office in Iqaluit at that time for a period of five years and then re-opened a full-time office in 2012.

WWF recognizes that conservation and sustainable use of natural resources provides enduring and diverse benefits to Nunavummiut. We believe that a forward-looking, comprehensive Land Use Plan for Nunavut is a critical mechanism to achieve these lasting benefits.

As the world's largest conservation organization, with a Global Arctic Programme that is headquartered in Ottawa and has a presence in most Arctic nations, WWF also recognizes the global significance of the Nunavut Land Use Plan (NLUP). This Plan will set the long-term frame for both conservation and economic development in a significant portion of the world's Arctic. Therefore it is important to consider the NLUP in the context of Canada's and Nunavut's international responsibility, to "get it right," and by example to inspire sound land use planning elsewhere in the planet's northern polar region.

WWF's previous submissions to the Nunavut Planning Commission (NPC) have provided both general and specific advice along several lines:

- a) the benefits of "Conservation-First Planning," including the ecological basis upon which to establish a representative network of protected areas in Nunavut;
- b) tools for planning that consider the impacts of rapid climate change. These tools anticipate the opportunities for conserving ecosystems that are resilient today and, if carefully managed, likely to remain so for decades to come; and
- c) specific recommendations for the protection of caribou calving areas.

We acknowledge the significant efforts that have been undertaken by the NPC since our last formal submission, including a framework of five potential Land Use Designations and the Intent, Objectives and Policies associated with those designations. WWF's recommendations in this more detailed submission are aimed at helping the NPC achieve its declared goals and mandate—all of which WWF supports. Some of the general characteristics of our recommendations are briefly outlined below:

WWF-Canada Submission to the Draft Nunavut Land Use Plan

Our recommendations address gaps in the sites that have been identified to date; in particular sites appropriately designated for Protecting and Sustaining the Environment (PSE).

Our recommendations support some Options already identified by NPC; in other instances we make a case for choosing an alternative option recommended in the Options and Recommendations document. We also introduce some new Options for habitats and areas not designated by the draft plan. In all cases, our approach builds upon the good work already done by the Commission.

Our recommendations address knowledge gaps and omissions in designations (e.g. for polar bears and polynyas), propose designations for the Arctic Archipelago, as well as some shortcomings in NPC's actual management recommendations (e.g. for caribou).

Our recommendations provide consistent and appropriate protection for sites recognized for their ecological and cultural importance, in a way that is also sensitive to the economic aspirations of Nunavummiut. For example, the core caribou calving and post-calving areas we are recommending for protection are broadly supported by Inuit and represent about a 2/3 reduction in the total area WWF has advocated in this regard in our past three submissions.

Our recommendations consider analyses, agreed-upon recommendations and advice that have been developed under the auspices of the Arctic Council and Canadian federal government, in particular the identification of marine Ecologically and Biologically Significant Areas (EBSAs).

Our recommendations reflect the fact that Nunavut has not yet had a thorough landscape-scale or Strategic Environmental Assessment for any development activity, so that thresholds to manage cumulative impacts of development have not been set. This means that the Nunavut Land Use Plan has an especially significant role to play in ensuring that the region's natural capital is preserved, that the sensitive and productive ecosystems that both people and wildlife depend upon are sustained, and that future options are retained. Using a precautionary approach as a principle in land use planning does not close the door to further development. It simply preserves opportunities to develop better understanding of the vast terrestrial and marine regions and resources of Nunavut that will facilitate future landscape scale planning and the completion of a network of representative protected areas. When these steps are completed, a review of the Land Use Plan could result in certain areas having more relaxed provisions applied, because the degree of protection across the territory as a whole would be assured.

WWF is aware that this Land Use Plan is being prepared at a crucial time for Nunavut. In our experience, Nunavummiut at the community level are genuinely trying to find that elusive balance between taking care of the land and responsibly engaging in new industrial development for a more prosperous future. Ultimately, the specific choices that go into that balance will--and should--be up to the people of Nunavut. Therefore, WWF makes this submission both respectfully, and with high hopes for success.

Table of Contents

1.	Introduction and Overview.....	1
2.	Specific Comments	4
2.1	Caribou Habitat.....	4
2.2	Marine Habitat: Ecologically and Biologically Sensitive Areas (EBSA)	16
2.3	Polynyas – Areas of High Productivity & Critical Habitat for Marine Mammals, Birds	21
2.4	Polar Bears Habitat.....	25
2.5	Sea Ice Habitat of the Canadian Arctic Archipelago.....	35

2. Specific Comments

2.1 Caribou Habitat

Summary

WWF supports the rationale for conserving caribou and protecting caribou habitats (calving and post-calving areas, sea ice crossings and water crossings) stated “up-front” in the 2011/2012 draft Nunavut Land Use Plan (NLUP), as well as the general recommendations PSE-R2, PSE-R3 and ECP-R1 in the Plan, and the management Options identified in the Options and Recommendations (O&R) document. But we do not support all the Options that are actually *recommended* by NPC. We believe that some of NPC’s recommended Options for caribou habitats are inconsistent with the ecological, cultural and economic value of these areas, as determined by Nunavummiut, the scientific community, governments, caribou management boards, non government organizations, and by NPC itself.

In keeping with the mention of Species at Risk meriting “special attention” in the NLUP, WWF has made specific recommendations regarding the Dolphin and Union herd and Peary caribou in the Caribou Sea Ice Crossings section of our submission, as well as for areas of known concentration of Peary caribou in the High Arctic. Further, everything we have recommended regarding calving and post-calving areas for Nunavut’s migratory tundra mainland herds is meant to apply to these two special caribou populations as well.

A summary of WWF’s specific recommendations is as follows:

For Caribou Calving and Post-Calving Areas (Figure 1 and 2):

- 1) Assign a designation that prohibits all new industrial uses in core calving and post-calving areas representing 95% occupancy. The only uses that should be permitted in these cores are tourism and research—subject to special conditions when calving caribou are present.**
- 2) WWF supports NPC’s recommended management Option 1 for the proposed Bathurst National Park, Thelon Wildlife Sanctuary and all National Wildlife Areas.**
- 3) Assign a designation that permits tourism, recreation and research and prohibits all other uses in the proposed Blue Nose Lake Area National Park, until such time as the Park boundaries have been agreed upon by the affected communities and a Park management plan has been developed.**

For Caribou Sea Ice Crossings and Peary Caribou Terrestrial Habitat (Figure 3 and 4)

- 1) Assign a designation that provides seasonal restrictions and conditions on all (industrial) development, such as shipping and ice breaking, for caribou sea ice crossings, especially for the Dolphin and Union herd and Peary caribou.**

- 2) For the all terrestrial habitat, particularly the Fosheim Peninsula and Eastern Axel Heiberg Island area, assign a designation that permits tourism, recreation, research and prohibits all other uses.**

For Caribou Water Crossings:

- 3) Assign a designation that allows for seasonal restrictions and conditions on industrial uses that could negatively impact the ecological significance of these sites for caribou.**
- 4) WWF supports NPC's recommended Option 1 for the portion of the Soper Heritage River that lies outside Katannilik Territorial Park.**
- 5) Assign a designation that permits tourism, recreation and research and prohibits all other uses for the Thelon and Kazan Heritage Rivers.**

Rationale in the NLUP for Conserving Caribou and their Key Habitats

Mention is made of the importance of caribou on the very first full page of the NLUP: *"Nunavut is home to a variety of wildlife species, including numerous herds of caribou.....Because Nunavummiut rely on wildlife for much of their diet and basic needs, healthy wildlife populations are vital for the social, cultural, and economic well-being of residents."* (Page 10)

In addition, the conservation of caribou is a necessary ingredient for each of the elements stated as the long-term *vision* for the Plan, including: *"...a healthy sustainable renewable and non-renewable economy, ...strong connections to Inuit culture and heritage, ... a network of Parks and Conservation Areas that protects habitat and important areas,"* and... *"the integrity of the natural environment is preserved and the disruption of ecosystems has been avoided."* (Page 10)

On page 16 of the Plan, caribou habitats are assigned *the Protecting and Sustaining the Environment (PSE)* Land Use Designation, whose *intent* is: *"...to support environmental protection and management needs, including wildlife conservation, protection and management..."* Further, the Plan states that *"PSE Land Use Designations discourage uses that may be incompatible with existing environmental uses or interests."*

In Section 2.1, under *Sites of Ecological Importance*, we are reminded of NPC's *Objectives*, which include: *"Identify and provide protection for the natural environment, areas of biological importance and traditional land use activities...."* Further, in the same section, NPC's *policies* include *"respect and consider 'natural capital' sites (sites of ecological significance), provide direction as appropriate through zoning or terms to conserve, manage and protect natural capital,"* and *"consider and where possible prevent and/or mitigate the impacts of land use on important wildlife areas...."* (Page 16-17)

These are the up-front, explicitly-stated principles and commitments in the NLUP against which WWF believes NPC's specific Recommendations for the conservation of caribou through protection of key habitats should be measured.

Caribou Calving and Post-Calving Areas

Regarding caribou, Page 17 of the NLUP states, *“As a key source of protein, they are tremendously valuable to the health and well-being of Nunavummiut, and historical dependence on caribou is a distinct feature of Inuit culture.”*

Calving areas are recognized in the Plan as *“areas where caribou are particularly vulnerable to disturbance and the need for uninterrupted foraging is greatest.”* Post-calving areas, where lactating cows raise their calves for about one month after giving birth, are also identified as being *“important to the health of caribou.”* (Page 17)

On page 43 of the Plan, in Table 2, NPC assigns the following general Recommendation (PSE-R2) regarding caribou calving and post-calving areas, to be implemented by Regulatory Authorities, DIOs, Municipalities, and Proponents: *“Project Proposals located in historic caribou calving grounds should take into account impacts on caribou calving, post-calving and migration routes.”* In WWF’s view, such general language as “take into account impacts” is too vague and permissive, given the importance assigned to caribou and their calving and post-calving areas earlier in the Plan. Therefore, it is important to turn to the Options and Recommendations (O&R) document, to better understand and evaluate what specific protections NPC recommends for these areas.

On Page 17 of the O&R document, NPC notes that both the Keewatin and North Baffin Regional land use plans prohibit development activities in caribou calving and post-calving areas during calving season, and it notes that both the Beverly and Qamanirjuaq Caribou Management Board (BQCMB) and the Athabasca Dene have directed that no development should be permitted in these areas—a position that was supported in all three previous submissions by WWF to NPC in our comments on the draft NLUP.

Further, the protection of caribou calving and post-calving areas has been formally recommended through resolutions and other statements to NPC and others, by the Kivalliq Wildlife Board, the Kitikmeot Wildlife Board, the Qikitarjuaq Wildlife Board, the Arviat Hunters and Trappers Organization (HTO), the Baker Lake HTO, the Chesterfield Inlet HTO, the Whale Cove HTO, the Fort Smith Metis Council, the Lutsel K’e Dene First Nation, and the GNWT Department of Energy and Natural Resources. This position has also been supported in the past, by scientists (Russell et al, 2002), management boards (Beverly and Qamanirjuaq Caribou Management Board, 2004), non government organizations (Hummel and Ray, 2008) and multi-party conferences (Government of the Northwest Territory, 2007).

On page 18, of the four *Options* for managing land use activities in caribou calving areas, NPC recommends Option 1: *“Assign a designation that permits all uses. For conforming project proposals, provide a recommendation to regulators and proponents to consider potential impacts of projects on caribou calving, post-calving areas and migration routes.”*

In WWF’s view, Option 1 does not provide adequate protection for caribou calving areas, and is inconsistent with their ecological, cultural and economic significance, as cited above and identified by NPC itself in the NLUP. “Permitting all uses” is clearly not appropriate and contradicts what others have also concluded, for example the BQCMB, Athabasca Dene, drafters

of both the Keewatin and North Baffin land use plans, and the many Nunavut and NWT hunter-based organizations cited above. It also does not deliver on NPC's stated principle of "*avoiding disturbance*" in PSE land use designations, and the acknowledgement that calving and post-calving areas are places where caribou are especially vulnerable to disturbance.

Similarly, simply providing a recommendation to regulators and project proponents "*to consider potential impacts*" on calving and post-calving areas is too vague and subject to uneven interpretation that would provide equally uneven (if any) protection for such critical caribou habitat. WWF's alternative and specific recommendations for caribou calving and post-calving areas are outlined in the section that follows below.

In Chapter 3 of the NLUP, a number of protected areas that contain caribou calving and post-calving habitat are assigned the *Encouraging Conservation Planning (ECP)* Land Use Designation. Of particular interest to WWF are the proposed Bathurst Island National Park, the proposed Bluenose Lake Area National Park, the Thelon Wildlife Sanctuary and all National Wildlife Areas (NWAs). WWF's specific recommendations for these areas are outlined in the section that follows.

