NUNAVUT WILDLIFE MANAGEMENT BOARD

BAFFIN BAY POLAR BEAR POPULATION

TOTAL ALLOWABLE HARVEST

RECORD OF DECISION

9th SEPTEMBER 2008

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PURPOSE

The purpose of this document is to present a written record of the Nunavut Wildlife Management Board decision on the Ministerial Management Initiative regarding the adjustment of total allowable harvest for the Baffin Bay polar bear population. It provides enough contextual information for the reader to understand the reasons for the decision. The intended audience is persons who have an interest in this issue but are not completely familiar with all its aspects.

1. INTRODUCTION

On 22-23 April 2008, the Nunavut Wildlife Management Board (NWMB or Board) held a public hearing to consider an adjustment to the Total Allowable Harvest (TAH) for the Baffin Bay (BB) polar bear population. The hearing was held in response to a Ministerial Management Initiative (S.5.3.25 NLCA), which was brought before the board because of a conservation concern resulting from new information in the form of harvest records from Greenland, indicating that this population is estimated to have declined from 2100 to 1500 in the period between 1997 and 2004. Parties to the NWMB hearing were requested to file all pertinent information by no later than 5:00 P.M., April 11th 2008. Interventions were made by Nunavut Tunngavik Incorporated (NTI), Nunavut Department of the Environment (GN-DOE), Clyde River Hunters and Trappers Organization (HTO) and the World Wildlife Fund-Canada (WWF). Late written submissions by Mittimatalik HTO, Nattivak HTO and the Qikiqtaaluk Wildlife Board[1] (QWB) were accepted by the Board at the public hearing. The Board also allowed an additional submission from Dr. Lee of NTI and in response to comments from the NWMB's Director of Wildlife – a revised version of the GN-DoE statistical analyses submitted in support of the conservation concern for the BB population. These late and additional written submissions were given a time-period for responses but no written responses were received by the NWMB from the other parties (refer to App. 6).

This record of decision is intended to:

- Briefly describe the mandates of the key organizations that were involved in the process;
- List the principles that guided the NWMB decision;
- Clearly define the issue that was addressed;
- Provide a brief summary of recent polar bear management decisions in the Baffin Bay populations and the events leading to the NWMB hearing;
- Summarize the information which was put before the NWMB including key points of agreement between parties.
- Briefly evaluate the management options presented by GN-DOE; and
- Present the Board's decision and reasons for the decision.

[1] Although the NWMB accepted the request by QWB for a late written submission, no written submission was actually filed by QWB.

2. ORGANIZATIONS INVOLVED

2.1. Nunavut Wildlife Management Board

The NWMB was created by the Nunavut Land Claims Agreement (NLCA or Claim). It is the Board's mandate to ensure the protection and wise use of wildlife and wildlife habitat for the continued benefit of Inuit and other residents of Nunavut and Canada. The Board is the main regulator of access to wildlife in the Nunavut Settlement Area (NSA), however the final responsibility for wildlife management is that of Government.

The NWMB is the decision making body of the wildlife co-management system in place in Nunavut. The Board is primarily concerned with issues that will limit Inuit rights to harvest in the NSA. These limits often take the form of quotas, closed seasons, or restrictions on harvest methods. The main partners in this system of co-management include community Hunter and Trapper Organizations (HTOs), three Regional Wildlife Organizations (RWOs), the Department of Fisheries and Oceans (DFO), Environment Canada (EC), Parks Canada (Parks), the Government of Nunavut (GN), and Nunavut Tunngavik Inc. (NTI).

Generally speaking, a co-management partner brings an issue before the Board as an information item for which a decision will be sought in the near future. At the initial presentation Board members may identify concerns or questions with the proposed harvest limitation and sometimes requests more information before a decision is made. In these instances, the NWMB technical staff or the co-management partner will look into Board Members questions and present answers to the board for a decision on the issue.

To meet the requirements of proceedural fairness, some issues, such as adjusting the Baffin Bay polar bear population Total Allowable Harvest (TAH), are dealt with by the Board in a public hearing forum as per S.5.2.26 of the NLCA.

2.2. Government of Nunavut, Department of Environment

The stated mission of the GN-DOE is to ensure and use a balanced approach to wildlife management. This is achieved through application of Inuit Qaujimajangit (IQ), scientific research, planning, monitoring, compliance, and partnerships.

The GN is responsible for the day-to-day management and research in support of polar bear management in Nunavut. They operate the harvest program, which documents the age and sex of harvested bears. These data are incorporated into mark-recapture population estimates that are conducted on a rotating schedule of once per 15-years for each of the 12 polar bear populations occurring in Nunavut. Field efforts for mark-recapture population estimates are conducted by the GN each summer. The GN also communicates with other jurisdictions and agencies involved in polar bear management and research. It was through these communications that they became aware of the

conservation concern with the Baffin Bay population. This concern led to the Ministerial Management Initiative brought before the Board.

2.3. Nunavut Tunngavik Incorporated

NTI's mandate is ensuring "Inuit economic, social, and cultural well-being through the implementation of the NLCA."

NTI's role in this conservation concern has been to ensure that the concerns and knowledge of Inuit hunters in the affected region were heard. NTI has consulted with local hunters and Elders to document their observations of polar bear sighting and distribution trends over time.

2.4. Qikiqtaaluk Wildlife Board

The mandate of the Qikiqtaaluk Wildlife Board generally includes the management of harvesting among HTOs in the region; the regulation of harvesting practices and techniques among the HTOs members in the region, including the use of non-quota limitations; the allocation and enforcement of regional basic needs levels and adjusted basic needs levels among the HTOs in the region; and the assignment, to any or body other than an HTO, of any portion of a regional basic needs level and adjusted basic needs level (NLCA S.5.7.6). The communities that QWB represents will be directly impacted by any adjustment of TAH in the Baffin Bay polar bear population.

2.5. Pond Inlet, Clyde River and Qikiqtarjuaq Hunter and Trappers Organizations (HTO)

The mandate of the three regional HTOs generally includes the management of harvesting among members ; the regulation of harvesting practices and techniques among members; the allocation and enforcement of community basic needs levels and adjusted basic needs levels among members; and the assignment to non-members of any portion of community basic needs levels and adjusted basic needs levels (NLCA S.5.7.3). Any adjustment of the TAH in the Baffin Bay polar bear population will affect these organizations and the members of the communities they represent.

2.6. World Wildlife Fund-Canada

The organization's 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 biological diversity; ensuring that the use of renewable natural resources is sustainable and promoting the reduction of pollution and wasteful consumption." The WWF-Canada uses a variety of approaches to meet their mission statement, particularly field research, policy initiatives, and public education. The WWF-Canada is recognized as one of Canada's leading conservation organizations.

3. **PRINCIPLES GUIDING THE NWMB DECISION**

The NWMB is informed by S.5.1.2 of the NLCA that *"this Article recognizes and reflects the following principles: (g) the wildlife management system and the exercise of Inuit harvesting rights are governed by and subject to the principals of conservation."* Therefore, the NWMB must consider the principals of conservation when deciding on harvest limits. These principals are described in S.5.1.5 of the Claim as:

- *"the maintenance of the natural balance of ecological systems within the Nunavut Settlement Area"*;
- *"the protection of wildlife habitat"*;
- *"the maintenance of vital, healthy, wildlife populations capable of sustaining harvesting needs as defined in this Article"*; and
- *"the restoration and revitalization of depleted populations of wildlife and wildlife habitat."*

The NWMB acknowledges there is often uncertainty regarding the status of wildlife populations. Therefore, following the principals laid out in the Claim, the Board uses the best available information and a precautionary approach when deciding if and how to limit Inuit right to harvest.

4. **THE ISSUE**

The Minister of the Environment for the Government of Nunavut (GN-DOE) has identified a conservation concern with the Baffin Bay polar bear population (BB). To address this concern, the GN brought a Ministerial Management Initiative (S.5.3.25 NLCA) to the NWMB. The Minister requested a decision regarding an adjustment of Total Allowable Harvest (TAH) for this population before the beginning of the 2008/2009 polar bear hunting season on 1 July 2008. On 7 May 2008, the NWMB requested an extension for its decision to allow for the late filing of submissions and new information that was brought forth at the public hearing conducted in Pond Inlet in April 2008. The GN-DOE Minister accepted the request and extended the deadline until 5 September 2008. On 16 June 2008, the NWMB request an additional extension to allow the Board to discuss the decision at its 57th Regular Meeting scheduled for 9-11 September 2008, requesting a deadline for submission of decision on 19 September 2008. The GN-DOE Minister accepted the Board's request for further extension (refer to App. 7-10).

The Minister's request for a decision was prompted by Greenland harvest records indicating that BB polar bear harvest by Greenland was much higher than had been originally thought by GN. Simulations incorporating these harvest figures indicate that the Baffin Bay population has decreased from an estimated 2074 bears in the mid 1990s

to an estimated 1546 bears in 2004 (25% decline). Given this decline, the current level of harvest is deemed unsustainable. In contrast, based on increased bear sightings near communities and outpost camps, some Inuit hunters in the region say the population is increasing in size rather than decreasing.

5. CRONOLOGY OF BAFFIN BAY POLAR BEAR MANAGEMENT

Below is a brief chronology of recent polar bear management decisions and events leading to the NWMB public hearing on BB polar bear TAH;

- Early 1990s – Management plans for individual populations of polar bears in the Nunavut Settlement Area (NSA) were developed through consultations between the Territorial Government and Inuit hunters. Because of the negotiated nature of these plans they are referred to as Memoranda of Understandings (MOUs).

- 1994-1997 – A mark-recapture study was carried out by GN-DOE scientists and other collaborators for the Baffin Bay population from 1994-1997. A population size estimate of 2074 was obtained.

- 2001 – The GN-DOE initiated the process that led to the current (2004) MOUs.

- 2004 March – At NWMB regular meeting 37, on 23-26 March 2004, the GN-DOE reported on the status of the MOUs. At that time the draft was under final review. The draft MOUs called for an increased TAH of 109 bears across Nunavut. The BB TAH was to be increased by 41, from 64 to 105 bears.

- 2004 May – At NWMB regular meeting 38, held on 13 May 2004, the GN-DOE presented the Board with details of the MOUs and asked for their approval. Board members were not comfortable making a decision to increase TAHs based on the information as presented and asked the GN to provide documentation that supported these increases [1].

- 2004 October – At NWMB regular meeting 39 held on 4-7 October, a Ministerial Management Initiative (S.5.3.25 NLCA) asking for a decision on the MOUs was brought before the NWMB. There was uncertainty expressed by some members regarding current population estimates, the manner in which IQ was being represented, and the lack of inter-jurisdictional support at the national and international levels.

  The NWMB passed four resolutions regarding the MOUs. Resolution number three (2004-70) approved the quota increase and number four (2004-71) approved the MOUs with several exceptions.

  The GN-DOE implemented the MOUs with the increased TAHs on the 22nd of December 2004.

- The MOUs – The 2004 Memoranda of Understanding are agreements between HTOs and the GN-DOE regarding management of the 12 polar bear populations occurring in Nunavut. The stated objective of these management agreements are to maintain healthy populations of polar bears while insuring maximum harvest opportunities for the Inuit residents of Nunavut. Built into the MOUs are mechanisms for dealing with declining populations, over-harvest, and harvesting below quota. However, these mechanisms still need to be brought to the NWMB for decision before they can be implemented.

- 2005, Spring – A GN-DOE funded polar bear IQ study was conducted in the 3 communities that harvest from the Baffin Bay population. This IQ study was completed as a response to criticisms that IQ was not documented in the negotiations of the MOUs in the form of a traditional knowledge or IQ report but rather, was only based on verbal consultations.

