

## General comments

Environment and Climate Change Canada (ECCC) commends the Nunavut Department of Environment for its ongoing commitment and significant effort to develop a polar bear management plan for the territory. The comments provided below are intended to be constructive and to clarify some sections. Overall, ECCC supports the Nunavut Polar Bear Co-Management Plan and looks forward to its successful implementation.

While it is recognized that the Plan has evolved and been improved significantly since the last iteration, our review identified three priority topics for suggested further revision. These topics warrant further attention with the aim to improve Canada's ability to communicate a stewardship message and demonstrate a commitment to responsible management both domestically and internationally. Specifically: (1) clarifying the goal and conservation objectives of the Plan, (2) addressing the observed and projected impacts of climate change on polar bear subpopulations more equitably, and (3) restructuring the document to separate threats to the population from challenges in implementing the Plan.

### ***(1) Goal and conservation objectives of the Plan***

The Introduction to the Plan casts the polar bear in Nunavut as a species for which the primary concern is population maintenance or reduction in response to public safety concerns and damage to the ecosystem. This characterization is inconsistent with the federal listing of the polar bear as a species of Special Concern in Canada and at various levels of at-risk in several of Canada's provinces and territories. While polar bears are not listed as an at-risk species in Nunavut and stakeholders in Nunavut may not be in uniform agreement about the threats identified in the National Polar Bear Conservation Strategy for Canada (2011), it is nonetheless important that the Co-Management Plan demonstrate an appreciation and understanding of these threats and willingness to take management action should it be deemed necessary by Nunavut wildlife management authorities. The conservation goal stated in Section 3 of the Plan: "To maintain viable and healthy polar bear subpopulations for current and future generations, and to ensure that polar bears remain an integrated and functioning part of the ecosystem while monitored and appropriate harvests are allowed" is appropriate. However the Introduction should highlight the program that is in place to monitor polar bear status and trends and assure interested parties that appropriate management actions will be taken if significant declines occur.

### ***(2) Climate change***

The issue described above is particularly pertinent with respect to ongoing climate change in the North and, in particular, its impacts with respect to projected declines in sea ice coverage. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommendation that Canada list the polar bear as a species of Special Concern was based primarily on projected sea ice decline and the potential impact that longer ice-free seasons could have on polar bear foraging ecology and population viability. A key consideration is that the projected declines in sea ice coverage go well beyond what has been observed by both Inuit living in the North and scientists and, thus a precautionary approach to management is advised. It is ECCC's view that a management plan that does not seriously consider the potential negative impacts of climate change on polar bears over both the short- and long-term does not demonstrate due diligence with respect to threat identification and mitigation.

### ***(3) Threats and challenges***

As suggested in ECCC's previous review of Nunavut's Polar Bear Co-Management Plan, it is recommended that the description and assessment of threats be separate from the challenges. Threats are defined as the proximate activities or processes that have caused, or may cause in the future the destruction, degradation, and/or impairment of the species being assessed. Naturally limiting factors such as aging or disease are not normally considered threats unless they are altered by human activity. Thus, issues such as habitat alteration from climate changes or disturbances from shipping qualify as threats. In contrast, challenges that complicate the implementation of management actions, such overlapping jurisdictional responsibilities, are not in and of themselves threats. Managing threats is best accomplished when they are classified, ranked, and specific management actions are identified for each threat to mitigate or alleviate its impact. ECCC's suggestion is to divide Section 7 into separate sections for "Threats" and "Management Challenges" and for greater attention to be paid to threat assessment and prioritization.