WWF's Recommendations regarding Caribou Calving and Post-Calving Areas:

1) WWF recommends that NPC select Option 2, namely "assign a designation that restricts (prohibits) all (new industrial) development" in core calving and post-calving areas, representing 95% occupancy—See Figure 1. In the past, WWF has supported the position of the BQCMB and Athabasca Dene that all industrial development (including exploration) should be prohibited in the *historic* calving areas--See Figure 2. While we believe that this would still be an appropriately precautionary approach, WWF also recognizes that, based on satellite-collared animals, caribou have not been known to concentrate in significant portions of these traditional, aggregated calving areas for over 20 years. However, lack of data does not necessarily mean lack of use. In the case of the Beverly herd, there is debate as to whether this calving area is being used at all, although **WWF recommends that it would be wise to protect at least the recently-known core, in case the Beverly herd re-establishes itself and re-occupies a calving area used by over 200,000 animals for decades.** The core (or priority) calving and post-calving areas are those known to be utilized by 95% of calving animals every year in the recent past, which dramatically reduces the area WWF has traditionally proposed for protection by about 2/3, compared to the historic calving grounds. In other words, we know there will continue to be some caribou calving and raising calves until the end of July outside these core areas. Furthermore, these data are based on limited sample sizes and relatively short periods of time, compared to historical occupancy of calving areas by caribou herds in Nunavut. Therefore, **WWF recommends that the spatial definition of such core areas should be updated every five years, as new data become available, and included in the scheduled overall review of the NLUP.** Despite these shortcomings, in WWF's view, protecting these reduced areas represents a reasonable accommodation of the need for economic development with the ecological needs of caribou in this most sensitive of their habitats. We hope it will also break a longstanding logjam over affording greater protection to such areas where it is absolutely necessary. Indeed, it is difficult to understand how migratory tundra caribou will recover from their current low

numbers, so that populations can fluctuate under relatively natural conditions over the long term, if calving and post-calving areas are not afforded more meaningful protection. Therefore **WWF further recommends that the only uses that should be permitted in these cores areas are tourism and research-- subject to special conditions when calving caribou are present, agreed upon by the Government of Nunavut (GN), Aboriginal Affairs and Northern Development Canada (AANDAC), and Designated Inuit Organizations (DIOs). Implementation of these restrictions should be monitored by observers from local Hunters and Trappers Organizations (HTOs).**

2) WWF supports NPC's recommended Option 1 for the proposed Bathurst National Park, Thelon Wildlife Sanctuary and all NWAs, namely, "Assign a designation that permits tourism, recreation and research and prohibits all other uses," and we support NPC's reasons for recommending this Option in each case. We also believe that this Option would provide adequate protection to caribou calving and post-calving areas and to caribou when they are using them.

3) WWF does not support NPC's recommended Option 3 for the proposed Blue Nose Lake Area National Park. In our view, this Option would not provide adequate protection for caribou calving and post-calving grounds, and would allow additional uses that may not be permitted in the Park management plan when it is developed. Instead, WWF recommends Option 1, namely "Assign a designation that permits tourism, recreation and research and prohibits all other uses," until such time as the Park boundaries have been agreed upon by the affected communities, and a Park management plan has been developed. This recommendation would provide at least interim protection to caribou calving and post-calving areas, and keep the broadest range of options open to Nunavummiut and to Canadians when it comes to formal Park establishment and developing a Park management plan.

Caribou Sea Ice Crossings and Peary Caribou Habitat

On Page 17 of the NLUP, NPC notes that some caribou herds cross frozen sea ice to reach their calving areas, and that these herds are *"vulnerable to changing sea ice conditions and disturbance by ice breaking."* NPC's Maps 56 and 57 identify crossings for the Dolphin and Union herd, and some Peary caribou respectively, both of which have been formally classified as being "at risk" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and by the GNWT Species at Risk Committee—Dolphin and Union herd "Of special concern" by both bodies, and Peary caribou "endangered" by COSEWIC and "threatened" by the GNWT.

Sea ice crossings are also assigned a PSE Land Use Designation, and on Page 43, as with caribou calving and post-calving areas, a general Recommendation (PSE-R3) is assigned to be implemented by Regulatory Authorities, namely that, *"Project proposals located in and/or near known sea ice crossings should take into account impacts that may impede the ability of caribou to cross the ice."* While WWF can support such a recommendation as starting point, we are not confident that such general direction will result in the specific protection needed for these crossings, or for caribou when they are using them.

WWF-Canada Submission to the Draft Nunavut Land Use Plan

On Page 18 of the O&R documents, NPC notes the concerns expressed by the Cambridge Bay HTO regarding the impact of shipping and ice breaking on the Dolphin and Union herd when crossing the Coronation Gulf, and that the BQCMB and Athabasca Dene have directed that caribou habitat be given greater protection from industrial development..

However, as with calving areas, of the four management *Options* identified for caribou sea ice crossings, NPC recommends Option 1, which contains the same wording, permitting all uses and providing a recommendation to regulators and proponents that projects “*consider potential impacts that may impede the ability of caribou to cross the ice.*” (Page 19)

In our view, this recommended Option does not provide sufficient protection to sea ice crossings as PSE sites, or to caribou when they are using them. WWF's specific Recommendations regarding caribou sea ice crossings are outlined below.

Regarding endangered Peary caribou, the Fosheim Peninsula and Eastern Axel Heiberg Island (FP-AH) area has been identified as having the largest concentration of this subspecies in the High Arctic—See Figure 3 (Jenkins et al, 2011). This area has been recognized as a Wildlife Area of Special Significance and by the Department of Environment of the GN as an “area of special ecological and wildlife interest.” Its High Arctic ecology makes the area very sensitive to disturbance such as mining exploration and development, which has been opposed in writing by the Hamlet of Grise Fiord, the Community Lands and Resources Committee, and the Iviq HTO. The FP-AH is being considered by the GN as a Territorial Park, including nomination as a World Heritage Site, also supported by the communities of Grise Fiord and Resolute.

WWF's recommendation regarding the Fosheim Peninsula and Eastern Axel Heiberg Island area, especially for its significance to Peary caribou, is outlined below.

WWF's Recommendation Regarding Caribou Sea Ice Crossings and Peary Caribou Habitat

4) WWF recommends NPC's Option 4, which would “assign a designation that provides seasonal restrictions” for all caribou sea ice crossings. This recommendation is especially important for the Dolphin and Union herd crossing between the mainland and Victoria Island (NPC's Map 56), and for all Peary caribou sea ice crossings in the High Arctic Islands, including between Prince of Wales and Somerset Islands (NPC's Map 57). WWF's recommended option would not require permanent protection of these crossing areas, or closure to all industrial development. But there should at least be seasonal restrictions and conditions on shipping and ice- breaking during the spring and fall periods when caribou are using these crossing sites for their annual migration. Compared to Option 1, WWF's recommended Option 4 is more in keeping with the importance Nunavummiut and NPC attach to caribou (as cited above from earlier sections of the Plan), it is more consistent with the Intent, Objectives and Policies NPC attaches to the PSE Land Use Designation, and it is more consistent with NPC's identification of Species at Risk as deserving “*special attention*” (page 16 of the draft NLUP). Both of these populations are sufficiently depleted that any further

disturbance of their critical habitat, including sea ice crossings, should be at best avoided, and at least mitigated.

WWF further recommends that any restrictions/conditions for shipping and ice-breaking in or near caribou sea ice crossings should be arrived at in consultation with the shipping industry and with HTOs from the affected communities, who should be seasonally employed both onshore and onboard, to advise shippers onsite during the affected seasons, and to ensure that the agreed-upon restrictions/conditions are followed.

With respect to endangered Peary Caribou, WWF recommends that all terrestrial habitat be identified in the NLUP as PSE sites by NPC, and that the recommended management Option be similar to Option 1, as identified for a number of ECP sites, namely *“assign a designation that permits tourism, recreation and research and prohibits all other uses.”*

Caribou Water Crossings

Caribou migration routes, especially water crossings, are identified on Page 17 of the NLUP as *“important”* and as *“often unique sites that offer relative ease of crossing.”* These areas tend to be traditionally-known by Inuit hunters, and therefore are also culturally significant.

“Migration routes” are included with calving and post-calving areas in the general recommendation PSE-R2, upon which WWF has already commented.

In the O&R document, NPC recognizes that the Keewatin and North Baffin land use plans support seasonal restrictions on land use activities near designated water crossings, and that the BQCMB and Athabasca Dene direct that no industrial activities should be permitted in these areas. Again, four *Options* are identified by NPC—the same as for calving areas and sea ice crossings, and again NPC recommends Option 1.

In WWF's view, this NPC-recommended Option does not provide sufficient protection to water crossings as PSE Land Use Designations or to caribou when they are using them. WWF's specific recommendations in this regard are outlined in the section that follows below.

In Chapter 3 of the NLUP, Heritage Rivers are assigned the *Encouraging Conservation Planning (ECP)* Land Use Designation. WWF notes that these rivers harbour important caribou crossing sites, and that the *intent, objectives and policies* associated with ECP's outlined on Page 20 of the NLUP are entirely consistent with, and in fact would require, conserving caribou and protecting caribou habitat. On Page 22, NPC states that *“The Commission supports the intent of the Canadian Heritage Rivers Historic Sites in the NSA.”* On page 43, Heritage Rivers are assigned general Recommendation ECP-R1, namely that *“Project proposals located in and/or near a Heritage River should take into account the guidelines and criteria contained in the Heritage River's management plan.”*

In the O&R document, NPC identifies four management *Options* for the three Heritage Rivers designated so far in Nunavut: the Soper, Thelon and Kazan. WWF's recommendations regarding

NPC's recommended management Options for these three Heritage Rivers follow in the section below.

WWF's Recommendations regarding Caribou Water Crossings

6) WWF recommends Option 4 for all traditionally-known caribou water crossings in the NSA, namely that they be assigned a designation that allows for seasonal restrictions and conditions upon industrial uses that could negatively impact the ecological significance of these sites for caribou, and that protects caribou when they are using them. WWF's reasoning and recommendations for both industry and Inuit engagement in arriving at such restrictions/conditions for water crossings are the same as for caribou sea ice crossings above.

7) WWF supports NPC's recommended Option 1 for the portion of the Soper River watershed outside of Katannilik Territorial Park, namely, *"Assign a designation that permits tourism, recreation and research, and prohibits all other uses."*

8) WWF does not support NPC's recommended Option 3 for the Thelon and Kazan Rivers, because it permits all uses and only provides for recommending that project proponents "consider the guidelines and criteria contained in the Heritage Rivers management plan." In our view, this Option does not best support the intent, objectives or policies NPC outlines for Encouraging Conservation Planning land use designations, does not provide adequate protection for caribou crossing sites along these two rivers, and in the case of the Thelon is inconsistent with its international status as a wilderness canoeing destination and NPC's own recommended Option for the Thelon Wildlife Sanctuary where most of the Thelon River is found. Further, we can see no compelling reason for providing less protection to the Thelon and Kazan than for the Soper Heritage River. Therefore WWF recommends that NPC recommend Option 1 for the Thelon and Kazan Heritage Rivers, namely, *"Assign a designation that permits tourism, recreation and research, and prohibits all other uses."*

References

Beverly and Qamanirjaq Caribou Management Board. 2004. Protecting calving grounds, post-calving areas and other important habitats for Beverly and Qamanirjaq caribou: A position paper by the Beverly and Qamanirjaq Caribou Management Board. September, 26 pp.

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Hummel, M. and J. Ray. 2008. Caribou and the North: A Shared Future, Dundurn Press, 288 pp.

Jenkins, D.M., M. Campbell, G. Hope, J. Goorts, and P. McLoughlin. 2011. Present trends in abundance of Peary caribou (*Rangifer tarandus pearyi*) and muskoxen (*Ovibos moschatus*) in the Canadian Arctic Archipelago, Nunavut. Department of the Environment, Government of Nunavut, Wildlife Report No. 1, Pond Inlet, Nunavut, 184 pp.

WWF-Canada Submission to the Draft Nunavut Land Use Plan

Russell, D.E., G. Kofinas and B. Griffith. 2002. Barren-ground caribou calving ground workshop: Report of proceedings. Technical Report Series No. 390. Canadian Wildlife Service, Ottawa, 39pp.