- 2005 June – The NWMB was informed by the GN-DOE that members of the Federal/Provincial Polar Bear Technical Committee (PBTC) were concerned over increasing polar bear TAHs based on Inuit Qaujimajatuqangit (IQ) alone and that the IQ used was not documented anywhere. The United States Fish and Wildlife Service expressed similar concerns to the Canadian Wildlife Service [**2**, p. 3].

  The International Union on the Conservation of Nature (IUCN) Polar Bear Specialist Group (PBSG) met June 20-24 for its tri-annual meeting. There were lively discussions over the recent change in population estimates and increases in quotas in Nunavut. Simulations using the pooled Canadian and Greenland harvest data since 1997 (when the mark-recapture study estimated a population of 2074 bears), generated a 2004 Baffin Bay population estimate of 1546 bears (IUCN 2006). This estimate suggested a 25% decline of Baffin Bay bear numbers in just 7 years, due to overharvest.

- 2005 November – Consultations with the three communities that harvest from the Baffin Bay population (Qikiqtarjuaq, Pond Inlet, and Clyde River) took place, at which a GN-DOE scientist presented the new Greenland harvest information, and its implications for the Baffin Bay population's viability.

- 2006 January – Prior to 2006, Greenland had no quota limitations on polar bear harvest. Greenland moved to a quota system taking effect from January 1, 2006, with gradually decreasing quotas set for the years 2007-2009.

6. INFORMATION PRESENTED TO THE NWMB

The following observations and information were presented to the Board at the public hearing held in Pond Inlet (22-23 April 2008). Submissions were made by (in chronological order), the Government of Nunavut (GN), Nunavut Tunngavik

Incorporated (NTI), Qikiqtaaluk Wildlife Board (QWB), Pond Inlet Hunter and Trappers Organization, Clyde River Hunter and Trappers Organization, Qikiqtarjuaq Hunter and Trappers Organization and the World Wildlife Fund-Canada (not present at public hearing; written submission). The NWMB also submitted relevant documents for the Board to consider when making a decision. These relevant documents were not brought forth for discussion at the public hearing but were made available in the public hearing binder that was made available to all participants and were also posted on the NWMB website prior to the meeting. The key points of each submission and the relevant documents that the Board had available in making its decision are summarized below.

6.1. Government of Nunavut, Department of Environment

Dr. Lily Peacock, GN-DOE's Polar Bear Biologist, presented the GN-DOE's scientific data on the status of the Baffin Bay polar bear population. Below are key points from her presentation and the questions posed regarding it. At the hearing, NWMB staff requested a revised submission from GN-DOE that included descriptors or statistics that describe the analyses conducted and the significance of relationships obtained. The review of the scientific data submission below applies to the revised submission that the Board received.

- GN-DOE asserted that under current harvest conditions, and using demographic data from Taylor et al. (2005), there is a 100% likelihood of population decline. A 100.0% likelihood of population decline was published in the 14th meeting proceedings of the PBSG [**3**, p. 42 (Table 1)]; however, this did not appear to reflect the coming into effect of Greenland's quota system. Regardless, even with the total harvest allocation less than the annual takes reported in recent years, population decline at current harvest pressure seems certain.

- GN-DOE proposed that there is a relationship between lower mean ice concentrations in Baffin Bay in recent years and poorer body conditions in bears, and speculate that this might have lowered survival and productivity rates from those derived by Taylor et al. (2005) from the 1990s data. (Declines in body condition and reproductive output, correlated with earlier ice breakup, were followed by a decrease in the Western Hudson Bay polar bear population size [**4**], and it was hypothesized that a similar process might be occurring with the Baffin Bay population). If these vital rates parameters are lower than those reported in Taylor et al. (2005), then the severity of the Baffin Bay population decline will likely be greater than that indicated by the current scientific projections, which use parameters obtained from Taylor et al. (2005) study from the 1990s . GN-DOE's analyses clearly showed that over the past 2 decades, while there is a great deal of year-to-year variation in mean annual ice concentration[2], there is also a trend with time: mean annual ice concentration significantly decreased throughout the years 1989-2006 (Appendix 2). However, as of the existing state of their

[2] Annual ice concentration refers to total accumulated ice coverage during a May14-October 15 season (i.e., ice concentration is affected by ice-in and ice-out dates). Ice concentration does not refer to ice thickness. Data are from the Canadian Ice Service (produced by the Ice Graph Tool at http://ice-glaces.ec.gc.ca).

analyses, there is no clear demonstration of a relationship between declining body condition of Baffin Bay polar bears with sea ice concentration, or over time[3]. That does not preclude such a relationship being demonstrated in the future, however, and consensus exists among polar bear experts that changes in arctic environments (including the higher temperatures and erratic weather fluctuations symptomatic of global climate change, and persistent organic pollutants reaching arctic regions), are increasing the uncertainties of polar bear management (IUCN PBSG Proceedings 2006). Undoubtedly, a decreasing annual ice concentration in Baffin Bay increases uncertainties for the BB polar bear population. Dr. Peacock indicated that GN-DOE was trying to start a new program where hunters can measure condition figures from the bears they harvest [**5**, p. 77 (25-26); 78 (1-8)]. Data from this program might help resolve whether the body-condition versus ice coverage relationship is robust for the Baffin Bay population.

- There was a question as to whether a causal relationship is demonstrated with respect to body condition and ice coverage, or whether it is a spurious correlation and GN-DOE was asked specifically if they recorded the amount of time that polar bears are spending on ice [**5**, p. 79 (7-12)]. The response was no; however, GN-DOE pointed out that if the ice wasn't there due to earlier breakup and later freeze-up, then the bears could not be on it to be recorded or measured[**5**, p. 79 (18-25)].

- According to the experiences of two Inuit harvesters (one an Elder, and one an NTI delegate), rather than declining ice concentrations having a negative effect on body condition, thinner ice would have a positive effect on body condition, since bears prefer to hunt through thinner ice [**5**, p. 105 (6-26); 120 (14-19)]. There was no response by GN-DOE to this information.

- Mr. Kuniluisie, an Elder, felt that global warming may be a contributing factor for condition of polar bears, but was not the main contributing factor. He suggested that the population of polar bears is increasing, while the seal population is not [**5**, p. 107 (2-16)]. This might alternatively account for bears in poor condition, and Mr. Kuniluisie considered that it would be a simpler explanation than climate change. As far as scientific information regarding the seal population, Dr.

[3] Although the analyses submitted reported p-values that indicated significant relationships, NWMB staff felt that there were numerous problems with the way these analyses were performed. To begin with, rather than an analysis of the data that is continuous through time, the body condition data had been divided into two time categories: 1990-1994 ("early 1990s") versus 1995-1997 ("late 1990s"). Thus, the "late 1990s" category contained data from 2 years (as there is no data in 1996). These could have been anomalous years due to any number of reasons. Moreover, there is no justification given for having the split between the two groups between 1994 and 1995. For these reasons, it is judged that decline in body condition over time had not been demonstrated in the submission. Additionally, although the submission did not clearly state which statistical tests were performed, from the statistics reported it did not appear that covariates such as age and capture date were factored into an analysis of body condition versus ice concentration, but instead that in many cases these variables (e.g., age, capture date) were driving the significant relationships obtained. There were other problems as well; however the ones mentioned here are sufficient to question that any relationship between body condition and ice concentration had been demonstrated.

Peacock remarked later in the hearing that DFO conducts the studies of seals, and thus DFO would have that information [**5**, p. 121 (18-20)]. A second alternative hypothesis was that population numbers were too high, and when this occurs, body conditions decline; rather than signifying a population experiencing lowered productivity rates and resulting declines in population size, declining body conditions were an indicator that there were now too many bears, as the population size had increased [**5**, p. 143 (21-26); 144 (12)]. In sum, it was not felt that plausible alternative drivers of poor body condition had been considered, and thus it was not accepted that ice coverage (climate change) were driving declines in body condition.

- The hypothesis that the Baffin Bay population might be experiencing lowered productivity in recent years was not supported by some peoples observations on the land, that there are "a lot of bears…with cubs" [**5**, p. 145 (12-13)]; precise numbers of bears and bear tracks with one, two or three cubs observed on particular trips were given by two participants **[5**, p. 145 (9-11); 185 (6-13)]. Inuit harvesters observations indicated that productivity was high.

- GN-DOE has a current research study underway, for which they will be analyzing genetic data to evaluate/corroborate changes in effective population size in Baffin Bay. Trend in population size can be inferred by changes in the amount of genetic diversity within a population. If a decrease in genetic diversity occurs over time, a smaller population can be inferred. If an increase in genetic diversity occurs over time, a larger population can be inferred. Thus, findings from this current genetic study should provide new scientific information as to trend in Baffin Bay population size; however there was no associated time-line for these results. The next population inventory is planned to start in 2014.

- There were a number of questions to Dr. Peacock regarding the fact that the data presented were somewhat dated: the original population size estimate from the mark-recapture study was 10 years old (1997), and the population size estimate from computer simulations using harvest data was from 2004, whereas it is now 2008 [**5**, p. 90 (8-14); 109 (24-26); 114 (21-24); 131 (8-16); 133 (1-4); 154 (11-16); 184 (7-8)]. The GN-DOE had explained earlier that, due to financial constraints, it was not feasible to complete mark-recapture studies with greater frequency than in 15 year intervals **[5**, 88 (16-26)]. Thus the results from the most recent study were from 1997. Secondly, the computer simulations were from 2004 because the scientists considered that "projections of population size 10 years out is not necessarily the best practices" [**5**, p. 96 (11-12)]. Thus, GN-DOE felt that they had information only up until 2004 [**5**, p. 96 (7-14); 166 (5-8)]. Many Inuit participants expressed that they were not confident in the accuracy (or truthfulness) of the information presented, due to its being dated [**5**, p. 108 (16-18); 109 (25-26); 154]. They felt they were being asked to decide on reducing their harvest based on old data [**5**, p. 131 (13-16)]. Also, one participant expressed a desire for "numbers that are based on facts", and perceived that the computer simulation population size estimate was not such a number [**5**, p. 136 (1-2)].

- In an April 30, 2007 letter, the GN Minister of Environment provides a number of options for the Board to review when considering the TAH decision for Baffin Bay polar bears. These options are presented in Section 7.0.

- NTI asked the question of whether a decreased seal population in Baffin Bay could be the reason why the body condition of the polar bears are declining [**5**, p.121 (10-14)]. DOE responded that DFO would be the appropriate party to deal with that question [**5**, p. 121(18-20)].

6.2. Nunavut Tunngavik Incorporated

NTI presented the main points of their written submission, and Dr. Lee provided new information in the form of an oral submission at the public hearing to support the written submission provided. Main points of the submissions are:

- Claims that the historical TAH levels for three communities from the 1970s community-based quota system are: 30 bears, Pond Inlet; 45 bears, Clyde River; 30 bears, Broughton Island[**6**, p. 2]; in order to accomplish conservation purposes, the determination of TAH levels is now based on bear population estimates, and not community allocations. The Baffin Bay communities were among the last to sign the MOU and only did so once the "quotas" were returned to their "historical level" (1970s-1986) of 45 (Clyde River) and 30 (Qikiqtarjuaq). Of note, the TAH previous to the 2004 increase, of 64 bears, was also "historical", at least for Clyde River (TAH of 21 since 1993) and Broughton Island/Qikiqtarjuaq (TAH of 21 since 1993), and thus does not seem to be based on the Baffin Bay population inventory *per se*.