## Detailed comments

Reference	Comment
Recurring	<p>It would be preferable if citations were included in the text. This is particularly relevant in situations when factual scientific or <i>IQ</i> information is presented.</p> <p>Change to Environment <u>and Climate Change</u> Canada throughout document</p> <p>Change Parks Canada to <u>Parks Canada Agency</u></p>
p. 2, Executive Summary	<p>The Executive Summary describes key procedural and administrative elements of the management plan (i.e., it was cooperatively developed, it is intended to replace the MOUs that have directed management efforts to date, and it emphasizes the central role that <i>IQ</i> plays alongside science in decision making). However, the Executive Summary does not describe key biological and legislative considerations. This information should be included.</p> <p>For example, in the <i>Inuvialuit Settlement Region Polar Bear Joint Management Plan</i> the summary includes paragraphs describing the relevant federal and NWT at-risk listing designations for polar bear that led to the plan being developed, the conservation goal in the ISR (long-term population persistence while maintaining traditional Inuvialuit use), and the principle threats and challenges facing the species (detrimental human activities, climate change). Similarly, the <i>Recovery Strategy for Polar Bear (Ursus maritimus) in Ontario</i> includes an overview of the species distribution and its status in the province, critical habitats for protection (maternal denning sites, spring feeding areas and fall staging areas), and an overview of the main threats and challenges as identified by Ontario (climate change, mortality from negative human-bear interactions).</p>
p. 6, Introduction	<p>It would be beneficial to include an explanation as to why this plan has been developed and Nunavut's key role in global polar bear management and conservation. With respect to the former, a federal management plan became legally required upon designation of the polar bear as a species of Special Concern in 2011. Recognizing that the provinces and territories have the primary responsibility for management of polar bears, there was agreement that the national plan would include a compendium of regional/jurisdictional plans. With respect to Nunavut's role in polar bear management, the territory is home to 12 of the world's 19 subpopulations representing more than half the world's polar bears and, therefore, management actions taken by Nunavut are of paramount importance for ensuring long-term persistence of</p>

	<p>the species.</p> <p>Although the rationale for why the polar bear has not been listed as an at-risk species under the <i>Nunavut Wildlife Act</i> is clearly explained in the document, it would strengthen Canada's ability to communicate a stewardship message to domestic and international audiences if the document was to strike a more judicious tone with respect to the conservation concerns that are commonly advanced for polar bear. While stakeholders in Nunavut may not be in complete agreement about the level of risk to polar bear population viability posed by climate change and other threats listed in the <i>National Polar Bear Conservation Strategy for Canada</i> (2011), it is in the national interest that Nunavut's Plan acknowledges these concerns, articulates an understanding of their basis, and makes it clear that Nunavut would respond with appropriate management actions should specific actions be deemed necessary.</p> <p>Finally, a major point of emphasis in the Introduction is public safety and the potential for negative impacts of polar bears on the ecosystem. While public safety is certainly a valid and important concern, there is little scientific support for negative ecosystem effects. The text should be counter-balanced by mention of population objectives and a goal of ensuring that subpopulations neither increase above nor decline below agreed upon targets for population size. As written, considerable detail is omitted with respect to the reasons human-bear conflict is on the rise (i.e., it is a potential by-product of sea ice decline and human population expansion), the effectiveness of deterrence programs, and the implications that a population reduction program would have on harvest quotas (i.e., if the goal is to maintain bear numbers at a lower overall abundance then the annual total allowable harvest level would also need to be adjusted downward once the desired lower abundance was achieved).</p>
p. 7, Introduction para. 3 and 4	<p>A point of clarification with respect to how the current system of polar bear harvest management came into effect: it was the international community that raised alarm about the non-selective and unregulated harvest of polar bears in the 1950s and 1960s. This facilitated an international meeting in 1965 that eventually led to the 1973 <i>Agreement on the Conservation of Polar Bears</i>. It was during the drafting of the language of the Agreement that Canada developed a quota system in order to meet its commitments upon signing of the Agreement. The Nunavut MOUs came about much later.</p>
p. 7, Introduction para. 4	<p>With respect to the five polar bear range states: technically the 1973 Agreement was signed by Denmark because Greenland had not yet been granted control of its natural resources.</p>