Figure 1

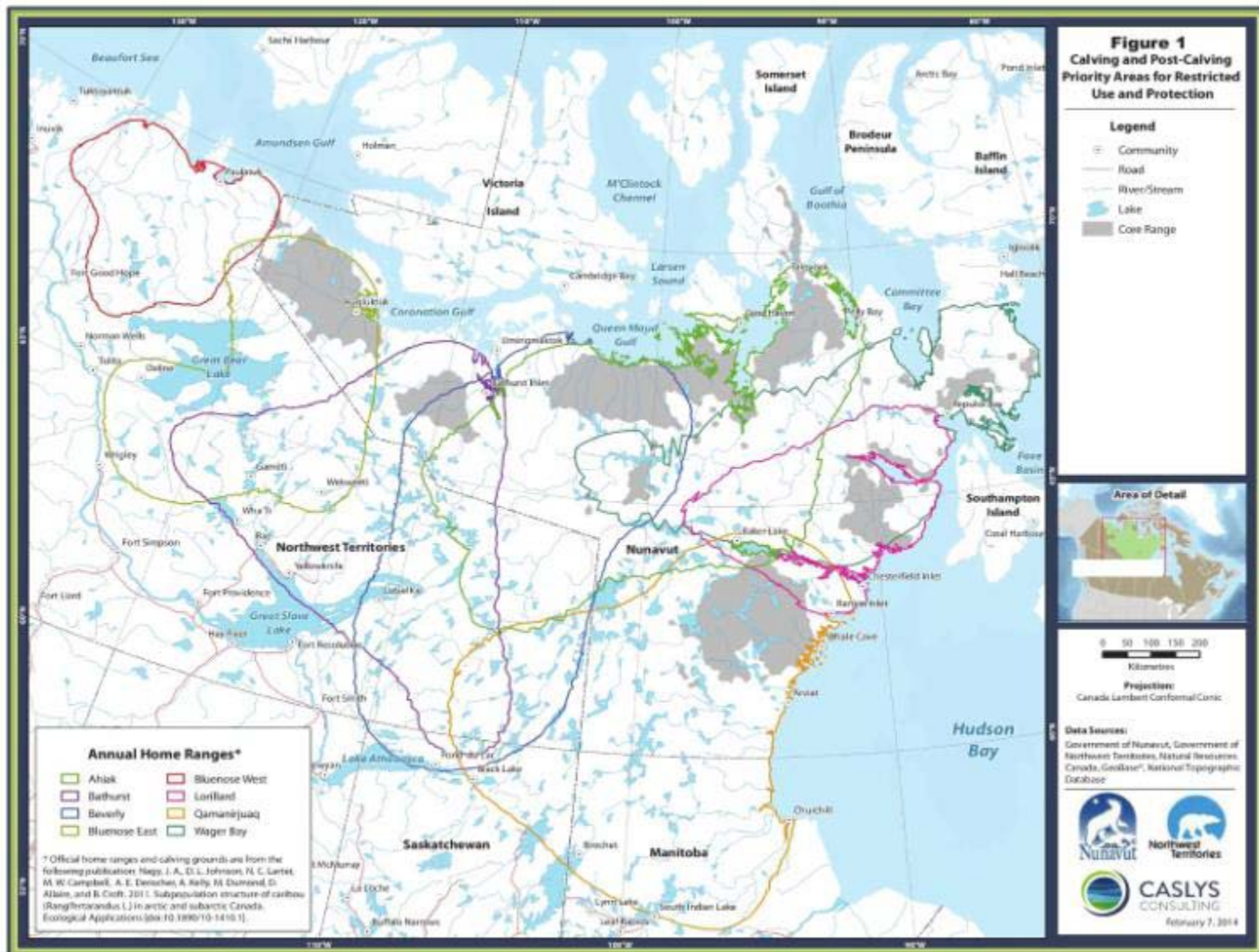
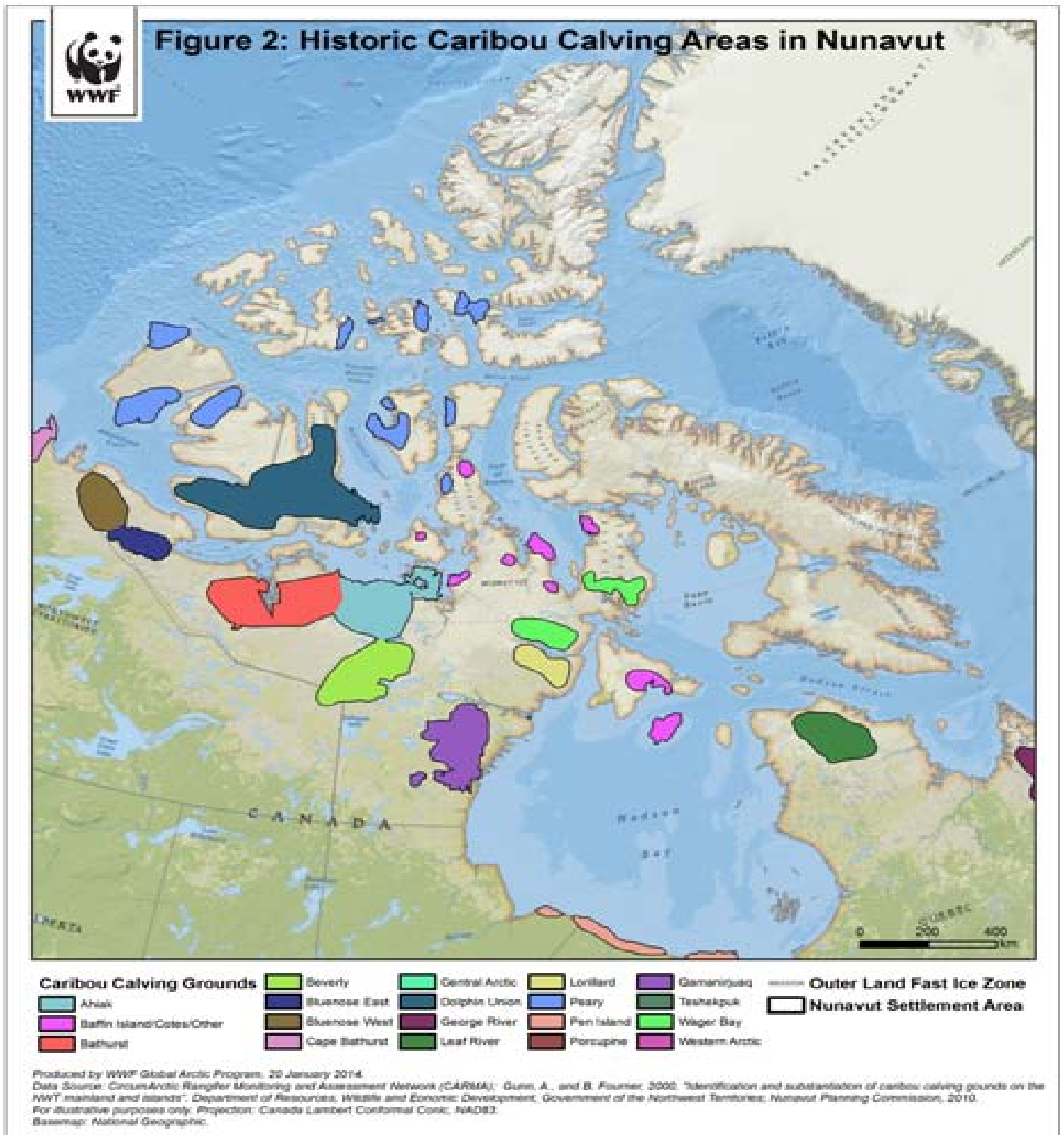


Figure 2



WWF-Canada Submission to the Draft Nunavut Land Use Plan

Figure 3. From Jenkins and Lecomte (2012). Peary Caribou range, Canadian Arctic with trans-island movements on sea ice. For the Bathurst Island Complex, the data are from the present study (see Fig. 6). Movement between Prince of Wales and Somerset Island are from Miller et al. (2005). Paths between Victoria Island and the continent are from M. Dumond (Government of Nunavut) and Poole et al. (2010), a possible intermediate zone between barren-ground and the Peary Caribou.

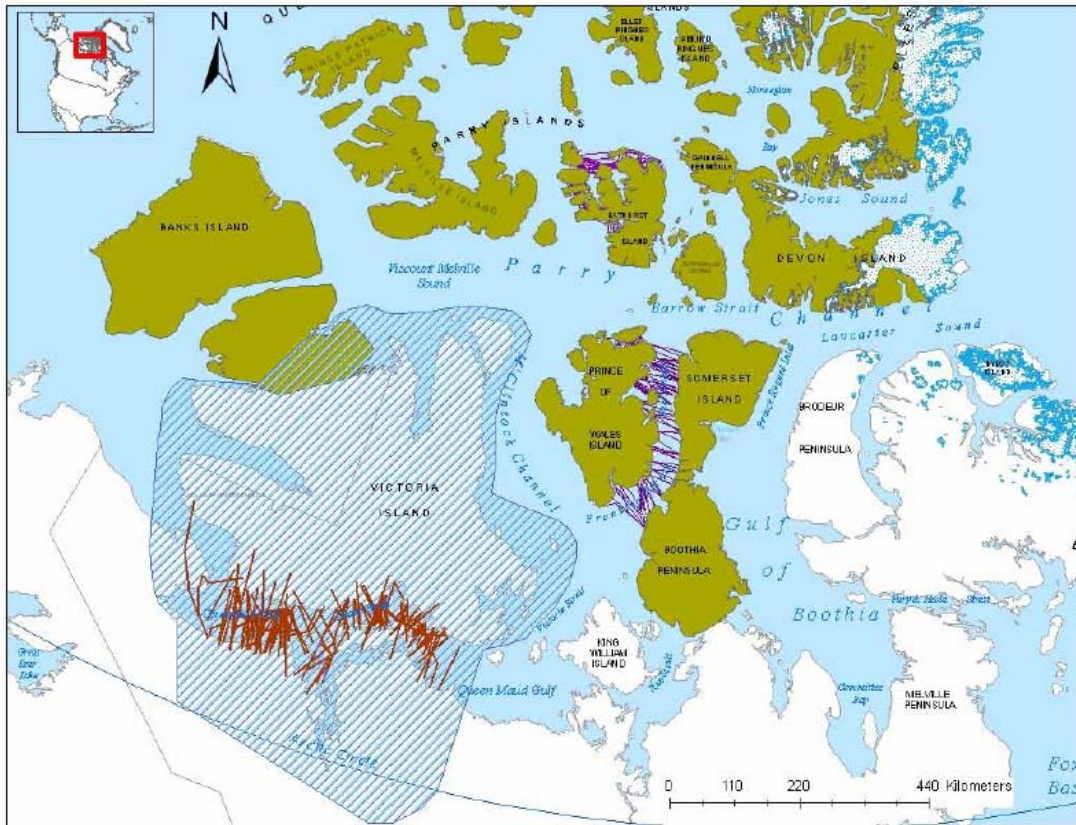


Figure 7.

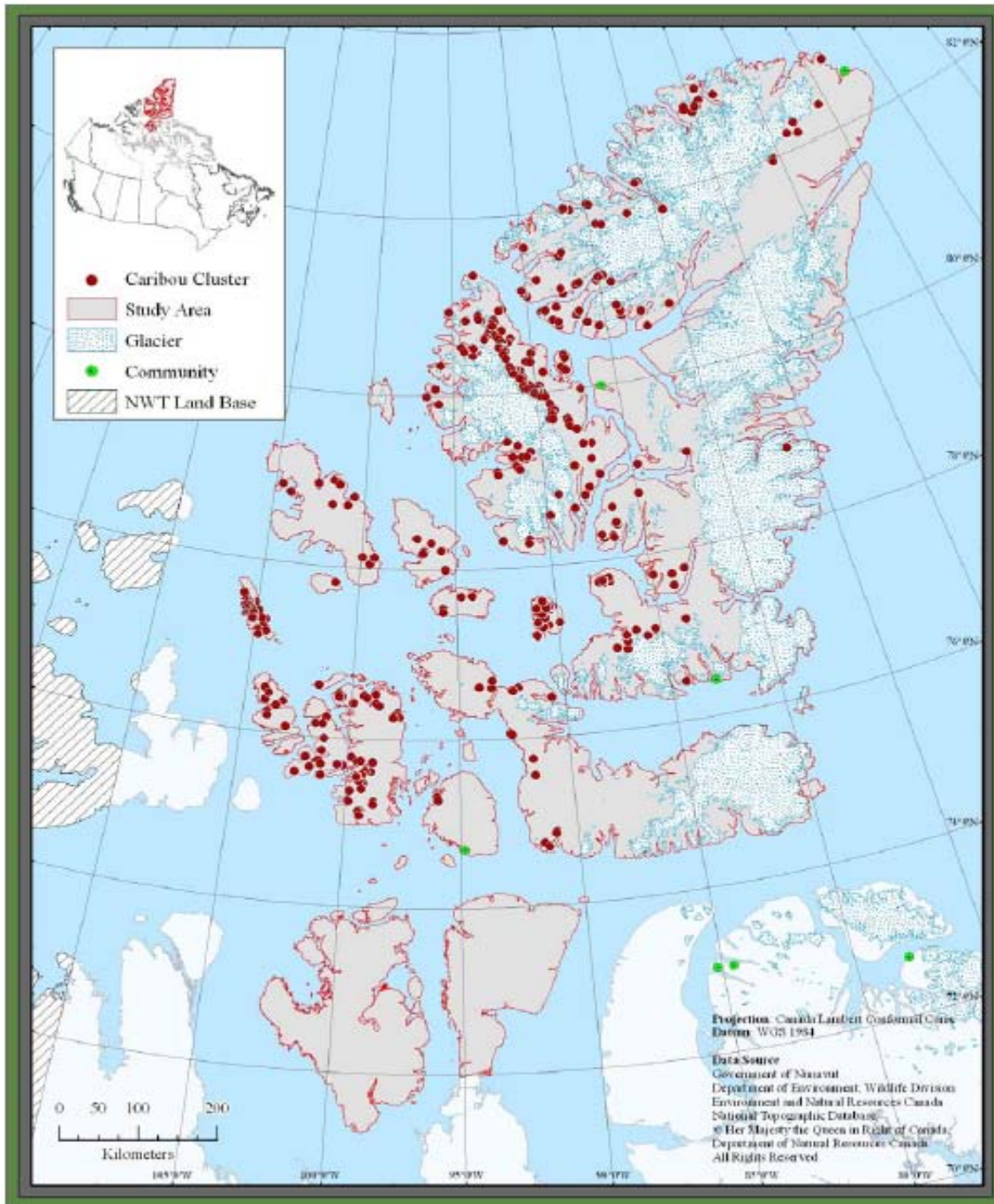


Figure 9: Peary caribou observations over the entire study area from 2001 to 2008.