- Raised concerns regarding Greenland's polar bear management system, in particular:
    - the lack of enforcement [**6**, p.2],
    - the *Pinianeq* system as it is voluntary [**6**, p. 2]; and kill is assigned to the municipality in which the hunter lives rather than the location in which the bear was killed. Thus some or perhaps all harvest data from several communities may have been assigned to a population different to that to which it belongs [**5**, p. 242 (10-19)].
    - uncertainty with respect to harvest data due to over-reporting (e.g., other species being reported as polar bears) as well as under-reporting **[5**, p. 241-242 (17-4)] (but see IUCN section – this is not a problem in the region that harvests from Baffin Bay),

- Lack of confidence in the population estimate due to the fact that it is based on modeled simulations rather than recent surveys or Inuit Qaujimajatuqangit (IQ)[**6**, p. 2]; Dr. Lee at the public hearing made the comment that the population

estimate of 1546 has a standard error of plus or minus approximately 400 animals [**5**, p. 254 (19-22)].

- There have been no further inter-jurisdictional polar bear management discussions between Greenland and Canada since August 2007[**6**, p. 2]; it was noted by NTI at the public hearing in a response to an NWMB comment that Bert Dean has contacted the Greenland government but Greenland has yet to respond [**5**, p. 250 (1-4)].

- Expects that the Board will give equal weight to both science and IQ; NTI felt that IQ was not considered in the Western Hudson Bay decision[**6**, p. 4]; NWMB legal advisor Michael D'Eca responded to this statement at the public hearing stating that the Board did consider IQ in its WHB decision (with particular reference to the decision letter) and will continue to give equal respect for both science and IQ. Mr. D'Eca further noted that the weight of a particular piece of IQ or scientific knowledge depends upon how relevant, thorough, reliable and persuasive a particular piece of knowledge is in a specific set of circumstances **[5**, p. 266-271 (20-12)].

- 1986 agreement set a precedent between the Government and HTOs by providing compensation in cases of reduction of quotas [**6**, p. 4]

- Recommends that the GN and affected communities re-open the MOU as per Section 1.11 to allow for consultation and discussion on management concerns; while at the same time engaging in discussions with Greenland regarding management initiatives [**6**, p. 4]; the NWMB does not have any role in the reopening of the MOUs. This would be an initiative on the part of signatories to the agreement (Pond Inlet HTO; Clyde River HTO; Qikiqtarjuaq HTO; GN-DOE), whereas a signatory party would provide notification to the other parties, allow 90 days for a response and then agree on the proposed amendment. Only after all the signatories have agreed to the amendment, shall the amendment be brought to the NWMB to been reviewed and accepted.

- Total Allowable Harvest (TAH) should not be reduced as per section 5.5.1 (set as "Guided Harvest Rate") of the Baffin Bay Memorandum of Understanding [**6**, p. 4]; NTI made the claim at the public hearing that the simulation model that determined the 1546 number does not represent "reliable population inventory information" thereby claiming the TAH to be set as the guided harvest rate [**5**, p. 255 (7-17)]; GN-DOE representative Dr. Lily Peacock stated at the public hearing three key points that she felt were left out regarding the "Guided Harvest Rate": (1) it is based on both scientific and IQ, (2) the population is not to fall below the target number (2074); (3) the probability of increase or decline must be taken into account and (4) it must be consistent with the principles of conservation [**5**, p. 280-281 (19-12)].

- Dr. Lee stated that the RISKMAN simulation modeling tool has limitations and is just a tool [**5**, p. 244 (5)]; this point is further emphasize by NTI in the public hearing stating that it is a "very weak tool" **[5**, p. 313 (3)].

- NWMB legal advisor in response to the MOU's in general stated that the MOU's do not and cannot constrain the NWMB when making its decision [**5**, p. 276 (5-18)].

6.3. Qikiqtaaluk Wildlife Board, Pond Inlet HTO, Clyde River HTO, Qikiqtarjuaq HTO, several Elders from the Baffin Region, and the public

A number of senior representatives of the Qikiqtaaluk Wildlife Board (QWB), the Pond Inlet Hunter and Trappers Organization (HTO), the Clyde River HTO, the Qikiqtarjuaq HTO, as well as several Elders from the Baffin Region, participated in the hearing. Written and oral submissions were provided by all three HTOs but QWB only provided an oral submission. The main concerns of these parties are summarized below[4]:

- Baffin Bay polar bear population is a migratory/moving population; number of bears is determined by ice movements/currents/weather [**5**, p. 39 (11-19); 39 (20-24); 48 (14-16); 105 (2-5); 184 (13-18); 184 (19-24); 185 (1-3); 217 (3-6); **17**, p. 1].

- Increase in polar bear problems compared to past; safety/damage to property/disturbance of meat caches [**5**, p. 42 (16-19); 42-43 (24-5); 45 (15-20); 43 (13-15); 49 (5-9); 49 (19-20); 50 (11-14); 50 (21-24); 155 (11-14); 214 (11-19); **18**, p. 1]; GN-DOE stated at the public hearing that they are in the process of hiring a problem wildlife specialist whose task will be to work with the HTOs and the communities to provide resources and education in deterring polar bears [**5**, p. 86 (8-22)].

- Request for compensation due to reduction in quotas/damage to property[**5**, p. 40 (13-18); 42 (7-10); 347 (23-25); 43 (18-23); 354 (19-21); **7**, p. 1]; DOE stated at the public hearing that it has a $40 000 compensation program in place for the Baffin region, with a maximum of $10 000 allotted per applicant; feel that compensation would be a post-information discussion, meaning that compensation for any TAH reduction may be discussed only after the new TAH has been decided upon **[5**, p. 87 (13-21)].

- Environmental change is leading to a change in polar bear behavior, not a change in population size [**5**, p. 43-44 (26-4)].

[4] References in this section that pertain to the public hearing are the main points that were made at the hearing and are grouped together to form a common theme. It should be noted that even though the best effort was made to include all comments it must be understood that some comments may have been overlooked.

- Drastic increase in population from 1960s to present evidenced by an increase in polar bear sightings/tracks/new occurrences in new locations [**5**, p. 51 (5-9); 51 (15-17); 51-52 (26-1); 52 (5-7); 52 (12-13); 56 (20-26); 57 (12-13); 58 (24-26); 59 (3-5); 59 (20-22); 106 (20-22); 167 (1-7); 204 (19-22); 206 (7-13); 206 (17-21); 214 (11-19); 294 (10-12); 362 (3-9); **18**, p. 1].

- Decline in thickness of ice will make it easier for polar bears to hunt; body condition is not related to ice condition [**5**, p. 105 (8-13); 105 (14-26); 185 (18-23)].

- Population survey needs to be completed sooner and with the assistance of the HTOs / utilization of IQ in survey[**5**, p. 186 (6-10); 363 (1); **7**, p. 1; **8**, p.1; **17**, p. 1; **18**, p. 1]; GN-DOE responded at the public hearing that they would like to do the population survey sooner, but "logistically and financially" it is not possible due to the many populations Nunavut has to manage [**5**, p. 88 (16-26)].

- Expressed concern that the reports/data/evidence are inconclusive; questioned effectiveness of population survey methods and results (i.e., field work for scientific study occurs over a short period of time (e.g., could be only a few days in some years)/intrusive methods); call to defer decision until more information is available [**5**, p. 56 (1-7); 108 (18-19); 162-163 (26-8); 171 (15-26); 172 (1-6); 210 (19-23); 210 (24-26); 216 (19-21); 297 (21-26); 304 (11-14); 304 (15-19); 329 (14-17); **17**, p. 1].

- Polar bear diet has changed[**5**, p. 112 (8-10)].

- Polar bear declining body condition is due to the population being overpopulated and under harvested (i.e., if Inuit do not harvest, animals will become overpopulated and suffer) [**5**, p. 57 (9-11); 107 (4-8); 143-144 (23-2); 144 (4-6); 330 (13-19)].

- More bears seen with cubs **[5**, p. 145 (9-16); 185 (6-9); 185 (10-17); 294 (10-12)].

- Seal populations are changing; polar bears are hunting more seal pups and juveniles which is causing the seal population to decline [**5**, p. 160 (5-70; 361 (9-13); **17**, p. 1].

- Recommend that defense kills come out of a special quota; concern regarding number of kills made by wildlife officers[**8**, p. 1].

6.4. World Wildlife Fund-Canada

The World Wildlife Fund-Canada provided a written submission; the main comments in the submission are summarized below:

- Recommends a highly precautionary approach be taken due to concerns of climate change/reduction in sea ice/industrial development/pollution of environment **[9**, p. 2].

- Supports GN-DOE's Option 4 (moratorium until population increases to target number of 2074; see Section 7.0) [**9**, p. 2]; this option will allow the population to best adapt to climatic changes and allow management of other human pressures but does not recognize Inuit rights to harvest nor the economic or cultural benefits derived and would only be tenable if a moratorium was also enacted in Greenland as well.

- Management/stewardship of Canada's polar bears is not only responsibility of Nunavut and Inuit but also Government of Canada and Canadian public **[9**, p.2].

- Ensure that all articles of 1973 International Agreement on Conservation of Polar Bears and Habitats are met [**9**, p. 2-3].

- Adequate information is not available for most of Canada's polar bear populations[**9**, p. 3].

6.5. Nunavut Wildlife Management Board

The following were provided at the Public Hearing as relevant documents pertaining to the issue by NWMB staff. Although these relevant documents were not orally addressed at the public hearing they still represent the best available information that the Board had at its disposal in making its decision. The major points of the most relevant documents are summarized below:

6.5.1. Agreement on the Conservation of Polar Bears: International Agreement signed by Canada, the United States, Norway, Denmark, and Russia (Soviet Union), 1973.

- Article VII:
  "The Contracting Parties shall conduct national research programmes on polar bears, particularly research relating to the conservation and management of the species. They shall as appropriate coordinate such research with the research carried out by other Parties, consult with other Parties on the management of migrating polar bear populations and exchange information on research and management programs, research results and data on bears taken"[**10**, p. 2-3].

- Canada has made a commitment to consult and exchange information about management of migrating polar bear populations. Nunavut should make a consolidated effort to coordinate research and management efforts relating to the Baffin Bay population with Greenland.

6.5.2. Polar Bear Management Understanding (MOU) between Nativak HTO, Namautaq HTO, Mittimatalik HTO, QWB and DOE for the management of the Baffin Bay polar bear population. March 9, 2005.

- The Baffin Bay TAH was to be increased by 41, from 64 to 105 bears. The 105 number represents the "Guided Harvest Rate", which is to be applied for the last 7 of the 14 years between scientific population inventories, and which is determined by Inuit Qaujimajatuqangit, perception of trend, and probability of increase or decline (MOU). Both Canada and Greenland harvest from the Baffin Bay population. The MOU's 105 TAH for Nunavut communities was arrived at by taking into account an estimated take by Greenland of 18-25 bears per year, which was derived from the 1994-1997 mark-recapture study (Taylor et al. 2005).

- The NWMB formally requested on two occasions from GN-DOE, further information regarding the way in which IQ was used to obtain a specific number of 105 [1, 11]. The responses received both contained the same two sentences: "The HTOs provided the guided harvest rate for their communities based on information from the most experienced polar bear hunters in their community. The HTOs decide how Inuit Qaujimajatuqangit is used to determine the guided harvest rate for their area" [12, 13]. An NWMB briefing note from 2005 observes that for Baffin Bay this procedure entailed an in-camera session, which could be described as "a group discussion among an unspecified number of hunters", and as such is not readily defensible methodology [2]

6.5.3. Status of polar bears in Baffin Bay and Western Hudson Bay. Government of Nunavut PowerPoint presentation to the NWMB at Reg. Meeting #44, 6-8 December 2005, Kugarruk, NU.

- Major Points of BB Community Consultations, Nov. 2005 (Pond Inlet, Clyde River, Broughton Island): 1. More bears seen/more bear problems; 2. Annual variation makes it difficult to discern status and trend; 3. Lack of compensation for bear damage; 4. Lack of understanding among community members of principles of conservation/MOUs/regulations; 5. Rejection of TAH reductions without joint consultations with all affected communities; 6. Current TAH levels are historical entitlement[**14**, p. 10].