p. 8, Section 3	Suggest adding a footnote that provides a definition of what a viable and healthy population is considered to be.
p. 8., Section 4	Suggest adding the CITES status under 4.1
p. 9, Section 4.3.1, para. 1	<p>Suggest modifying to state 14 subpopulations are in Canada, including the Arctic Basin. This is the approach being taken by COSEWIC and the Environment and Climate Change Canada and we should ensure consistency among the different parts of the National Management Plan where possible.</p> <p>In the last sentence, suggest adding the approximate percentage of Canada's polar bears that occur in Nunavut.</p>
p. 9, Section 4.3.1, para. 2	Suggest specifically naming the eight subpopulations that are shared by Nunavut and other jurisdictions, and the four subpopulations that only occur in Nunavut.
p. 9, Section 4.3.1, para. 3	Globally, all polar bears are divided into 19 "subpopulations", 13 (excluding bears of the Arctic Basin) of which are in Canada <u>and/or shared between Canada and Greenland or the United States</u> .
Figure 1	<p>Suggest shading the entire Nunavut Settlement Area so that it is clear to see that the Belcher Islands are part of NU.</p> <p>Suggest that map may need to be updated to show the new southern boundary of the Davis Strait subpopulation, as agreed upon by PBAC members at the PBAC F2F meeting that occurred in May 2018.</p>
p. 11, Section 4.4.3 Diet	Suggest a more detailed summary of scientific findings regarding the use of terrestrial prey items and the extent to which marine mammal versus other prey items contribute to polar bear condition. The scientific literature on this topic is clear and indicates that seals are the single-most critical component of polar bear diets; eggs, berries, and seaweed do not contribute significantly on a population level.
p. 12, Section 5.1	The abbreviations 'DOE', 'RWO' and 'HTO' are not defined until section 5.3. Suggest defining them the first time they are used, in section 5.1.
p. 12, Section 5.2	Please clarify: "Management in Nunavut has focused on sustainable harvest using population estimates derived from scientific studies <u>and IQ</u> ." or is the point that the author is trying to make that in the past decisions were made

	on the basis of science alone and only recently has IQ also been considered.
p. 13, Section 5.2 The Nunavut perspective	Suggest explaining that the statuses of each polar bear subpopulation is determined by the PBTC and briefly explaining what the PBTC is. A brief explanation of PBAC would be beneficial as well.
p. 13, Section 5.3	<u>Agreement on the Conservation of Polar Bears</u> <b>not</b> International Agreement on the Conservation of Polar Bears
p. 13, Section 5.3 Legislative frameworks and agreements	Suggest modifying the second sentence of fourth paragraph to read ‘While there are no associated effects on Inuit harvest or management actions as a result of this listing, a national management plan must be developed....’  Suggest modifying the third sentence of the fourth paragraph to read ‘This Nunavut-based management plan will be adopted in whole as a part of the national polar bear management plan.’
p. 14, Section 5.3	<u>Davis Strait</u> <b>not</b> Davis Straits
p. 14, Section 5.3	<u>The Canada-US Agreement is limited to the Southern Beaufort</u> subpopulation <b>not</b> polar bears in general
p. 14, Polar Bear Co-Management, Section 6	This section does not identify the roles for other provinces, other co-management boards, or other countries. These relationships influence management decisions (particularly harvest) in most subpopulations. Additional text would be useful with respect to how harvesting rights in other jurisdictions are considered in Nunavut management planning (and vice versa).
p. 15, Section 6.5	Suggest stating that the Government of Nunavut also works with the Government of Canada (Environment and Climate Change Canada) and the Government of Greenland to manage and conserve polar bears in the shared Kane Basin and Baffin Bay polar bear subpopulations.
p. 15, Section 6.6	the Convention on International Trade in Endangered Species <u>of Wild Fauna and Flora</u> (CITES)
p. 15, Section 6.6	With respect to international agreements: note also that polar bear are listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS). While Canada is not a signatory, ECCC may be involved in