Figure 4. From Jenkins et al (2011). Survey observation of Peary Caribou (2001-2006)

2.2 Marine Habitat: Ecologically and Biologically Sensitive Areas (EBSA)

Background

The arctic marine ecosystems of Nunavut are diverse, productive and sensitive to human activities. Industrial and community developments in Nunavut will stress and impact (noise, spills, ocean dumping) marine ecosystems because shipping is and will continue to be the primary means to transport materials and products required to support these activities (Gavrilchuk & Lesage 2014). In recognition of the importance of arctic marine ecosystems Fisheries and Oceans Canada identified Ecologically and Biologically Significant Areas (EBSA) in the Canadian Arctic as a key step in providing managers and Inuit with information for ecosystem based management and future development of a network of marine protected areas (DFO 2011). EBSAs have been identified in all ocean regions of the NSA (Figure 1). The Canadian arctic EBSAs have been included in the report on circumarctic EBSAs, and approved by the Arctic Council members (including Canada) (Arctic_Council_ (AMAP/CAFF/SDWG) 2013). EBSAs were mapped at large scales in part due to incomplete available information but also because physical (currents, winds) and biological (productivity, marine mammal migrations) oceanographic processes take place on large scales. EBSAs, as delineated, will therefore contribute to long term ecosystem resilience.

Inuit have relied upon marine ecosystems for millennia, and today almost all Nunavut communities are located on an ocean coast. Inuit knowledge and land use and occupancy study results reflect the intricate ties between people and the marine environment (Anon 2008; Berkes et al. 2007; McDonald et al. 1997).

The draft NLUP does not provide protection for the majority of the NSA ocean environments, and applies the Mixed Use designation which permits all uses. WWF does not agree that Mixed Use is an appropriate designation for the remaining EBSAs in the NSA. Rather, now is a critical time (before development pressures intensify) to recognize the importance, sensitivity and long term contributions of marine ecosystems for Nunavummiut.

WWF acknowledges that some EBSAs have been included in ECP-1 and ECP-2 zones when wildlife areas, proposed national parks and the proposed Lancaster Sound marine Conservation Area (which is also an EBSA) were designated. We agree that the provisions for habitat protection in the ECP zones are appropriate for EBSAs.

WWF acknowledges that some EBSAs have been included in PSE-1 and PSE-3 zones when key bird habitat sites were designated. While this is positive we feel that the requirements of PSE-1 and PSE-3 should be strengthen to ensure the integrity of EBSAs.

WWF recommends that all EBSAs zoned for protection and we propose the option that follows.

Considered Information

From the NLUP:

- NLCA s11.3.2 *“The purpose of a land use plan shall be to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, taking into account the interests of all Canadians, and to protect, and where necessary, to restore the environmental integrity of the Nunavut Settlement Area.”*
- Purpose of NU land use plan S1.3.1 – vision statement - check
 - *“A network of Parks and Conservation Areas protects sensitive habitat and important areas”.*
 - *“The integrity of the natural environment is preserved and the disruption of ecosystems has been avoided.”*

P16 – NU plan Commission’s Policy

- *Respect and consider ‘natural capital’ sites (sites of ecological significance) that are not officially protected, such as: polynya, key migratory bird sites, Ramsar sites, critical habitat that has been identified but not yet declared; and maintains the ecological integrity of Parks and Conservation Areas*
- *Provide direction as appropriate, through zoning or terms to conserve, manage and protect natural capital*

Plan Objective: p16

- *Identify and provide protection for the natural environment, areas of biological importance,through the establishment of land use zones and terms, outside of formal legislative processes, to protect or where necessary restore the environmental integrity of the NSA*
- Marine ecosystems are natural capital and need to be protected for the long term.
- Inuit value marine ecosystems as they rely upon marine mammals, fish, sea birds and invertebrates for cultural, food-security and economic benefits.
- As noted above, EBSAs have been identified across the Arctic, towards addressing a recommendation from the Arctic Marine Shipping Assessment (AMSA 2009). However, the latter part of the recommendation has yet to be addressed: *“That the Arctic states should identify areas of heightened ecological and cultural significance in light of changing climate conditions and increasing multiple marine use and, where appropriate, should encourage the implementation of measures to protect these areas from the impacts of Arctic marine shipping, in coordination with all stakeholders and consistent with international law”* (italics added).
- Shipping is a potential stress and threat to marine ecosystems but it can be mitigated and managed if appropriate land use zoning designations are applied.
- Information is available on current and future shipping routes which can be used to evaluate development risk to EBSAs (Figure 2)
- Information is available on mineral, oil and gas deposits which can be used to evaluate development risk to EBSAs (Figure 3)

- Information gaps at this time preclude finer resolution mapping of EBSAs, and further research is needed to fill the gaps. That research should have two objectives: to refine the EBSA delineations, and to identify and map habitat sensitivity within each EBSA.

Options for Marine Habitat: Ecologically and Biologically Significant Areas

Option 1. Assign a designation that permits tourism, recreation and research and prohibits all other uses. Research limited to studies that directly address wildlife or ecological issues. Mineral exploration, commercial development and production projects are prohibited.

Option 2. Assign a designation that permits all activities but with seasonal restrictions specific to each EBSA. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on wildlife and landscape values that must be considered outside of the seasonal restrictions.

Option 3. Assign a designation that permits all activities. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on the wildlife and landscape values must be considered outside of the seasonal restrictions.

Recommended Option for Marine Habitat: Ecologically and Biologically Significant Areas (Figure 1)

Option 2 is recommended as it supports the Goal of Protecting and Sustaining the Environment:

“Assign a designation that permits all activities but with seasonal restrictions specific to each EBSA. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on wildlife and landscape values that must be considered outside of the seasonal restrictions.”

This option requires site-specific assessments to be undertaken for each EBSA, which will take into account:

- **The specific biological and ecological characteristics of each EBSA**
- **The potential stressors on those significant characteristics**
- **The risks of impacts from inappropriate activities**
- **Site-specific mitigative measures, including seasonal and other restrictions**

WWF strongly recommends that these assessments be undertaken with some urgency, that they incorporate the best available scientific and traditional knowledge, and that they involve local interests. In light of the knowledge gaps that exist, a precautionary approach is required. Such an approach is needed to ensure that future conservation options are not foreclosed in areas that have been identified as ecologically or biologically significant. Furthermore, a precautionary approach helps to clearly identify knowledge gaps and generate a shared incentive to address these knowledge gaps, since it holds out the possibility of relaxing restrictions once the area is better understood.

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WWF-Canada Submission to the Draft Nunavut Land Use Plan

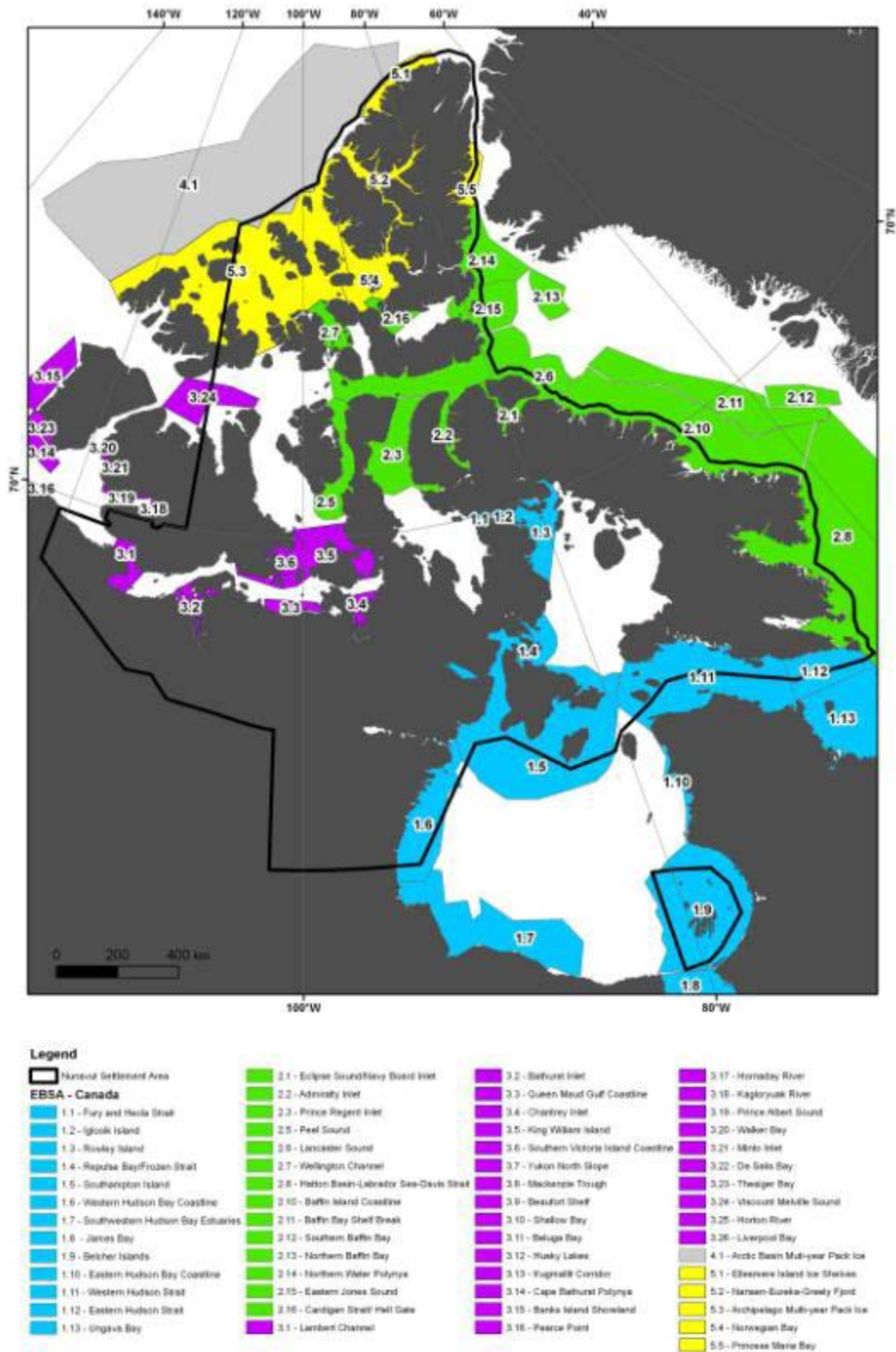


Figure 1. Map of Arctic EBSAs

2.3 Polynyas – Areas of High Productivity & Critical Habitat for Marine Mammals, Birds

Background

Polynyas and shore leads are critical sea ice habitat for marine mammals and birds (Stirling 1997). Polynyas are areas of open water surrounded by sea ice and are created by wind, currents, tides, or upwelling and shore leads result from winds and currents (Barber et al. 2001; Hannah et al. 2009; Smith et al. 1990; Stirling 1980). These formations are variable in size and shape, from massive North Water Polynya in northern Baffin Bay to the smaller inter-island polynya of Hell's Gate. All are considered areas of high biological productivity and critical arctic habitat. Polynyas and shore leads are openings in the sea ice where sunlight penetrates in early spring to power the annual renewed growth of phytoplankton, powering the explosion of zooplankton that form the base of the arctic marine food web (Smith & Barber 2007). Polynyas and shore leads are breathing sites for resident and migrating marine mammals, feeding sites for migrating birds and nesting colonies of sea birds, provide migration corridors and staging areas for sea birds (Laidre & Heide-Jorgensen 2011; Stirling 1980; Stirling & Cleater 1981). The high concentrations of wildlife in and near polynyas and shore leads attract foraging polar bears and other predators (Heide-Jorgensen et al. 2012). Many coastal archeological sites are found near polynya and today Inuit use these areas for hunting (Schledermann 1978, 1980).