- Given Nunavut's TAH for this population, the combined Nunavut-Greenland total harvest allocation was 181 bears in 2006, 178 bears in 2007. A maximum sustainable yield (accepting 20% risk that the population would decline) at the 2074 population size was around 120 bears per year (GN-DOE Briefing Note Nov. 2005, Taylor et al. 2005; Appendix 3). At the (2004) 1546 population size, a maximum sustainable yield (i.e., harvest rate at which the population would not decline below 1546) was around 90 bears per year (GN-DOE PowerPoint Dec. 2005, Greenland's comment to USFWS 2007; Appendix 4). Comparing current

harvest figures with maximum sustainable yield models suggests that despite the new quotas, the population continues to be substantially overharvested.

6.5.4. Inuit Knowledge Baffin Bay polar bears report-Dowsley, M. 2005. Draft Report on Inuit Knowledge regarding climate change and the Baffin Bay polar bear population. Unpublished report presented at the NWMB Regular Meeting #44, 6-8 December 2005, Kugaaruk, NU[5].

- Respondents to the question: Q1 Has the polar bear population increased, decreased or stayed the same over the past 10-15 years?; indicated an increase in population: 100% of respondents in Pond Inlet; 87.5% in Clyde River; 56% Qikiqtarjuaq; 25% of respondents (4 individuals) in Qikiqtarjuaq stated they did not know and 18% (3 individuals) indicated no increase in population**[15**, p. 3-4]. Among-community and within-community differences might be attributable to: (a) a lack of appropriate research participants[6] (i.e., participants could not relate to 10-15 years ago based on limited experience) or (b) the increase in the polar bear population has not been observed in Qikiqtarjuaq to the degree that it has in the two more northern communities.

- Respondents to the question: Q2 In open water season have you seen changes in polar bear behavior such as when they come to shore or what they do once they are on shore?; indicated no change: 47% of respondents in Pond Inlet; 37% in Clyde River; 19% in Qikiqtarjuaq; 53% of respondents (9 individuals) in Pond Inlet and 69% (11 individuals) in Qikiqtarjuaq gave no response to the question [**15**, p. 4-5]. Differences might be attributable to: (a) respondents could not relate to past (lack of appropriate research participants) and (b) misunderstanding of the question.

- Respondents to the question: Q3 Are there more or fewer bears around town now than 10-15 years ago; indicated more bears: 38% of respondents in Pond Inlet; 87.5% in Clyde River; 43% in Qikiqtarjuaq (32% responded there were more bears in the fall, 13% responded more to island (Broughton Island); 57% of respondents (9 individuals) in Pond Inlet and 13% (2 individuals) in Qikiqtarjuaq did not answer the question [**15**, p. 5-6]. Among-community differences might be attributable to (a) more bears are seen in town in Clyde River specifically compared to the other two communities; (b) misunderstanding of the question (in particular phrasing of town not including community/camps)

[5] All percentages used in section 6.5.4 are based on a total number of 16 respondents per community, as this was the highest recorded respondents recorded for a community. The report states that "between 15 and 20 interviews" were conducted in each community but the specific number is not specified in the draft report or what the NWMB recognizes as the final report.

[6] Although not specified in the draft report, the report that the NWMB recognizes as the final report states that research participants were "recruited" through two ways: (1) consultation with the Nunavut Department of Environment and local Inuit organizations and (2) recommendations by earlier participants. It was noted in the final report that the age of participants ranged from late 20's to early 80's, with most over the age of 50 but there is no way to validate this. [9]

- Respondents to the question: Q4 Compared to 15-20 years ago, are there more, fewer or the same number of tracks, bear kills and bears seen when you go hunting, in spring, summer, fall, winter?
    - More in all seasons: 25% of respondents in Pond Inlet; 44% in Clyde River; 25% in Qikiqtarjuaq
    - More in winter: 6% of respondents in Pond Inlet; 6% in Qikiqtarjuaq
    - More in fall: 6% of respondents in Pond Inlet; 25% in Clyde River
    - More in spring: 25% of respondents in Pond Inlet; 19% in Clyde River; 19% in Qikiqtarjuaq
    - More in summer: 6% of respondents in Pond Inlet; 6% in Qikiqtarjuaq
    - Less in winter: 13% of respondents in Qikiqtarjuaq
    - No response: 32% of respondents (5 individuals) in Pond Inlet; 12% (2 individuals) in Clyde River; 32% (5 individuals) in Qikiqtarjuaq [**15**, p. 6-7]

  Overall, hunters from all three communities are seeing more bears, but this is not particular to a set season.

- Respondents to the question: Q5 Is there more, less or the same damage to cabins, meat caches and other equipment?; indicated more damage now than 15 years ago: 68.75% of respondents in Pond Inlet (31% of respondents (5 individuals) did not respond to question); 87% in Clyde River (13% of respondents (2 individuals) did not know or did not respond); 37% in Qikiqtarjuaq (63% of respondents (10 individuals) did not answer the question)[**15**, p. 7-8]. In general there is agreement in Pond Inlet and Clyde River that more damage is happening than 15 years ago. This cannot be determined for Qikiqtarjuaq due to the low number of responses which might be attributable to: (a) lack of appropriate research participants (cannot relate to 15 years ago).

- Respondents to the question: Q6 What is the health of the bears that come to town? and comments on general health of bears. The specific question of whether bears are skinner than in the past was not asked during the interviews. If using results only from Q6 verbatim then for skinner bears, 50% of respondents in Pond Inlet and 13% in Clyde River; no change, 12% in Pond Inlet and 6% in Clyde River; no response 38% (6 individuals) in Pond Inlet, 81% (13 individuals) in Clyde River and 94% (15 individuals) in Qikiqtarjuaq. One response from Qikiqtarjuaq indicated that bears that are close to town are fatter than ones further away, which does not fall into any of the above categories [**15**, p. 8-9]. Results are inconclusive due to the high number of study participants who offered no response to this question. The lack of responses might be attributable to: (a) open-endedness/lack of understanding of the question; (b) lack of appropriate research participants; (c) research methodology[7].

[7] In semi-directed approach used by the researcher, it was noted that interview participants were generally unprompted with regards to possible explanations of their observations, which could have caused a lack of direction (Dowsley 56).

- If the responses from comments on general health of bears are included then very different results are produced, but it should be understood that the responses should not be doubled. The report does not indicate Q6 being a different question than the comments on the general health of bears so percentages or number of non-responses cannot be determined. If pooled together (all 3 communities), 23 individuals indicated that bears are skinner and 12 individuals indicated no change, or that body condition was variable. In general, more skinny bears are being seen in Pond Inlet and Clyde River. However, from the results of the draft report, this cannot be determined in Qikiqtarjuaq due to lack of responses to Q6 and lack of comments made on the health of bears.

- Responses to questions regarding climate change (Q7-Q9) illustrated high variability in the environment but respondents were not sure of the effects that these changes might have on polar bears; general trends in responses indicated that the floe edge is closer to shore (refer App. 2); sea ice is thinner; there are fewer icebergs; ice breakup is earlier; for all these questions many interviewees did not respond, or gave a limited response. The report put forward the explanation that: "The low number of responses may indicate that although the respondents thought about the aspect of the environment they had not noticed changes and therefore did not say anything because they were specifically asked about changes" [**15**, p. 10-13].

- GN-DOE made reference to the report (which was their own report) questioning the effectiveness of the research. Specific questions were stated such as, "Could you tap an Elder's knowledge in an hour and a half? Can you get to all the angles of the Elder's knowledge in that one-hour time period?" [**5**, p. 75 (18-21)].

- NTI made reference to the IQ report stating that it is the draft report and not the final Ph. D thesis, and stressing that the results for Q6 are 45% of responses for more skinny versus 54% of responses for no trend **[5**, p. 94-95 (17-3)]. It was not mentioned however that this breakdown by percentages is only based on the comments made on general health of bears, and did not include the direct responses to Q6 itself . Furthermore, half of the respondents (24 of 48 individuals) did not answer the question.

6.5.5. Greenland's comment to USFWS re: US proposal of listing polar bear as threatened under the endangered species act. (Letter to the Supervisor of the US Fish and Wildlife Service from Greenland Home Rule Government, Dept. of Fisheries, Hunting, and Agriculture) 4 April 2007.

- Population reduction associated with climate change has only been documented for the Western Hudson Bay Population; populations may decline, shift their range, thrive or be unaffected by climate change [**16,** p. 3**]**.

- In response to unsustainable harvests of the BB population, Greenland introduced quotas in January 2006; gradually decreasing quotas are set in 3 year cycles

(2007:73; 2008:71; 2009: 68) to reduce financial burden on hunters and the administrative burden of management [**16**, p. 4].

- Greenland has agreed with Canada to develop a "formal international bilateral agreement that will contribute to the sustainable management of these [KB, BB] populations" [**16**, p. 6]

- Greenland's harvest data for Baffin Bay (BB) also contains bears from the Davis Strait (DS) population; rationale given is that DS bears move into BB population's area to get to Greenland and therefore cannot be distinguished from BB bears; Greenland estimates that most of the catch included in the harvest data is from BB stock, but this has not been be validated [**16**, Appendix 1]

- Polar bears harvested in the Nuuk and Paamiut local authority districts may come from the north (Baffin Bay/Davis Strait) and from the South (East Greenland population (EG)) [**16,** Appendix II b]. Catches are therefore distributed equally between BB and EG stocks but specific numbers from each population cannot be confirmed due to the nature of Greenland's reporting system. Other communities in particular that "could" potentially harvest the DS or BB stock due to their proximity, but whose catch is allocated to the East Greenland population, are: Ivittut; Qaqortoq; Narsaq; and Nanortalik. Due to the harvest data being reported by community, it is a possibility that bears from any and all populations could be harvested in any community.

- Key points of Greenland's Executive Order September 2005 on the Protection and Hunting of Polar Bears: 1. All polar bear catches are to be reported to *Piniarneq* through the annual registration form; 2. If a polar bear is killed as a result of necessity or self-defense, all parts of polar bear shall go to the Greenland Home Rule Government (there is no mention of whether or not defense kills are accounted against the quota, as is the case in Nunavut) [**16**, p.25-28].

6.5.6. *Demography and viability of a hunted population of polar bears,* Taylor et al. 2005

- Taylor et al. published their 1994-1997 mark-recapture study on the Baffin Bay polar bear population in the June 2005 issue of the journal Arctic. The population size estimate from the study was 2074 bears. The study estimated that the population would be growing at 1.9% per yr with 88 bears harvested per year, or 5.5% per year if unharvested. This is a high growth rate: at the time of the study (10 years ago), the population was in healthy condition.

- According to a Population Viability Analysis (PVA) the 60-80 bears/yr harvest rate was likely sustainable. This harvest rate comprised of an average annual Canadian harvest of 66 bears, plus an estimated annual take by Greenland of 18-25 bears, the latter is an estimate derived from recovery probabilities of marked

bears. The paper broaches a discrepancy between this estimated take and harvest actually recorded in Greenland surveys (72 bears annually).

- The Taylor et al. (2005) mark-recapture study benefited greatly from input of traditional knowledge into its design. Following the advice of Inuit hunters, the study was conducted in autumn, when bears were on shore, rather than in spring, when most of the population was on pack ice and unavailable to capture teams. Because of the change in capture season, assumptions of a more flexible analysis model were satisfied, and the estimate of abundance was considerably higher than in previous studies, though it is believed that the population experienced stability between census periods.