	meetings and discussions to ensure that Canada's management of polar bears is well represented.
p. 16, Section 7	<p>Given the threats and their recognized and/or potential impacts on the species further rationale should be offered as to how a management system that permits hunting (and in some cases may seek to reduce population size via a managed hunt) is compatible with conservation goals. One useful source of information to consult would be <i>the United States Fish and Wildlife Service Polar Bear Conservation Management Plan</i>, Section E (The compatibility of harvest with conservation and recovery) and Appendix C (Population Dynamics and Harvest Management). The USFWS document makes a strong argument that polar bears can be harvested even if they are vulnerable to population decline or known to be in decline so long as adequate monitoring occurs and certain conditions are met with respect to harvest management practices.</p>
p. 16, Section 7	<p>As suggested in the previous review of Nunavut's Polar Bear Co-Management Plan by ECCC, for the Plan to be of optimal utility as a component of a federal management plan "Threats" should be distinguished from "Challenges". Threats are defined as the proximate activities or processes that have caused, are causing, or may cause in the future the destruction, degradation, and/or impairment of the species being assessed in the area of interest. Thus, issues such as habitat alteration from climate change or disturbances from shipping qualify as threats, whereas issues such as population boundaries and trade are challenges to implementation, but are not in and of themselves threats. Managing threats is best accomplished when they are classified, ranked, and specific management actions are identified to mitigate or alleviate their impact.</p> <p>ECCC's suggestion is to divide Section 7 into separate sections for "Threats" and "Management Challenges" and for greater attention to be paid to threat assessment and prioritization.</p> <p>It is currently not clear whether the threats listed in section 7 are listed in any particular order (i.e. highest concern threat to least concern threat). Even if they are not listed in any particular order, suggest stating this.</p>
p. 16, Section 7.4.1	<p>Climate change is downplayed as a conservation threat. In the Nunavut Plan it is sub-bullet under the 4<sup>th</sup> ranked threat (habitat alteration), whereas in other assessments (IUCN Red List, National Polar Bear Conservation Strategy for Canada, Ontario Recovery Plan, ISR Joint Management Plan) climate</p>

	<p>change/sea ice loss is ranked as the top threat.</p> <p>Suggest making a more robust review of the scientific literature on this topic to demonstrate that the risks are well understood.</p> <p>The statement “Although there is growing scientific evidence linking the impacts of climate change to reduced body condition of bears and projections of population declines, no declines have currently been attributed to climate change” is not in alignment with scientific evidence. See for example:</p> <p>Regehr, E.V., Lunn, N.J., Amstrup, S.C. and Stirling, I. 2007. Effects of earlier sea ice breakup on survival and population size of polar bears in western Hudson Bay. <i>Journal of Wildlife Management</i> 71:2673-2683.</p> <p>Lunn, N.J., Servanty, S., Regehr, E.V., Converse, S.J., Richardson, E. and Stirling, I. 2016. Demography of an apex predator at the edge of its range – impacts of changing sea ice on polar bears in Hudson Bay. <i>Ecological Applications</i> 26:1302-1320.</p>
p. 18, Section 7.5, Population boundaries	<p>Population <u>B</u>oundaries, not Population boundaries. Consistent use of capital letters should be checked in section headings throughout the document.</p> <p>Section number is 7.5 repeated two sections in a row.</p>
p. 19, Section 7.5, Population boundaries	<p>The scientific view is that bears do not routinely travel across different geographic regions of the Canadian Arctic (this is amply demonstrated by genetic data, telemetry data, and harvest recovery data). Rather the scientific information serves as a quantitative basis for delineating management units considering the frequency with which long-distance dispersal events occur.</p>
p. 19, Section 7.5, Polar Bears and People	<p>It is worth noting that the Government of Nunavut has an effective deterrence program in place to reduce human-bear conflicts.</p>
p. 19, Section 7.5, Polar Bears and People	<p>Suggest providing a citation or description of the source(s) of information for the statement that it is recognized in many areas across Nunavut that there are more bears now than 40 or 50 years ago.</p>
p. 21, Section 8.1.1, Harvest Management	<p>The description of harvest management is very well described. In the <i>National Polar Bear Conservation Strategy for Canada</i> (2011) harvest above quotas is listed as a potential threat. This is a management success and it may be useful to include harvest above quota as a potential threat in this management plan.</p>