WWF acknowledges that some polynyas and shore leads have been included in ECP-1 and ECP-2 zones when wildlife areas, proposed national parks and proposed marine conservation areas were designated. We agree that the provisions for habitat protection in the ECP zones are appropriate for polynyas and shore leads.

WWF acknowledges that some polynyas and shore leads have been included in PSE-1 and PSE-3 zones when key bird habitat sites were designated. While this is positive we feel that the requirements of PSE-1 and PSE-3 should be strengthened to ensure protection of this critical wildlife habitat.

WWF recommends that all polynyas be zoned for protection and we propose the option that follows.

Considered Information

P16 – NU plan Commission's Policy

- *Respect and consider 'natural capital' sites (sites of ecological significance) that are not officially protected, such as: polynyas, key migratory bird sites, Ramsar sites, critical habitat that has been identified but not yet declared; and maintains the ecological integrity of Parks and Conservation Areas*
- *Provide direction as appropriate, through zoning or terms to conserve, manage and protect natural capital*

Plan Objective: p16

- *Identify and provide protection for the natural environment, areas of biological importance,through the establishment of land use zones and terms, outside of formal legislative processes, to protect or where necessary restore the environmental integrity of the NSA*
- The Nunavut Land Claims Agreement requires a land use plan to take into account environmental considerations, including wildlife habitat
- The draft NLUP does not designate protective measures for any polynya or shore lead in the NSA

Options for Protection of Polynyas

Option 1. Assign a designation that permits seasonally restricted tourism, recreation and research and prohibits all other uses. Tourism and recreation may be seasonally restricted. Research limited to studies that directly address wildlife or ecological issues. Mineral exploration, commercial development and production projects are prohibited.

Option 2. Assign a designation with seasonal restrictions & prohibits installation of year-round infrastructure. The seasonal restrictions would apply to mineral exploration, development and operations activities so as to prevent disturbance to wildlife species using polynya for breathing, resting and foraging. The seasonal restriction would extend from freeze-up to break-up – when polynyas form and disintegrate.

Option 3. Assign a designation that permits all activities but with seasonal restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on the wildlife and landscape values must be considered outside of the seasonal restrictions.

Recommended Options for Polynyas (Figure 1)

Option 2 is recommended as it best supports the Goal of Protecting and Sustaining the Environment. Assign a designation with seasonal restrictions & prohibits installation of year-round infrastructure. The seasonal restrictions would apply to mineral exploration, development and operations activities so as to prevent disturbance to wildlife species using polynya for breathing, resting and foraging. The seasonal restriction would extend from freeze-up to break-up – when polynyas form and disintegrate. This option takes into account:

- **The ecological importance of polynyas and leads as regional drivers of marine primary productivity**
- **That polynyas and leads are critical habitat for sustaining marine wildlife populations**
- **Recognizes the historic and current role of these formations for Inuit culture, hunting and survival**
- **That local sources of pollution (chemical, petroleum, noise) could significantly damage or destroy the ecological components of polynya and leads**

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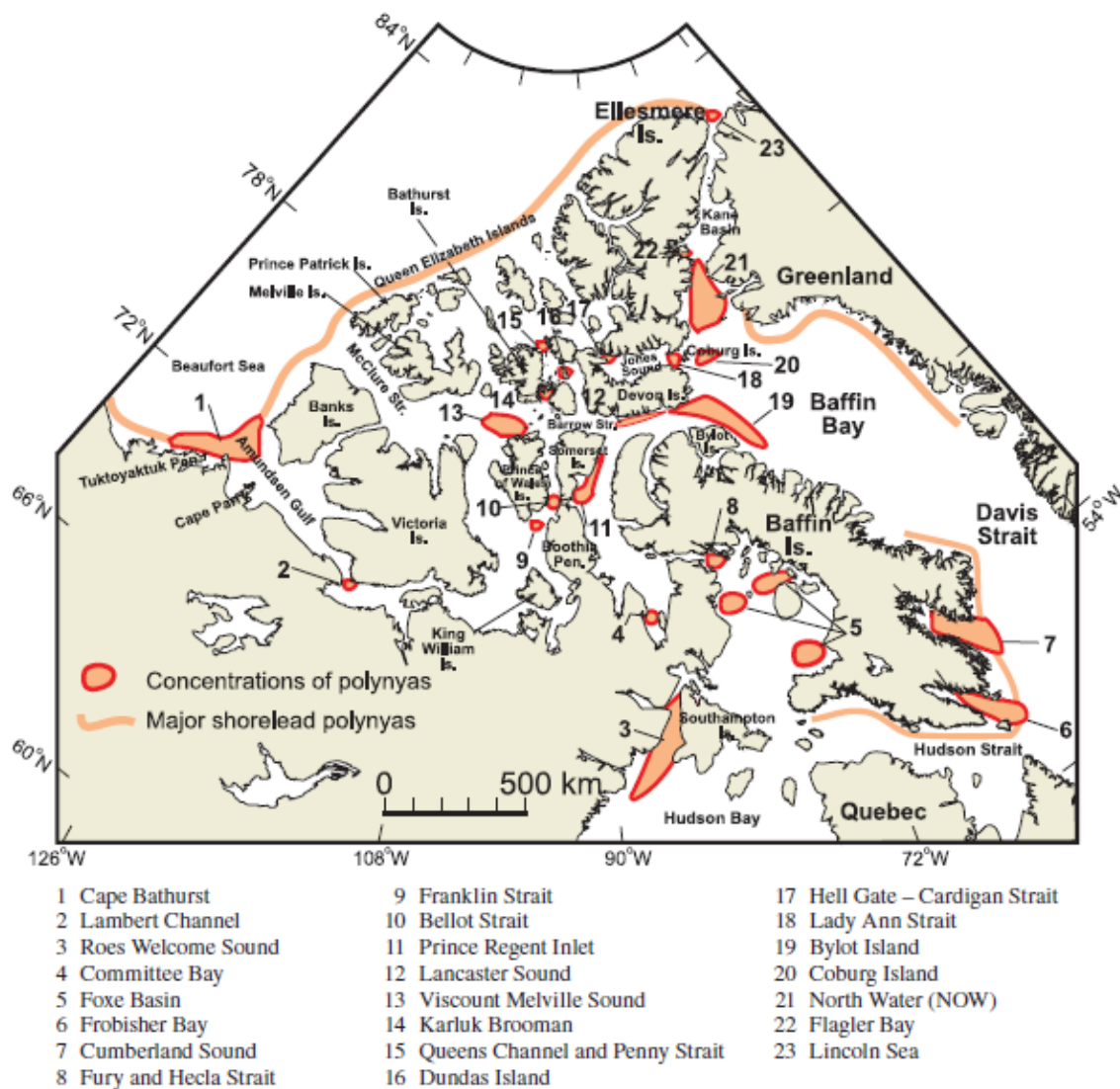


FIG. 1. A map of known polynyas in the Canadian Arctic, adapted from Barber and Massom (2007) and Stirling (1981). The Karluk Brooman polynyas were identified by Schledermann (1980) and Brown and Nettleship (1981).

Figure 1. From Hannah et al. 2009. NOTE: a more detailed, high resolution and updated polynya and lead map will be submitted to NPC in the near future.

2.4 Polar Bear Habitat

Background

NPC identified a knowledge gap regarding polar bears and protecting their habitat.

*“The Commission recognizes that there are data gaps in the Plan, such as information on caribou, **polar bear**, muskox, coastal erosion and the extent of economic opportunities.”* (p12, Draft Nunavut Land Use Plan)

The knowledge gap resulted in no areas being designated in the Plan for protecting polar bear habitat.

In this section WWF aims to provide information to help fill the identified knowledge gap and provide recommendations for designating areas for protecting polar bear habitat and allow for long term adaptive management.

Polar bears are distributed throughout the marine and coastal regions of the NSA and are managed by the Nunavut Department of Environment to provide harvesting opportunities for Inuit. Inuit obtain diverse benefits from the harvesting opportunities: cultural traditions, food, materials for personal use, art and for sale, and economic benefits from guiding polar bear sport hunting and wildlife viewing tourism (Lunn et al. 2010; Peacock et al. 2011).

Nunavut has a special responsibility for the conservation of polar bears as the majority of the world's population is found within the NSA (Peacock et al. 2011). The Nunavut Land Use Plan can make a significant contribution to the long-term health of polar bear populations globally by providing protection for sensitive and critical polar bear habitat.

WWF has identified 3 categories of sensitive and critical habitat for polar bears: denning, summer retreat and winter concentration. These categories were identified and mapped using a literature review, recent research results (satellite telemetry location data, aerial surveys) and expert knowledge (Inuit Qaujimajatuqangit, polar bear researchers and managers).

Considered Information

- The Nunavut Land Claims Agreement requires a land use plan to take into account environmental considerations, including wildlife habitat
- Commission's Objectives for Protecting and Sustaining the Environment (p. 16, NLUP)
 - *“manage land use in and around areas of biological importance,”* which would include polar bear denning and summer retreat habitat
 - *identify and provide protection for the natural environment, areas of biological importance,through the establishment of land use zones and terms, outside of formal legislative processes, to protect or where necessary restore the environmental integrity of the NSA*
 - *protect the integrity of ecosystems, flora and wildlife habitats, paying special attention to species-at-risk, critical habitats, and inter-jurisdictional management of migratory animals*
- Commission's Policies (p. 17, NLUP)

WWF-Canada Submission to the Draft Nunavut Land Use Plan

- *Consider, and where possible prevent and/or mitigate the impacts of land use on important wildlife areas such as wildlife management zones, wildlife sanctuaries, special management zones, unit and population boundaries*
- Polar bears are a Species-at-Risk (Schedule 1, Special Concern, http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1) and the Species-at-Risk Act directs all jurisdictions to protect and monitor important habitat for federally listed species. Section 33 states, *“No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.”*
- At this time there is no SARA Action Plan or Nunavut specific polar bear management plan to provide guidance on habitat protection for this species
- The framework for monitoring polar bears (Vongraven et al. 2012) recommends that denning and sea ice habitat should be protected and monitored
- Polar bears have special cultural and economic significance for Inuit
- Draft Federal Polar bear Conservation Strategy for Canada (2011), Objective 4.2 *“Minimize threats to polar bear and their habitat resulting from human activities.”* and Section 6.3 Habitat conservation – *“...terrestrial habitat is of critical importance for maternal denning, or as a summer refuge and migration corridor. However, while some important habitat areas received varying degrees of protection as national, provincial or territorial parks or wildlife areas, the vast majority of polar bear habitat currently receives no legal protection, although various initiatives are currently being explored by jurisdictions.”* And 6.4 Interactions of Threats: ... *As such, one of the biggest challenges will be to manage the harvest and other human influences (e.g. industrial activities, shipping) ...”* (Polar_Bear_Administrative_Committee 2011)
- Polar bear denning, summer retreat and winter concentration habitat is used in a seasonally predictable manner and has been mapped
- Polar bear denning, summer retreat and winter concentration habitat historically has not been disturbed by industrial anthropogenic activities thus there is limited information on how females will respond and how disturbance may affect cub survivorship

Options for Polar Bear Habitat

Option 1. Assign a designation that permits seasonally restricted tourism, recreation and research and prohibits all other uses. Tourism and recreation may be seasonally restricted. Research limited to studies that directly address wildlife or ecological issues. Mineral exploration, commercial development and production projects are prohibited.

Option 2. Assign a designation that permits all activities but with seasonal restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on the wildlife and landscape values that must be considered outside of the seasonal restrictions.

Option 3. Assign a designation that permits all uses. For conforming and approved project proposals, provide a recommendation to regulators and proponents that potential impacts on the wildlife and landscape values must be considered.

Maternal Terrestrial Denning Habitat (Figure 1 and 2)

Female polar bears den on land and on multi-year pack ice (Amstrup & Gardner 1994; Durner et al. 2006). Inuit knowledge and scientific studies agree that denning habitat is characterized by land with sufficient relief, slope, and aspect for snow accumulation, and near (0-20 km) the coastline (Ghazal 2013; Harington 1968; Keith 2005; Sahanatien 2011; Sahanatien & Derocher 2010; Schweinsburg et al. 1984; Van de Velde et al. 2003). Females enter dens during October-November and emerge with their cubs during March-April (Andersen et al. 2012; Messier et al. 1994; Ramsay & Stirling 1988). In the NSA there are many potential locations for denning but there are also many predictable concentrations of dens (Figure 1 and 2). Mark-recapture, telemetry and genetic studies have shown that female polar bears have fidelity to denning areas (Amstrup & Gardner 1994; Ramsay & Stirling 1990; Zeyl et al. 2010).