6.5.7. Proceedings of the 14th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, 20-24 June 2005, Seattle, Washington, USA

- Although the 105 TAH for Nunavut communities was arrived at taking into account an estimated take by Greenland of 18-25 bears per year (MOU), Greenland's reported catch indicates its harvest from the Baffin Bay population has been much higher, and has been increasing over the past decade: 1993-1997 5-year mean of 68 bears per year; 1998-2002 5-year mean of 95 bears per year; and 2003-2004 2-year mean of 182 bears per year (IUCN 2006, Table 22). Simulations using the pooled Canadian and Greenland harvest since 1997 (when the mark-recapture study estimated a population of 2074 bears), generated a 2004 Baffin Bay population estimate of 1546 bears (IUCN Polar Bear Specialist Group 2006). This estimate suggested a 25% decline of Baffin Bay bear numbers in just 7 years, due to overharvest.

- At this meeting, the IUCN Polar Bear Specialist Group reclassified the polar bear as a vulnerable species on the IUCN's Red List of Endangered Species. In Canada, The polar bear is recommended by COSEWIC for listing as a special concern species, but has no legal status as of yet under SARA (Species at Risk Public Registry, August 12, 2008).

- The meeting proceedings note that although there are problems with Greenland's *Piniarneq* reporting system, research supports that the system works well in Upernavik municipality (Rosing-Asvid 2002). This municipality accounts for the great majority of Greenland's polar bear harvest from Baffin Bay population. At the IUCN Polar Bear Specialist Group meeting in June 2005, Greenland's own harvest numbers were accepted as accurate (IUCN 2006).

- Greenland reported that communities in Qanaaq and the Upernavik municipalities have noticed sea ice forming later in the season, sea ice being less stable, and an increase in number of polar bears occurring on the coast and near settlements which is similar to Nunavut **[3**, p. 140]

6.5.8. *Government of Nunavut Briefing Note* – December 2005

- This document briefs the Board on the community consultations that took place in November 2005. Conflict is alluded to between information from local hunters, who were encountering many more bears, suggesting population increase, and the scientific information (simulations), that suggested population decline (IUCN 2006). GN-DOE hypothesized that it may be that climate change has altered polar bear distribution patterns and behavior giving the impression that there are more bears because there are more bear-human encounters.

6.6. Agreement Between the Parties

The information presented by the parties share some common ground. The main points in common are:

- General decline in extent of sheet ice, and floe edge is closer to land, leading to a longer open water season

- Not sure whether everyone agrees the above point means bears spend more time on land, but this may be a point of agreement

- More skinnier bears being seen, more interactions with communities and camps (due to the skinnier bears being hungrier?) – more skinnier bears initially seemed to be point of agreement, but there is among-community variation with respect to consensus on seeing more skinnier bears; also, NWMB staff question scientific data presented that bears are skinnier now than in the past

- That scientific information available for the Baffin Bay population size is dated, and would like to have the population survey done earlier than the scheduled 2014 date.

- Problem bear incidents are increasing, e.g., damaged property, disturbance of meat caches

- Meaningful discussions and progress towards an inter-jurisdictional co-management plan with Greenland are a necessary part of the sustainable harvest solution

- That computer simulation projections should not be made a long time (e.g. over 10 years) after the original surveys they are based on[8].

[8] This is somewhat of a point of agreement; however, some people might question the validity of computer simulation projections in the first place.

- More bears are occurring in certain areas than in the past (30-40 years ago)

- IQ knowledge needs to be collected, as a follow-up to the Dowsley study; appropriate methodologies, so that IQ can be used in a meaningful way for wildlife management, need to be improved upon; weighting IQ the way that Nunavut has committed to doing is something that few jurisdictions have experience with, even globally; we need to learn and build these techniques ourselves from scratch

- IQ can provide valuable input to the design of scientific studies/surveys (e.g., capture work in the fall rather than the spring for 1994-1997 mark-recapture survey)

7. GN-DOE MANAGEMENT OPTIONS

The Government of Nunavut, Department of Environment proposed four options to guide a decision by the NWMB in response to conservation concerns regarding the Baffin Bay polar bear population. Figure 1 shows the projected trend of the population over the next 10 years for each of the four options, and in the case of no change to TAH in Nunavut. These projections use reproductive and natural survival rates from the 1994-1997 mark-recapture study. Note that Option 4, as illustrated, consists of a moratorium on the part of both Nunavut and Greenland; however, neither NWMB nor GN has any authority to decide on a moratorium in Greenland. As illustrated in Figure 1, options 1-3 are unsustainable.

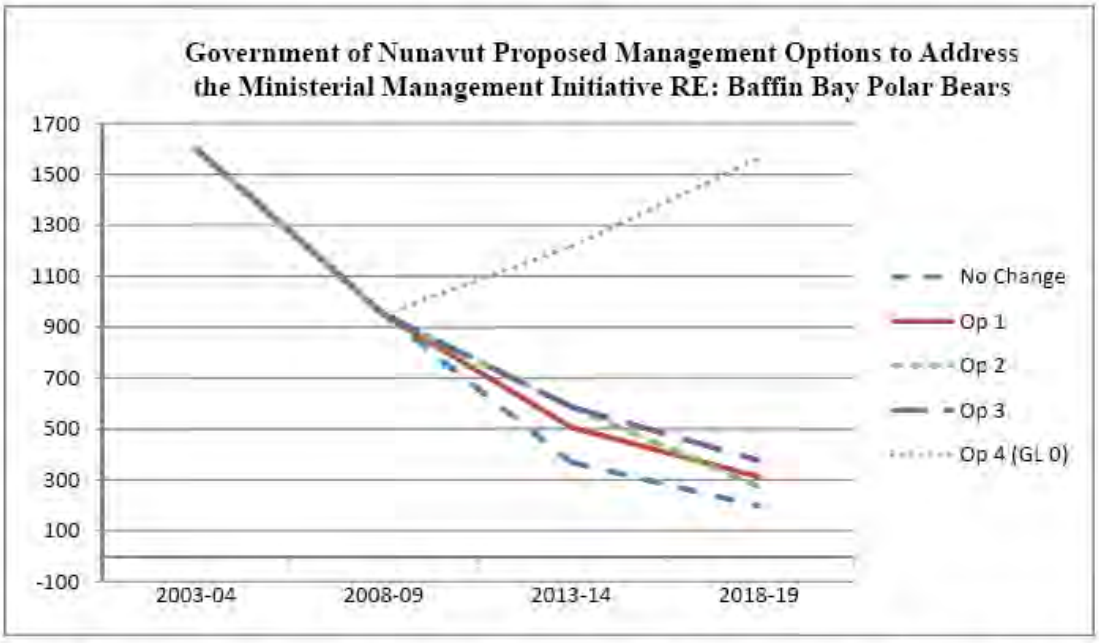


Figure 1. RISKMAN projected population response of Baffin Bay polar bears to each of the four management options presented by the Government of Nunavut (**8**). The results of continuing to harvest at current levels (105 Nunavut, 73 Greenland) are also shown. **Option 1** is a return to the historical TAH of 64 per year beginning with the 2008/2009 harvest year. **Option 2** is return to the historical TAH of 64 per year beginning with the 2008/2009 harvest year. Then implement a phased reduction of 5 per year until the TAH is reduced to 50% of the current BB maximum sustained yield (45 per year at current numbers or less than 45 per year if the population continues to decline). **Option 3** is a return to the historical TAH of 64 per year beginning with the 2008/2009 harvest year. Then implement a phased reduction of 5 per year until the TAH is reduced to 50% of the estimated 90% harvest risk level (34 per year at current numbers or less than 34 per year if the population continues to decline). **Option 4** is to impose a harvest moratorium in BB (reduce the TAH to 0) until the population has increased to the target number of 2074 polar bears, as identified in the MOU. The most recent scientific BB population size estimate is 1546 made in 2004 (7, Table1, p. 35), which was used as the starting point for the graph in figure 1. For the years 2004-2008, the annual Nunavut and Greenland quotas were used with the most recent measures of reproduction and survival to estimate the population size. The results show a steady decline in the number of bears in Baffin Bay population between 2004 and now (2008). This portion of the graph demonstrates the conservation concern that the Government of Nunavut has expressed for the Baffin Bay polar bear population.

8.0 NWMB STAFF ANALYSIS

NWMB staff ran RISKMAN computer model simulations of the BB polar bear population response to recorded actual harvest and actual sex selectivity as documented by Nunavut and Greenland from 2003-04 to 2006-07 and projected response to four different harvest levels from 2008-09 harvest season into the near future (Figure 2).

The first simulation is maintaining the status quo TAH in Nunavut and Greenland. This results in a projected decrease in the BB polar bear population to 251 individuals by 2014, the year the next mark-recapture study is scheduled to begin.

The second simulation is a harvest moratorium in Nunavut whereby the TAH in Nunavut is zero and Greenland continues to harvest 71 bears from the population in 2008-09 and 68 bears per year from 2009-10 onwards. This results in a projected decrease in the BB polar bear population to 635 individuals by 2014.

The third simulation is a complete harvest moratorium whereby the TAH in Nunavut is zero and the Quota in Greenland is zero. This results in a projected increase in the BB polar bear population to 962 individuals by 2014 (Figure 2). Recovery to a population size of 2074 bears, as indicated in the MOU, is projected by the model to occur in the year 2027-28, which is 19 years from now (Figure 3).

The fourth simulation is the most recent GN-DoE suggested sustainable total harvest from the BB polar bear population of 90. This would translate to a Nunavut TAH of 19 and a Greenland Quota of 71 for the 2008-09 harvest season and a Nunavut TAH of 22 bears and a Greenland Quota of 68 for the 2009-10 harvest season into the future. This simulation resulted in a projected decrease of the BB polar bear population to 516 individuals in 2014 (Figure 2).