	<p>The information provided in this section would then demonstrate that Nunavut takes the threat seriously and has taken appropriate management actions to ensure harvest is sustainable and remains so in the future.</p> <p>Small points/questions:</p> <p>Unused TAH credits are zeroed when a new population estimate is generated?</p> <p>Provisions exist that allow Elders to harvest a cub if a permit is issued in advance?</p> <p>Suggest referring to 'sport hunts' as 'guided hunts' instead.</p> <p>In paragraph 3, missing the word 'to' in front of 'population dynamics'.</p> <p>In bullet point #3, missing the word 'bear' between 'polar' and 'that'.</p>
p. 24, Section 8.2.1, Gaining Knowledge	While some data can be collected through hunters not all of the information required for effective management can be obtained this way.
p. 26. Section 8.3	Suggest changing bullet: Improve monitoring for contaminants <u>and disease</u> in order to respond to potential health concerns resulting from consumption
p. 27, Section 8.4 People and Bears	The Government of Nunavut has important programs in place to minimize the occurrence of human-bear conflict, such as the Wildlife Damage Prevention Program and the Wildlife Damage Compensation Program. As it is currently written, the Nunavut Polar Bear Co-Management Plan does not give a lot of emphasis to these programs. As the 'Management Plan Objectives' section of the co-management plan introduces objectives aimed at reducing bear-human conflict and reducing injury/mortality, it would be beneficial to add language to this section that further elaborates on the Government of Nunavut's human-bear conflict mitigation programs, and identifies community-level human-bear conflict mitigation plans as a best practice.
p. 28, Section 8.5.2	<p>Clarify issues on which efforts for co-management across jurisdictions are ongoing and where new initiatives are required.</p> <p>Suggest explaining that the Canada-Greenland MoU includes Nunavut as well, as the way that this is currently worded suggests that Nunavut is not currently involved in this MoU.</p>

p. 29. Section 9	The goal as described in the implementation section has departed from the goal as described earlier in the plan and particularly in relation to the goal as stated in Section 3.
p. 29, Section 9	No changes to existing TAH <u>or non-quota limitations such as sex selective</u> harvest will occur until new information becomes available,...
p. 30-32. Section 9 – Implementation tables	<p>The information included in the tables is very useful. They could be improved by also including specific actions, timelines, and potentially financial implications for the involved parties.</p> <p>Suggest the action: Develop a training program for Inuit in communities to establish an Inuit data collection program... be elevated to high priority</p> <p>Moderate and medium are used interchangeably. Suggest choosing one term for consistency.</p> <p>The tables in section 9 are very useful. Suggest also including a column identifying which co-management partner will be responsible for taking the lead on each of these management actions.</p>
p. 31, Section 9.3	Many of the actions included under Environmental stewardship are in alignment with the objectives of the Circumpolar Action Plan. It would be helpful to mention that the data and information collected in Nunavut feeds into international agreements.
p. 31, Section 9.4	Suggest that the Management Action 'Develop, adopt and implement community bear management plans and community human-bear-interaction protocols' should be 'High' priority. Currently classified as 'Moderate'.
Appendix A	<p>Question the value of including the PBTC status table in the management plan given the fact that they are updated every year and will quickly be outdated. Suggest that a reference and web link could be provided to direct readers to their content.</p> <p>There is an unnecessary space between the 'PB' and 'TC' on the second paragraph.</p>
Appendix B	Status assessments should be reviewed and updated for many of the subpopulations. Clarifications are also required for some items. These include:

	<p>Baffin Bay and Kane Bay– update with new information</p> <p>Davis Strait, Foxe Basin, Southern Hudson Bay – the Nunavik TAH is not a quota, is this number based upon recent harvest levels</p> <p>Northern Beaufort Sea – the number being used in the plan is not the same number being used in the ISR. This highlights the issue of how Nunavut will manage if there are different management objectives among neighboring jurisdictions that harvest the same subpopulation.</p> <p>Southern Hudson Bay – update with new information</p>
Appendix C, and D	<p>Suggest starting each appendix on a new page.</p> <p>Appendix C does not have a title.</p>
Appendix E	<p>Suggest including literature reviewed with the main body of the document and not in a separate Appendix.</p> <p>Left margin should be corrected.</p>