If females in dens are disturbed, it is possible that the cubs will not survive. Cubs in dens are helpless when first born, they are blind and tiny, requiring the 4 months denning period to develop sufficiently for survival in the cold, early spring environment (Blix & Lentfer 1979). When females emerge from dens it takes 1-27 days for the cubs to build sufficient physical capacity to follow their mothers over snow and ice; family groups should not be disturbed immediately after emergence (Ovsyanikov 1995; Smith et al. 2013; Smith et al. 2007). When cubs are physically capable, the female leaves the den site for the sea ice to forage and the family group does not return to the den. During this early period of a cub's life it is particularly vulnerable to predation (Amstrup et al. 2006; Taylor et al. 1985).

There is no established threshold of disturbance for females in dens, though there have been some studies completed along the Alaska Beaufort Sea, Russia and Svalbard where there are oil and gas development activities and tourism (Amstrup 1993; Amstrup & Gardner 1989; Amstrup et al. 2004; Andersen & Aars 2006; Blix & Lentfer 1992; Smith et al. 2013).

Recommended Option for Maternal Terrestrial Polar Bear Denning Areas
Option 2 is recommended as it best supports the Goal of Protecting and Sustaining the Environment. Assign a designation that permits all activities but with seasonal restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents that potential impacts on the wildlife and landscape values must be considered outside of the seasonal restrictions.

Option 2 takes into account:

- **the vulnerability of the denning female polar bears and potential effects of development on reproduction**
- **the vulnerability of cubs-of-the-year and importance of family group cohesion during the post den emergence period**
- **acknowledges that thresholds of development activities are not well understood**

- **builds on the existing planning policy framework and addresses the lack of protection assigned to polar bear denning habitat**

Recommended Restrictions: All activities are prohibited in known polar bear denning habitat during the main denning period; dates to be set regionally using Inuit knowledge and scientific research. Research during denning period limited to studies that directly address wildlife or ecological issues.

Polar Bear Summer Retreat Habitat (Figure 3, 4)

In regions where there is only seasonal sea ice, polar bears must retreat to land during the summer and early fall to wait until the ice reforms. Within the NSA there are 5 subpopulations (Southern Hudson Bay, Western Hudson Bay, Foxe Basin, Davis Strait, Baffin Bay) within the seasonal sea ice ecozone and two populations (Kane Basin, Lancaster Sound) within the Archipelago ecozone are increasingly becoming ice free (Vongraven et al. 2012). During the ice-free season polar bears can be found anywhere along the coastal areas of Nunavut but there are documented summer concentrations areas with high densities of bears (Atkinson & Dyck 2013; Stapleton 2013). When bears are on land they are in a fasting state, as there is limited access to their primary prey, ringed seals. Polar bears rely on their fat reserves for up to 6 months in the case of pregnant females, as such, it is important to protect the bears from disturbance. It is also critical to protect people from potentially dangerous situations in areas of high densities of bears where people and/or bears could be injured or killed.

Recommended Option for Polar Bear Summer Retreat Habitat

Option 2 is recommended as it best supports the Goal of Protecting and Sustaining the Environment. Assign a designation that permits all activities but with seasonal restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents that potential impacts on the wildlife and landscape values must be considered outside of the seasonal restrictions. Option 2 takes into account:

- **the physiological vulnerability of polar bears, especially pregnant females, during the ice-free fasting period**
- **acknowledges that it is important to prevent conflict between people and polar bears**
- **acknowledges that it is important to reduce the number of polar bear defense kills as this affects Inuit harvesting opportunities**
- **acknowledges that in some areas the high densities of polar bears in summer retreat areas present a significant risk to public safety**
- **Builds on the existing planning policy framework and addresses the lack of protection assigned to polar bear summer retreat habitat**

Winter/Spring Sea-Ice Habitat (Figure 2)

Polar bears can be found almost anywhere on the sea ice in the NSA but research has shown that there are areas where the density of polar bears is higher than others. The higher density regions likely correspond to high densities of the polar bear's primary prey species: ringed seals, bearded seals and walrus. It is expected that year round shipping activities will increase with mineral, oil and gas development. It is not necessary to assign strict protection to these areas

but it is important that the Plan recognize and identify high quality sea ice habitat for this important species.

Recommended Option for Polar Bear Sea Ice Habitat

Option 3 is recommended as it best supports the Goal of Protecting and Sustaining the Environment while considering economic development. Assign a designation that permits all uses. For conforming and approved project proposals, provide a recommendation to regulators and proponents that potential impacts on the wildlife and landscape values must be considered

Option 3 recognizes that:

- **Sea ice is critical habitat for polar bears and the maintenance of healthy populations**
- **that it is important to provide protection for high quality sea ice habitat**
- **Builds on the existing planning policy framework and addresses the lack of protection assigned to polar bear habitat**

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Figure 1. From Ghazal (2013). Map of polar bear denning habitat in Foxe Basin as described by Inuit knowledge.

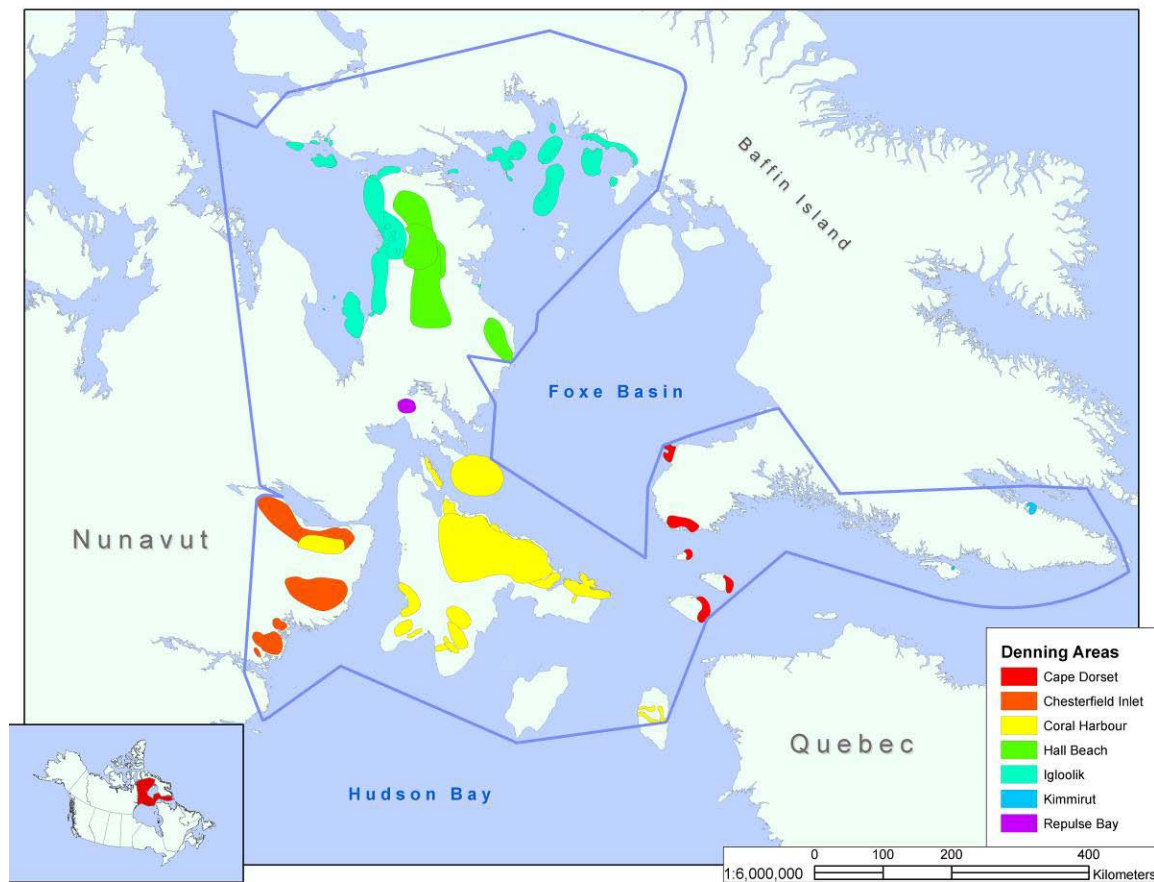


Figure 4: Distribution of areas identified as denning regions by interviewees and colour coded by community.

Figure 2. Important polar bear denning, summer retreat and winter concentration habitat in Nunavut. Department of Environment, Government of Nunavut.

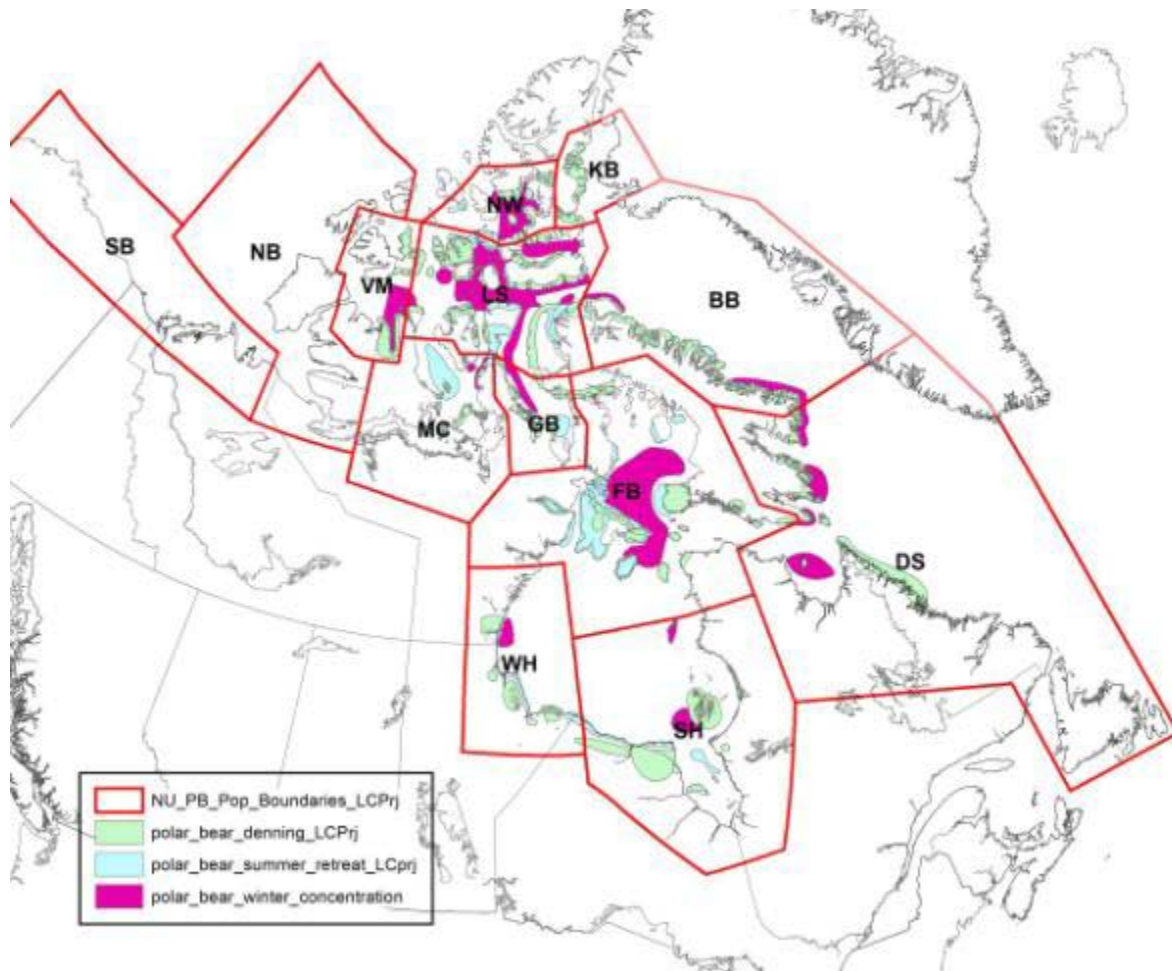


Figure 3. From Stapleton (2013) Polar bear summer retreat habitat in Foxe Basin.