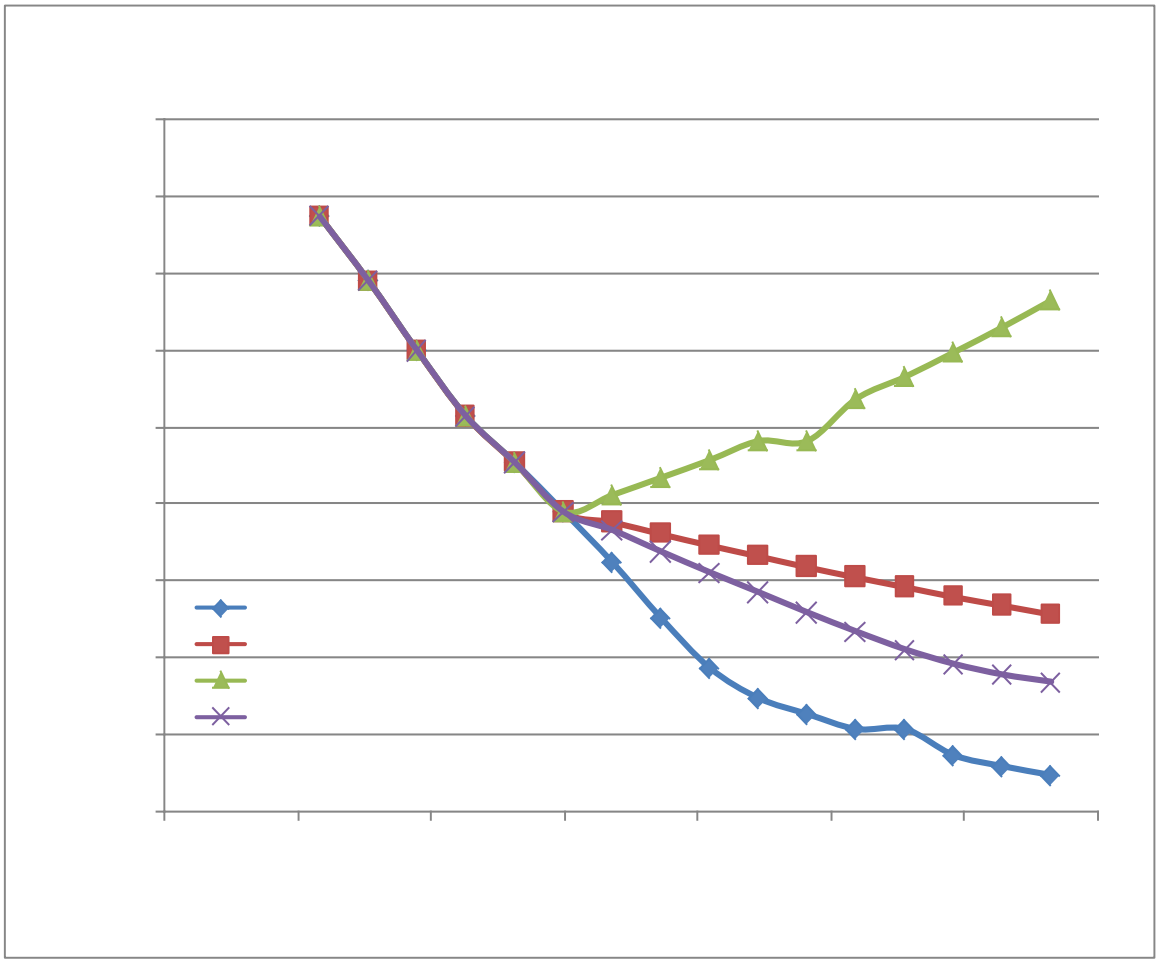


Figure 2. RISKMAN projected Baffin Bay polar bear population response to recorded actual harvest and actual sex selectivity by Nunavut (NU) and Greenland (GL) from 2003-04 to 2006-07 harvest seasons and projected response to four different harvest levels from 2008-09 harvest season into the near future. Simulations began with a starting population size of 1546 bears in 2003-04. Hunting mortality was set as the actual reported kill from NU and GL for each of the harvest seasons from 2003-04 to 2006-07. Sex selective harvest was modeled using the actual proportion of females harvested for each harvest season in both jurisdictions for the 2004 to 2007 period. For the 2007-08 harvest season, the NU TAH and the GL Quota for the population were used as the harvest mortality. Sex selective harvest was modeled using the five year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly was allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials were run for each simulation. These runs resulted in a projected decrease in the population from 1546 in 2003-04 to 906 in 2007-08. For the 2008-09 harvest season, a similar simulation was run with a harvest mortality decreased from 176 to 173 to reflect the expected GL Quota reduction by 3 bears in 2009. This simulation projected a decrease in the BB polar bear population from 906 bears to 778 bears in the 2008-09 harvest season. Four polar bear future harvest scenarios were modeled beginning with a 2008-09 population size of 778 bears. In the first scenario, existing status quo is maintained (BB Pop. RM Simulated N), whereby the NU TAH remains at 105 and the GL Quota is 71 for the year 2008 and decreases to 68 in 2008-09. These NU TAH and the GL Quota values are used as the harvest mortality. Sex selective harvest is modeled using the five-year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly is allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials are run for each simulation. This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 92 bears in 2019-20. The second scenario, an NU moratorium (NU Moratorium) whereby NU TAH is zero and GL continues to harvest 71 bears in 2008-09 and 68 bears per year from 2009-10 onwards, results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 512 bears in 2019-20. The third scenario, a complete hunting moratorium (NU-GL Moratorium), results in a projected increase of the BB polar bear population from 778 bears in the year 2008-09 to 1328 bears in 2019-20. The final scenario, is the GN-DoE suggested sustainable total harvest for the population of 90 bears per year (NU-GL combined HM=90), whereby the NU TAH is 22 and the GL Quota is 68. This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 336 bears by 2019-20.

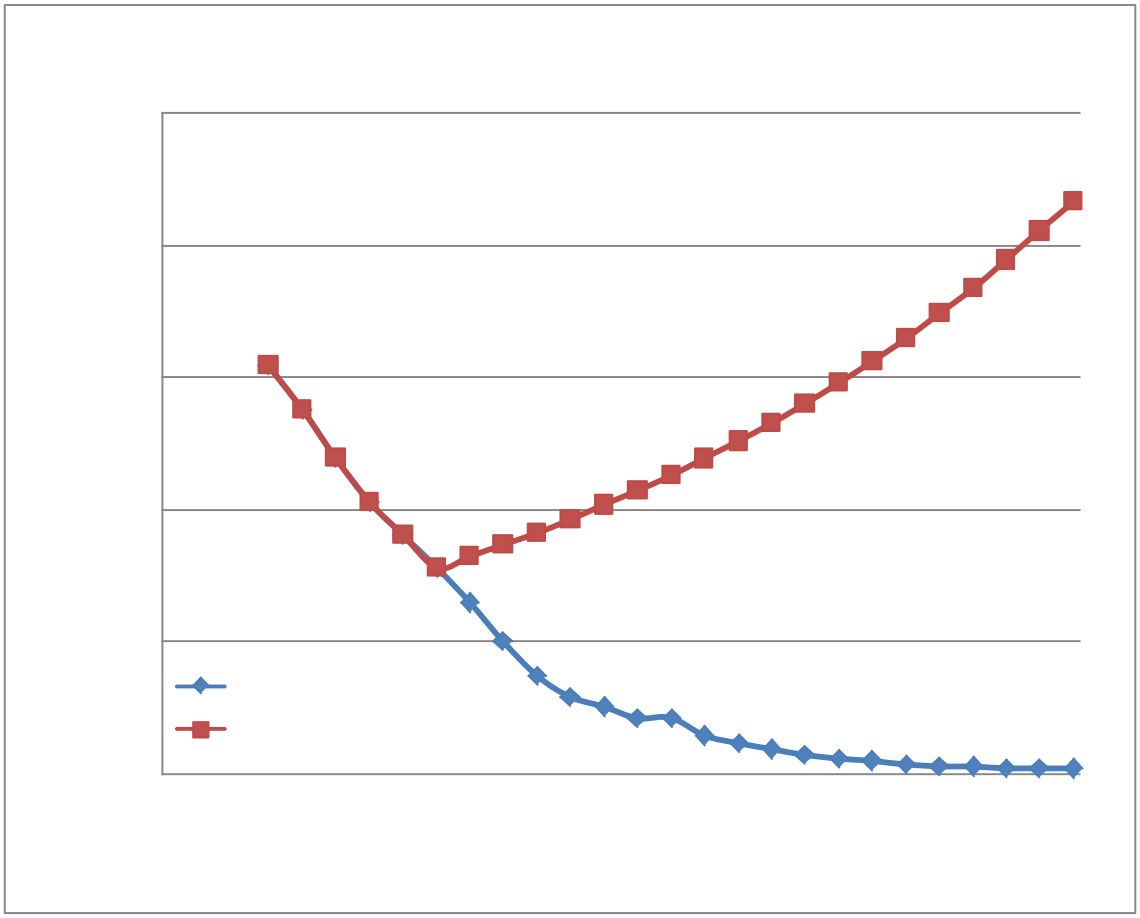


Figure 3. RISKMAN projected Baffin Bay polar bear population response to recorded actual harvest and actual sex selectivity by Nunavut (NU) and Greenland (GL) from 2003-04 to 2006-07 harvest seasons and projected response to two different harvest levels from 2008-09 harvest season into the near future. Simulations began with a starting population size of 1546 bears in 2003-04. Hunting mortality was set as the actual reported kill from NU and GL for each of the harvest seasons from 2003-04 to 2006-07. Sex selective harvest was modeled using the actual proportion of females harvested for each harvest season in both jurisdictions for the 2004 to 2007 period. For the 2007-08 harvest season, the NU TAH and the GL Quota for the population were used as the harvest mortality. Sex selective harvest was modeled using the five year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly was allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials were run for each simulation. These runs resulted in a projected decrease in the population from 1546 in 2003-04 to 906 in 2007-08. For the 2008-09 harvest season, a similar simulation was run with a harvest mortality decreased from 176 to 173 to reflect the expected GL Quota reduction by 3 bears in 2009. This simulation projected a decrease in the BB polar bear population from 906 bears to 778 bears in the 2008-09 harvest season. Two polar bear future harvest scenarios were modeled beginning with a 2008-09 population size of 778 bears. In the first scenario, existing status quo is maintained (BB Pop. RM Simulated N), whereby the NU TAH remains at 105 and the GL Quota is 71 for the year 2008 and decreases to 68 in 2008-09. These NU TAH and the GL Quota values are used as the harvest mortality. Sex selective harvest is modeled using the five-year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly is allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials are run for each simulation. This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 21 bears in 2027-28. The second scenario, a complete hunting moratorium (NU-GL Moratorium), results in a projected increase of the BB polar bear population from 778 bears in the year 2008-09 to 2051 bears in 2027-28 and to 2166 bears in 2028-29. This would achieve the stated recovery goal of a BB population size of 2074 bears as indicated in the MOU for the population.

Some other options were modeled by NWMB staff. Once again**,** RISKMAN computer model simulations of the BB polar bear population response to recorded actual harvest and actual sex selectivity as documented by Nunavut and Greenland from 2003-04 to 2006-07 and projected response to five different harvest levels from 2008-09 harvest season into the near future (Figure 4).

To use as a reference, the first simulation again is maintaining the status quo TAH in Nunavut and Greenland. This results in a projected decrease in the BB polar bear population to 251 individuals by 2014, the year the next mark-recapture study is scheduled to begin.

The second simulation is a harvest moratorium in Nunavut whereby the TAH in Nunavut is zero and Greenland continues to harvest 71 bears from the population in 2008-09 and 68 bears per year from 2009-10 onwards. This results in a projected decrease in the BB polar bear population to 635 individuals by 2014. This is the only "moratorium" option available to the Board at this time because we have no jurisdiction over Greenland's polar bear harvest. Such an option would be consistent with a precautionary approach to managing the risk of further decline in the population; but is projected to fail due to continued harvest of polar bears by Greenland (Figure 4). As such, its utility as a viable management option is limited. The tremendous costs incurred by the Nunavut communities that hunt from the BB polar bear population if a Nunavut moratorium was established would not be rewarded with a recovery of the polar bear population. The only way to minimize as much as practicable the risk of further decline in BB polar bear numbers is to stop all harvest from the population (Figure 3). Currently, this is not an option for the NWMB.

The third simulation is a combined Nunavut-Greenland total harvest of 45 bears per year from the population. This option was modeled because it is the level of harvest that produces a stabilized population projection. This results in a projected moderate decrease in the BB polar bear population from 778 bears in 2008-09 to 763 individuals by 2014 but recovers back to 778 bears by 2019-20 (Figure 4). However, this option is currently not viable because Greenland harvests more than 45 bears a year from the BB population.

The fourth simulation is an immediate decrease in the Nunavut TAH back to 64 bears per year and Greenland continues to harvest 71 bears from the population in 2008-09 and 68 bears per year from 2009-10 onwards. This option was modeled because it was the Nunavut TAH level for the population prior to the increase to a TAH of 105 bears in 2004-05. This simulation resulted in a projected decrease of the BB polar bear population to 327 individuals in 2014 and a continued decline to 191 bears by the 2019-20 harvest season (Figure 4).

The final simulation, is a reduction in the NU TAH from 105 by 8 bears per year until the NU TAH is 65 and GL continues to harvest 71 bears in 2008-09 and 68 bears per year from 2009-10 onwards (GL-68 NU 97 decreased by 8/yr to 65) . This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-

09 to 162 bears by 2019-20; which is only a slightly different outcome than not modifying the existing polar bear TAH in BB (Figure 4).

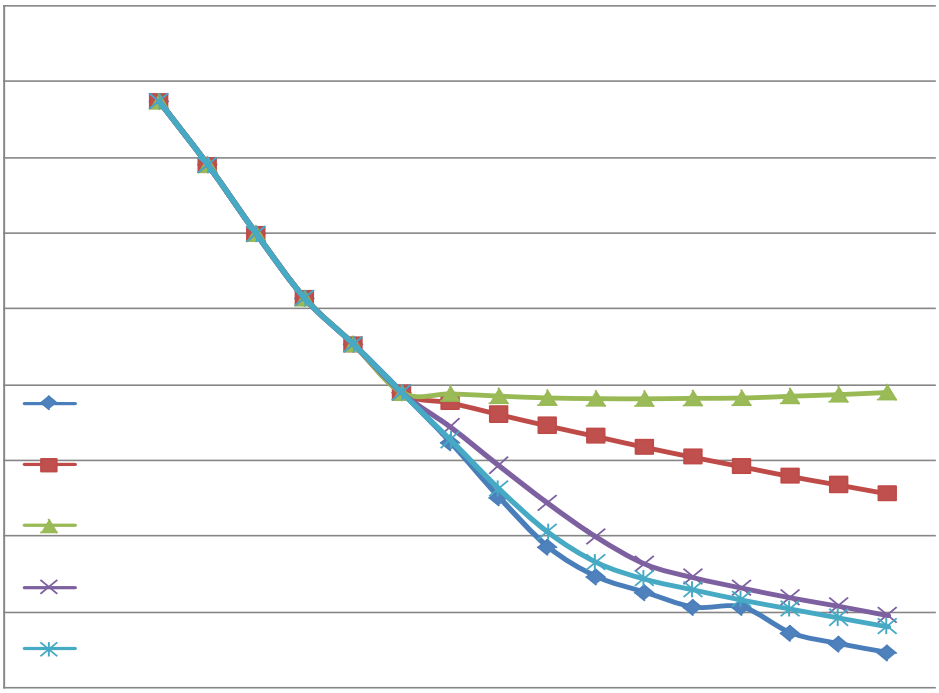


Figure 4. RISKMAN projected Baffin Bay polar bear population response to recorded actual harvest and actual sex selectivity by Nunavut (NU) and Greenland (GL) from 2003-04 to 2006-07 harvest seasons and projected response to five different harvest levels from 2008-09 harvest season into the near future. Simulations began with a starting population size of 1546 bears in 2003-04. Hunting mortality was set as the actual reported kill from NU and GL for each of the harvest seasons from 2003-04 to 2006-07. Sex selective harvest was modeled using the actual proportion of females harvested for each harvest season in both jurisdictions for the 2004 to 2007 period. For the 2007-08 harvest season, the NU TAH and the GL Quota for the population were used as the harvest mortality. Sex selective harvest was modeled using the five year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly was allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials were run for each simulation. These runs resulted in a projected decrease in the population from 1546 in 2003-04 to 906 in 2007-08. For the 2008-09 harvest season, a similar simulation was run with a harvest mortality decreased from 176 to 173 to reflect the expected GL Quota reduction by 3 bears in 2009. This simulation projected a decrease in the BB polar bear population from 906 bears to 778 bears in the 2008-09 harvest season. Four polar bear future harvest scenarios were modeled beginning with a 2008-09 population size of 778 bears. In the first scenario, existing status quo is maintained (BB Pop. RM Simulated N), whereby the NU TAH remains at 105 and the GL Quota is 71 for the year 2008 and decreases to 68 in 2008-09. These NU TAH and the GL Quota values are used as the harvest mortality. Sex selective harvest is modeled using the five-year average proportion of females harvested during the 2002-03 to 2006-07 harvest season in both jurisdictions (0.337). RISHKMAN end runs with unfilled harvest option was not employed. The simulation mode was stochastic. Uncertainly is allocated proportionally as 0.75 parameter and 0.25 environmental. Two thousand trials are run for each simulation. This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 92 bears in 2019-20. The second scenario, an NU moratorium (NU Moratorium) whereby NU TAH is zero and GL continues to harvest 71 bears in 2008-09 and 68 bears per year from 2009-10 onwards, results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 512 bears in 2019-20. The third scenario, a total harvest for the population of 45 bears per year (NU-GL combined HM=45), results in a projected increase of the BB polar bear population from 778 bears in the year 2008-09 to 779 bears in 2019-20. The fourth scenario, a return to a TAH of 64 for NU and GL continues to harvest 71 bears in 2008-09 and 68 bears per year from 2009-10 onwards (NU-64 GL-68 HM=132), results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 191 bears in 2019-20. The final scenario, is a reduction in the NU TAH from 105 by 8 bears per year until the NU TAH is 65 and GL continues to harvest 71 bears in 2008-09 and 68 bears per year from 2009-10 onwards (GL-68 NU 97 decreased by 8/yr to 65) . This simulation results in a projected decrease of the BB polar bear population from 778 bears in the year 2008-09 to 162 bears by 2019-20.

9.0 NWMB DECISION OPTIONS

Long-term management options

Meaningful management options to mitigate the conservation concern that the BB polar bear population has decreased in size and continues to do so primarily from human over-harvest are handicapped because NWMB and the GN-DoE do not have jurisdiction over Greenland's harvesting activities from the BB population.

Ultimately, this handicap must be removed through interjurisdictional co-operation before any meaningful proximate management action to mitigate the conservation concern is achieved. Without bilateral coordinated management between Nunavut and Greenland to address human over-harvesting, unilateral action within each jurisdiction while status quo is maintained in the other will not achieve the management objective of recovering or stabilizing the BB polar bear population.

Therefore **the first long-term** (but not mutually exclusive) **recommended option is to formally ask both the Government of Canada and the Government of Nunavut to immediately take the steps necessary to negotiate an international interjurisdictional agreement between Greenland and Canada/Nunavut on the management of shared wildlife populations** including polar bear of Baffin Bay as per Article 5 Part 9 of the NLCA.

Proximately, there is uncertainty about the level of the conservation concern that exists for the BB polar bear population. The mark-recapture data upon which population estimates and projections have been estimated by computer simulation are at least 10 years old. A current field survey to estimate the number of bears in the population would reduce the uncertainty about the conservation status of the population.

Therefore **the second long-term** (but not mutually exclusive) **recommended option is to formally ask GN-DoE, in cooperation with NWMB and NTI and if possible Greenland to pool resources and conduct a population survey in BB as soon as is practicable.** This need not be a full three-year mark-recapture survey. Although current population vital rates are important, what is immediately needed is a current population size estimate with confidence intervals to assess what level of risk the population is actually experiencing relative to what has been projected through computer simulation.

The "Guided Harvest Rate" (GHR) as identified in the current MOU for polar bear populations including BB does not appear to be guided by any principle or methodology. Since the harvest rate for a population is set by the scientific population estimate for the first seven year after a survey; this time should be used to collect, analyize and report IQ about the population to be used in "guiding" the GHR for the last seven years of the current polar bear population scientific inventory cycle (15 years).

Therefore **the third long-term** (but not mutually exclusive) **recommended option is to formally ask GN-DoE, in cooperation with NWMB and NTI and if possible**

Greenland to pool resources and formalize and codify the collection of IQ from populations in a systematic way in conjunction with the scientific inventory cycle so that meaningful data can be use in determining the GHR.

Immediate management options

There is evidence of an immediate conservation concern for the BB polar bear population from human over-harvest. The NWMB has been directed by the GN-DoE Minister of Environment to make a decision on management actions to mitigate this conservation consern as per S.5.3.25 of the NLCA. It is the duty of the NWMB to make this decision for the Ministers consideration. It is also a guiding principle of the NLCA that the wildlife management system and the exercise of Inuit harvesting rights are governed by and subject to the principles of conservation (S.51.2(g)). The principles of conservation are (NLCA S5.1.5):

a) The maintenance of the natural balance of ecological systems within the Nunavut Settlement Area;
b) The protection of wildlife habitat;
c) The maintenance of vital, healthy, wildlife populations capable of sustaining harvesting needs as defined in this Article; and
d) The restoration and revitalization of depleted populations of wildlife and wildlife habitat.

Seven possible immediate management options for the Board to consider, along with their pros and cons are listed in table 1

Table 1. Immediate management options (IMO) for the NWMB to consider in mitigating a conservation concern for the BB polar bear population due to human over-harvest in response to a Ministerial Management Initiative from the GN-DoE Minister of Environment.

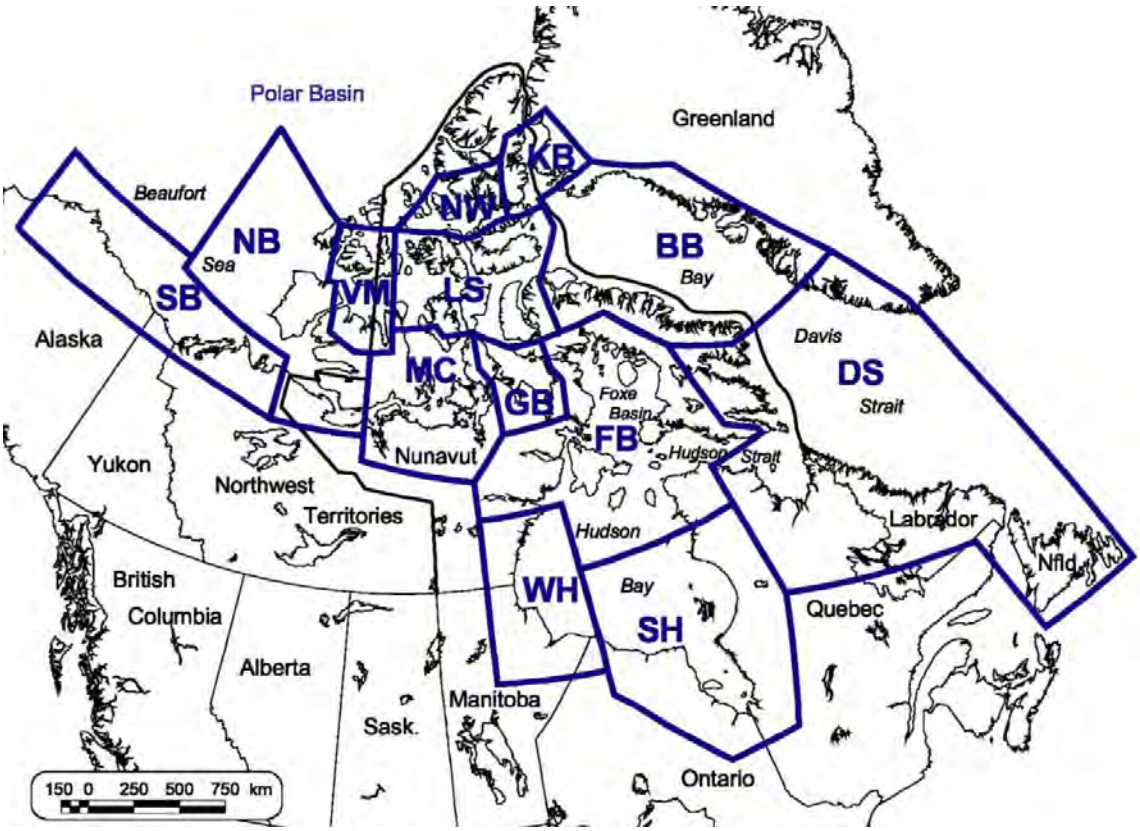
Option number	IMO	Pro	Con
IMO-1	Maintain status quo NU TAH =105; GL Quota=68	Harvesting opportunities in NU communities not immediately limited	Population will likely continue to decrease; harvesting opportunities in NU communities will be limited with time as the number of polar bears in the population continues to decline; management objective of recovering or stabilizing the population is not achieved.
IMO-2	Nunavut moratorium NU TAH=0; GL Quota=68	Computer simulation projected population decline is diminished but not stopped.	Significant socio-economic & cultural costs to NU communities that harvest from population; population is still projected to decline due to GL polar bear harvesting; management objective of recovering or stabilizing the population is not achieved.