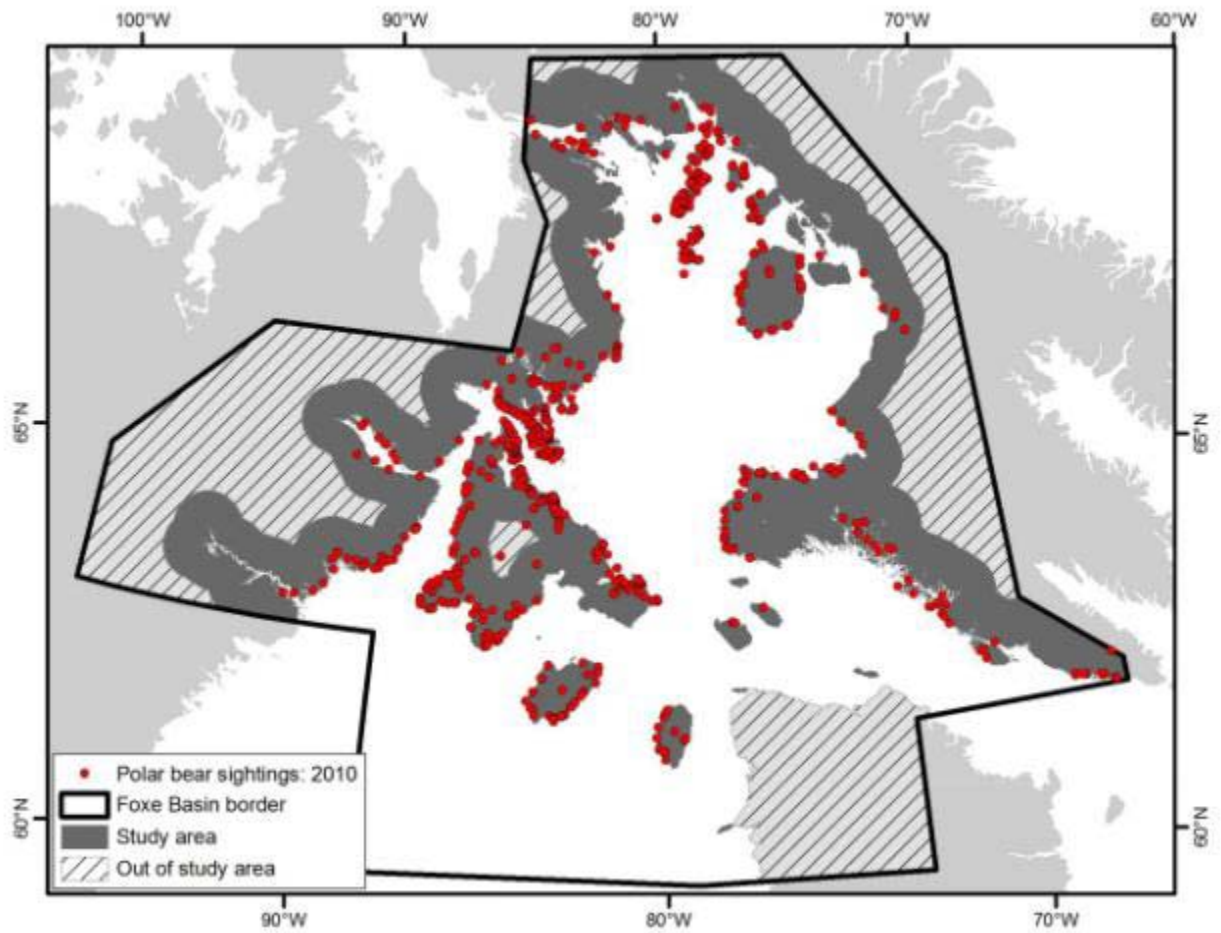
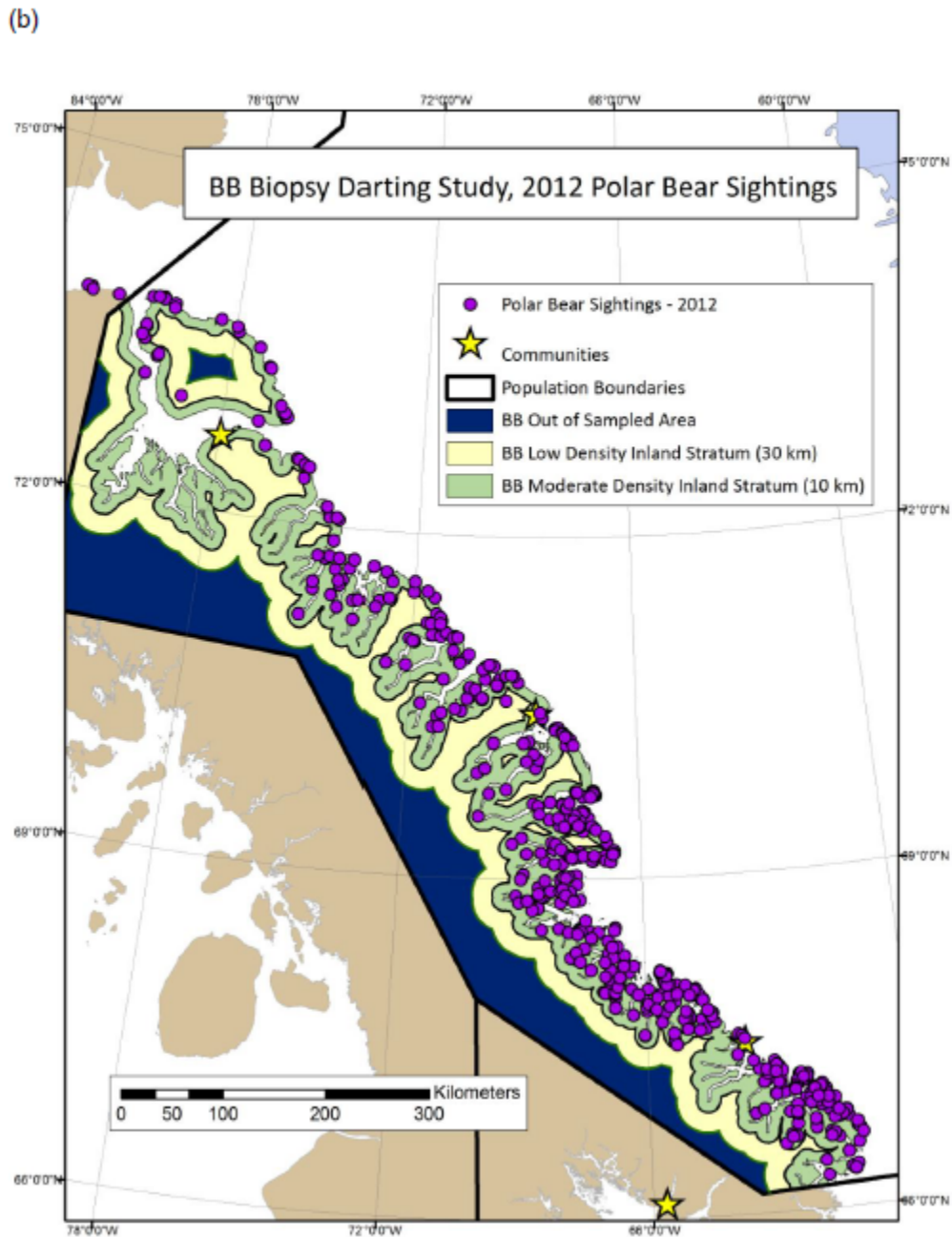


Figure 4. From Atkinson and Dyck (2013). Polar bear summer retreat habitat in Baffin Bay.



2.5 Sea Ice Habitat of the Canadian Arctic Archipelago

Background

Global climate change is causing loss and thinning of arctic sea ice. If current greenhouse gas emission trends continue, by 2040 persistent summer sea ice will remain only in parts of the Canadian Arctic Archipelago and northern Greenland continental shelves (Figure 1) (Huard & Tremblay 2013; IPCC 2013; Stroeve et al. 2007; Wang & Overland 2009). The anticipated changes in summer sea ice extent and composition will benefit marine transportation opportunities throughout the NSA (Gavrilchuk & Lesage 2014; The_Mariport_Group_Ltd 2007). The changes in sea ice will also impact biodiversity as the multi-year sea ice ecosystem diminishes and there is concern for the long term future of sea ice-dependent species including species that Inuit harvest (Durner et al. 2009; Eamer et al. 2013; Laidre et al. 2008; Moore & Huntington 2008; Stempniewicz et al. 2007; Stirling & Derocher 2012; Vincent et al. 2011a).

The Commission recognizes that climate change is an issue and that climate adaptation should be considered. The Commission's Objective is to:

“Control and minimize greenhouse gas emissions, monitor climate change impact, encourage development and adoption of adaptation strategies, and consider issues relating to changes in landscapes due to climate change ...: (p. 18 NLUP) and, “The Commission considers climate change to be an important issue in the NSA. Changing ice conditions may have an impact on residents’ use of the land, and many wildlife populations can be affected by changes to the unique habitat that they rely on.” (p.18 NLUP).

The Arctic Archipelago multi-year sea ice has been recognized by Canada and internationally as a unique and important ecosystem (DFO 2011; Eamer et al. 2013). Six Ecologically and Biologically Significant Areas (EBSA) are identified in this region: Arctic Basin Multi-Year Pack Ice (4.1), Ellesmere Island Ice Shelves (5.1), Nansen-Eureka-Greely Fjord (5.2), Archipelago Multi-year Pack Ice (5.3), Norwegian Bay (5.4) and Princess Maria Bay (5.5) (Figure 2) (DFO 2011). The Archipelago EBSAs contain features (e.g. ice shelves), under ice species assemblages, species (e.g. ivory gulls, seabirds, polar bears, narwhal, walrus) and habitats (e.g. Peary caribou sea ice crossings, walrus haul outs) that are sensitive and require special conservation considerations (Vincent et al. 2011b). In light of the qualities of the Arctic Archipelago, it is considered to be a to receive an international designation.

“Canada and Greenland should consider creating a World Heritage Site in Northwest Greenland/Northeast Canadian Archipelago as a refuge for ice-associated species”
CAFF Arctic Council Report, p. 86 Recommendations (Eamer et al. 2013)

There are some protected areas in the Archipelago but they are primarily terrestrial, with small amounts of near shore marine environments within their boundaries (e.g. Quttinirpaaq National Park). Nunavut, unlike most provinces and territories, does not have a Protected Areas Strategy nor has connectivity between protected areas been considered.

Peary caribou are found on most islands in the Archipelago. This species relies on sea ice crossings for moving between islands for calving and for foraging. Peary caribou are classified as an endangered species and the Species-at-Risk Act requires that habitat be protected

(http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Some Peary caribou sea ice crossings have been mapped (see Caribou Habitat Section) but it is likely that caribou use the sea ice of most channels in the Archipelago to cross between islands. Please see the WWF Caribou Habitat Section for recommendations for Peary caribou ice crossings.

The Sverdrup Basin is one of the richest oil and gas deposits in the Arctic and is located in the Archipelago (Figure 3) (Adams 2014; Gavrilchuk & Lesage 2014). There are 20 significant discovery licences but there is no current exploration or development activity at this time. New sources of oil and gas (especially through fracking) have recently taken some of the emphasis off exploring or developing oil and gas in more costly and difficult environments such as the Arctic. A recent analysis commissioned by WWF (Adams 2014) suggests that if there is oil and gas development in the area, it will not come for decades. This allows time for planning of any potential development. Existing and potential shipping lanes have been mapped in the Archipelago region. Now is the time to designate this marine region for protection to balance new uses and ensure responsible shipping practices and mitigate impacts on known and yet to be known marine species and habitats.

While it is possible to make recommendations based on known and existing ecological and cultural values in this region, it is difficult to ensure that all of these values are adequately captured given the paucity of information about the ecology and species use of multi-year ice habitat. Neither scientific knowledge nor traditional ecological knowledge has been able to fill in the gaps our understanding about the sea ice and waters of the Arctic Archipelago (Inuit_Circumpolar_Council_Canada 2013). It is best to take a precautionary approach, and as recommended in the Arctic Biodiversity Assessment of the Arctic Council's working group on Conservation of Arctic Flora and Fauna:

“Develop and implement mechanisms that best safeguard Arctic biodiversity under changing environmental conditions, such as loss of sea ice, glaciers and permafrost.

- a) Safeguard areas in the northern parts of the Arctic where high Arctic species have a relatively greater chance to survive for climatic or geographical reasons, such as certain islands and mountainous areas, which can act as a refuge for unique biodiversity.
- b) Maintain functional connectivity within and between protected areas in order to protect ecosystem resilience and facilitate adaptation to climate change.”

WWF agrees with the Protecting and Sustaining Environment (PSE) designations for the PSE-R1 (Key Bird Habitat Sites) and PSE-R2 (Historic Peary caribou calving and migration routes) that have been applied in the Archipelago region. But the recommendation for the PSE designation should be strong and require that project proposals “must” take into account impacts on birds and caribou.

WWF agrees with the Building Healthy Communities (BHC) recommendations BHC-R2 (traditional lands) and BHC-R4 (Eureka) in the Archipelago region. In particular the BHC-R2 designation recognizes the historic and current importance of sea ice and marine ecosystems to Inuit culture, traditions transportation, and community health.

WWF-Canada Submission to the Draft Nunavut Land Use Plan

WWF agrees with the Encouraging Sustainable Economic Development (ESED) recommendations ESED-R1 (potential fisheries) in Jones Sound but does not agree with the ESED-R1 (potential fisheries) in Greely Fiord and Archer Fiord of the Archipelago region. The ESED-R1 areas in Jones Sound present an important opportunity for Grise Fiord to develop a local, sustainable fishing industry. But the ESED-R1 areas in Greely and Archer Fiords should be revisited. Arctic char at extreme latitudes do not grow as quickly and are not as productive as stocks further south. It is possible that a fishery there could easily deplete the stocks if exploited.

WWF agrees with the Encouraging Sustainable Economic Development (ESED) designation for the oil and gas significant discovery licences. These licences are located primarily on land, as such, significantly reduce the development and operational risks to the marine environment and when appropriate mitigation measures are in place to limit the impacts to the terrestrial environment. But it is essential that appropriate measures are taken to protect the marine environment, as there will be considerable shipping activity associated with the development and operation of any of these licences.

WWF does not agree that all of the marine waters of the Archipelago should be designated Mixed Use. Mixed Use permits all uses and does not identify the important wildlife habitat that is present in the Archipelago. WWF feels that it is critical to take a more precautionary approach by identifying and designating important habitat now, before development pressures intensify.

The Arctic Archipelago is region rich with natural capital: the sea ice ecosystem, wildlife and non-renewable resources (oil and gas). The Nunavut Land Use Plan must recognize the uniqueness, sensitivity and global importance of the Archipelago and through land use zoning set the course for responsible, sustainable development in the High Arctic. This will be in the long term interest of Nunavummiut and Canadians alike.

Considered Information

From the NLUP:

- NLCA s11.3.2 *“The purpose of a land use plan shall be to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, taking into account the interests of all Canadians, and to protect, and where necessary, to restore the environmental integrity of the Nunavut Settlement Area.”*
- Purpose of NU land use plan
 - *“A network of Parks and Conservation Areas protects sensitive habitat and important areas”.*
 - *“The integrity of the natural environment is preserved and the disruption of ecosystems has been avoided.”*

NU plan Commission's Policy (p. 16)

- *Respect and consider ‘natural capital’ sites (sites of ecological significance) that are not officially protected, such as: polynya, key migratory bird sites, Ramsar sites, critical habitat that has been identified but not yet declared; and maintains the ecological integrity of Parks and Conservation Areas*

WWF-Canada Submission to the Draft Nunavut Land Use Plan

- *Provide direction as appropriate, through zoning or terms to conserve, manage and protect natural capital*

Plan Objective (p. 16)

- *Identify and provide protection for the natural environment, areas of biological importance,through the establishment of land use zones and terms, outside of formal legislative processes, to protect or where necessary restore the environmental integrity of the NSA*
- Marine ecosystems are natural capital and need to be protected for the long term.
- Inuit value marine ecosystems as they rely upon marine mammals, fish, sea birds and invertebrates for cultural, food-security and economic benefits.
- Shipping is a potential stress and threat to marine ecosystems but it can be mitigated and managed if appropriate land use zoning designations are applied.
- The Nunavut Land Claims Agreement requires a land use plan to take into account environmental considerations, including wildlife habitat.

Options for Sea Ice Habitat of the Canadian Arctic Archipelago

Option 1. Assign a designation that permits tourism, recreation and research and prohibits all other uses. Research limited to studies that directly address wildlife or ecological issues. Mineral exploration, commercial development and production projects are prohibited.

Option 2. Assign a designation that permits all activities but with seasonal geographic restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on wildlife, sea ice habitat, and landscape values that must be considered outside of the seasonal restrictions.

Option 3. Assign a designation that permits all activities. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on the wildlife and landscape values must be considered outside of the seasonal restrictions.

Recommended Option for Sea Ice Habitat of the Arctic Archipelago

Option 2 is recommended as it supports the Goal of Protecting and Sustaining the Environment:

“Assign a designation that permits all activities but with seasonal geographic restrictions. For conforming and approved project proposals, provide a recommendation to regulators and proponents to consider potential impacts on wildlife and landscape values that must be considered outside of the seasonal restrictions.”

This option requires future research in the Arctic Archipelago to understand the multi-year sea ice ecosystems and prepare for future new activities. In particular, to develop appropriate mitigative measures for this High Arctic region, including seasonal and other restrictions.

In light of the knowledge gaps that exist, a precautionary approach is required to ensure future options remain open. WWF strongly recommends that the research be undertaken in the near future and that scientific and traditional knowledge is collected. Furthermore, a precautionary approach helps to identify knowledge gaps and generate a shared incentive to address the gaps, since it holds out the possibility of relaxing restrictions once the area is better understood.

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WWF-Canada Submission to the Draft Nunavut Land Use Plan

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Figure 1. Map of the projected location of summer sea ice (Last Ice Area) in 2040.

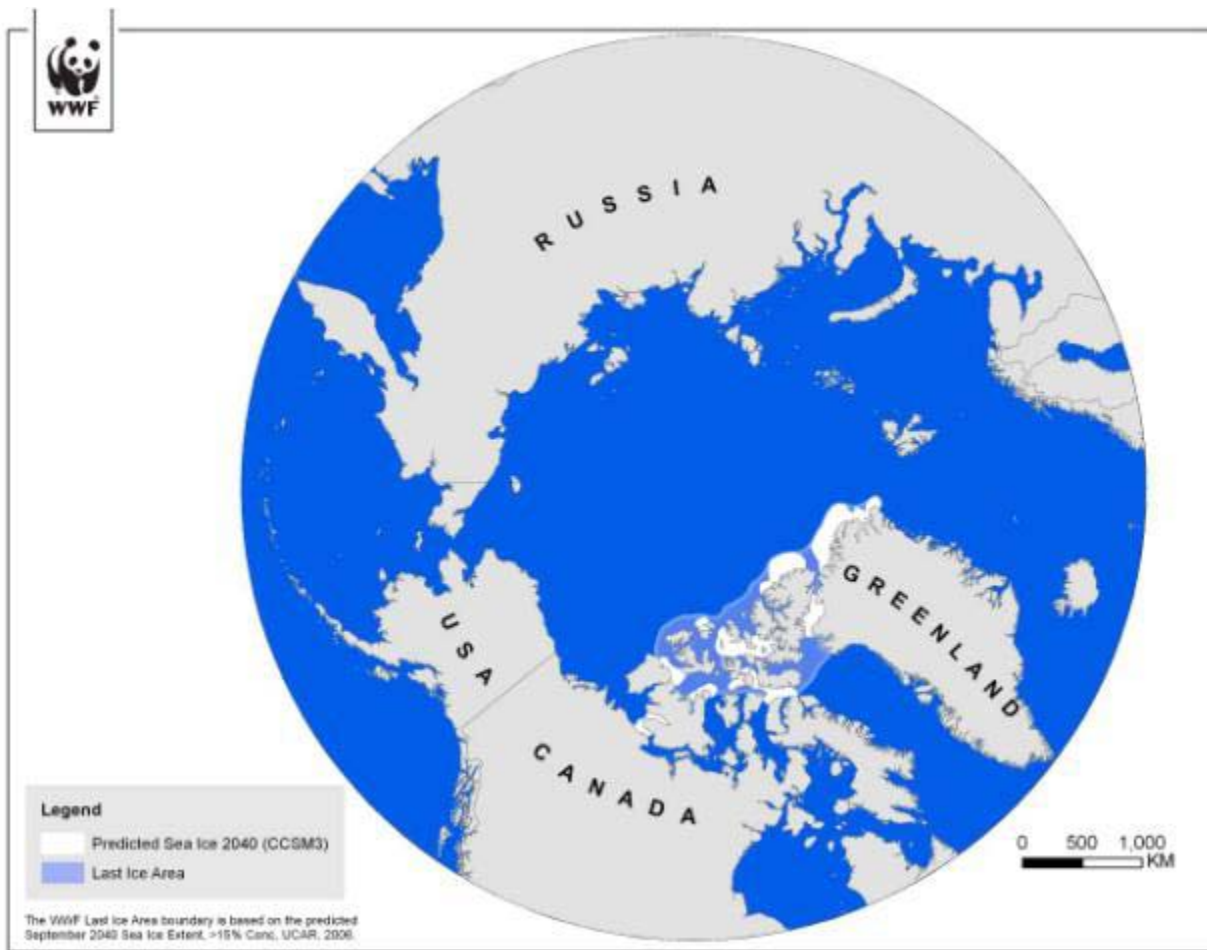


Figure 2. Map of Ecologically and Biologically Sensitive Areas in the Arctic Archipelago

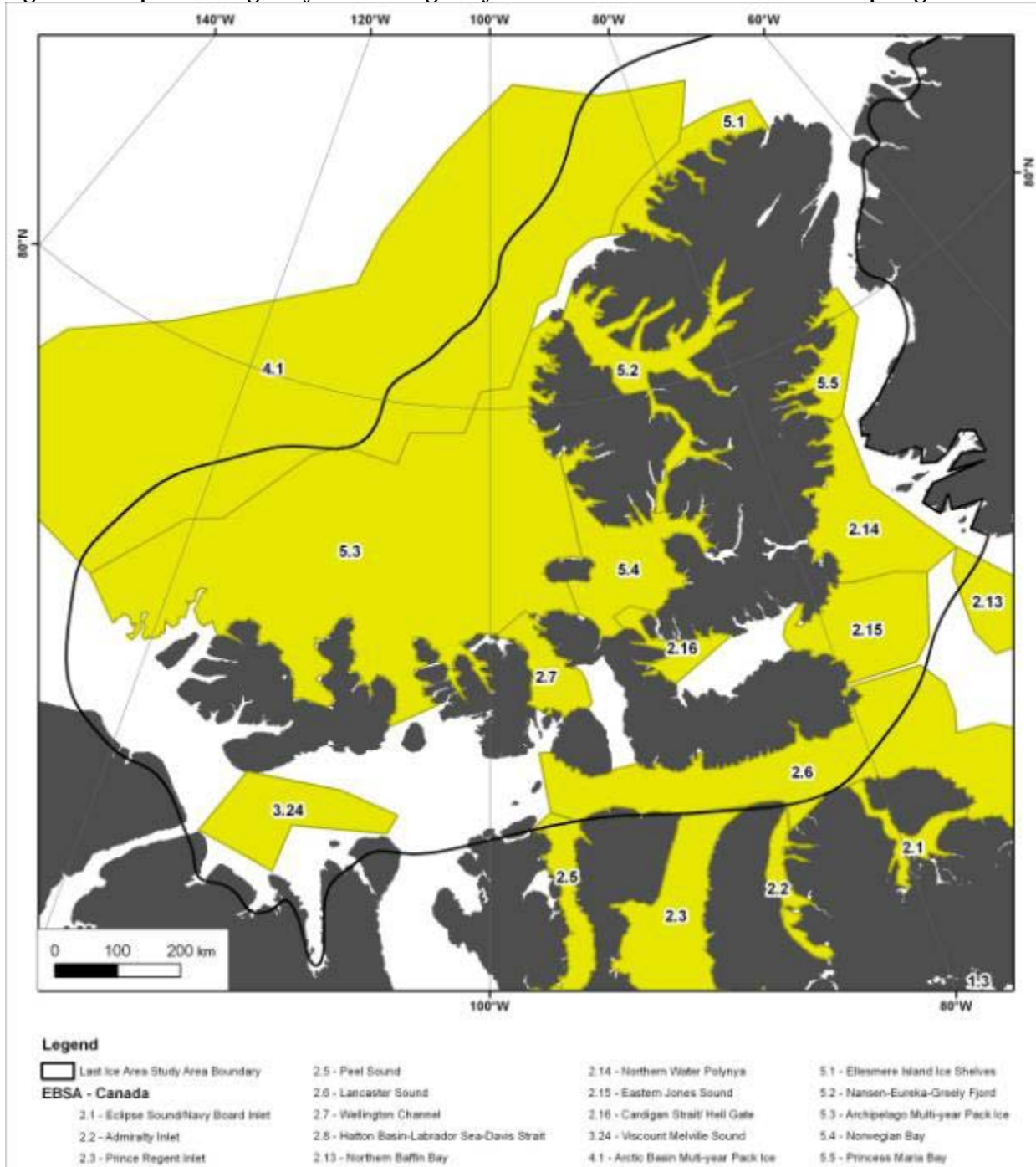


Figure 3. From Adams (2014) Map of Hydrocarbon Potential in the Arctic Archipelago