IMO-3	Complete moratorium NU TAH=0; GL Quota=68	Computer simulation projected population decline is reversed and population is predicted to recover to MOU stated management objective size of 2074 bears in 19 years.	NWMB & GN-DoE have no jurisdiction over GL polar bear harvest activities; management objective of recovering or stabilizing the population is not achieved without cessation of hunting by GL.
IMO-4	Total Harvest Mortality of 90; NU TAH=22; GL Quota=68	Computer simulation projected population decline is diminished slightly but not stopped.	Significant socio-economic & cultural costs to NU communities that harvest from population; population is still projected to decline due to GL polar bear harvesting; management objective of recovering or stabilizing the population is not achieved.
IMO-5	Total Harvest Mortality of 45;	Computer simulation projected population stabilization.	Significant socio-economic & cultural costs to NU communities that harvest from population; population is still projected to decline due to GL polar bear harvesting; NWMB & GN-DoE have no authority to have GL decrease harvest from 68 to 45; management objective of recovering or stabilizing the population is not achieved.
IMO-6	Revert back pre-2004 TAH of 64; NU TAH=64; GL Quota=68	Computer simulation projected population decline is diminished very slightly but not stopped.	NWMB & GN-DoE have no jurisdiction over GL polar bear harvest activities; management objective of recovering or stabilizing the population is not achieved.
IMO-7	Decrease Nunavut TAH by 8 bears per year until TAH is 65; GL Quota =68	Limits immediate socio-economic and cultural costs to NU communities that harvest from the population with a phased reduction over 5-years back to previous TAH level; provides time for new information on the conservation status of the population to be generated or gathered; Computer simulation projected population decline is diminished very slightly but not much more than if the TAH of 105 was not changed.	NWMB & GN-DoE have no jurisdiction over GL polar bear harvest activities; management objective of recovering or stabilizing the population is not achieved.

10.0NWMB DECISION

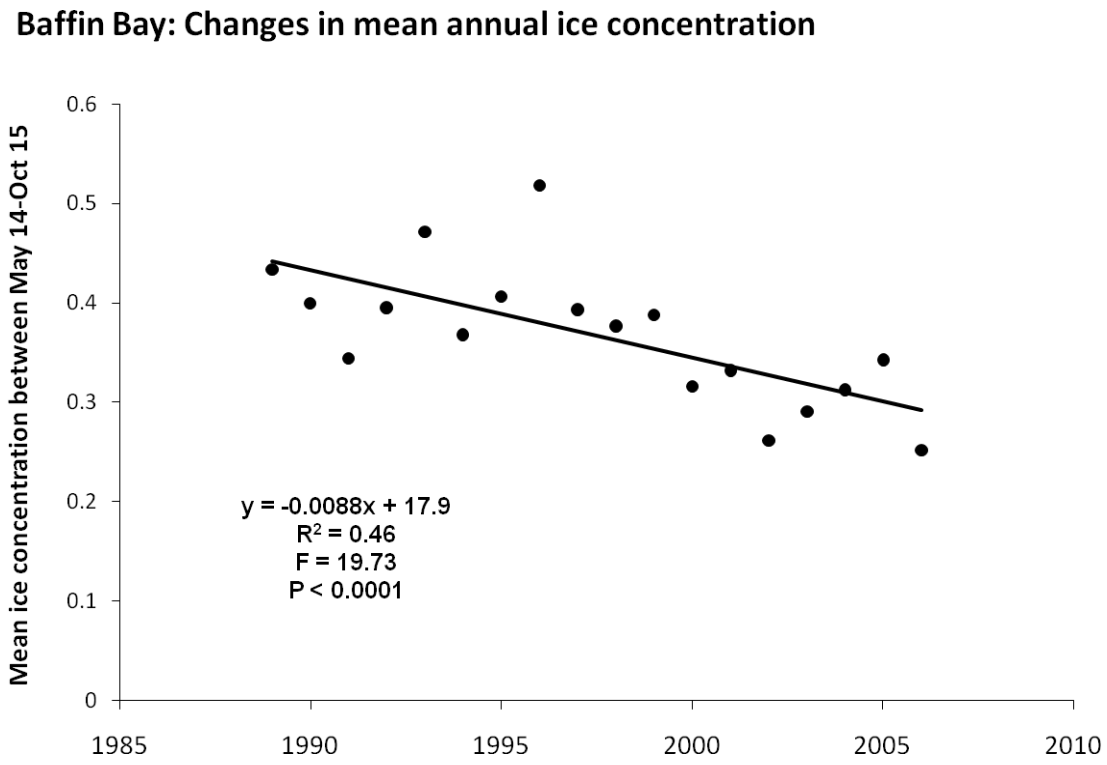
11.0APPENDICES

Appendix 1: Map of polar bear populations occurring in Canada



Delineation of polar bear populations occurring in Canada; BB: Baffin Bay; DS: Davis Strait; FB: Foxe Basin; GB: Gulf of Boothia; KB: Kane Basin; LS: Lancaster Sound; MC: M'Clintock Channel; NB: Northern Beaufort Sea; NW: Norwegian Bay; SB: Southern Beaufort Sea; SH: Southern Hudson Bay; VM: Viscount Melville Sound; WH: Western Hudson Bay. From; Taylor *et al*. 2001. Delineating Canadian and Greenland polar bear [*Ursus maritimus*] populations by cluster analysis of movements. Canadian Journal of Zoology 79:690-709.

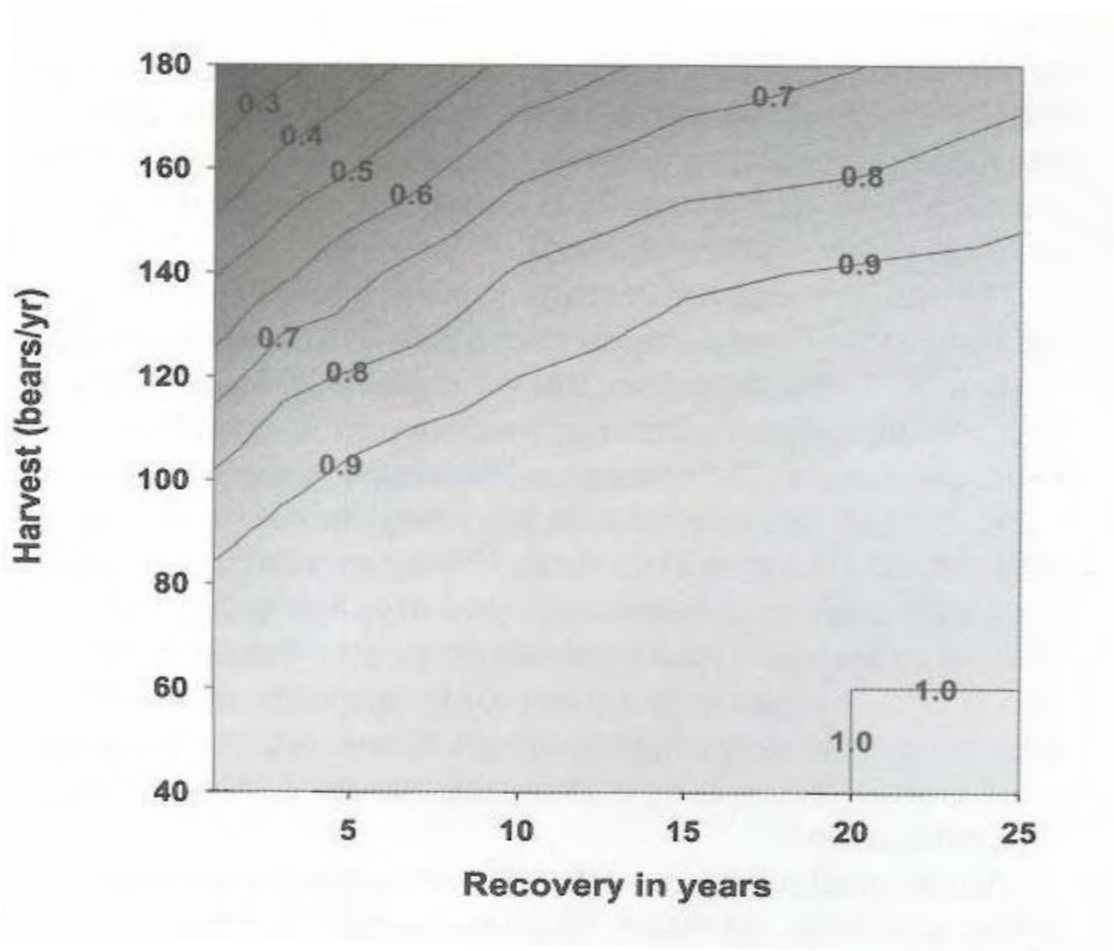
Appendix 2: Changes in Baffin Bay mean annual ice concentration, 1986-2006

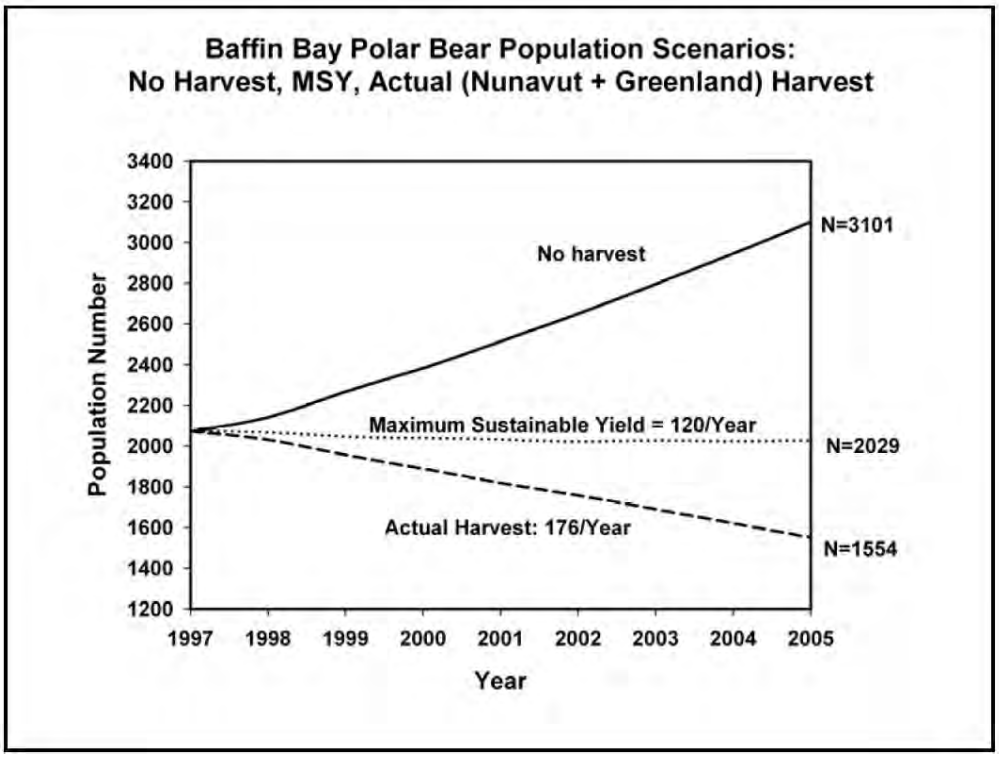


Changes in total accumulated ice coverage during May 14-October 15 season ("mean ice concentration") in Baffin Bay, 1986-2006. Data are from Canadian Ice Service. Figure is reproduced from GN-DOE statistical information submission to the April 2008 Public Hearing.

Appendix 3: Baffin Bay sustainable harvest: Population Viability Analysis (PVA), and GN-DOE Baffin Bay population projections, 1997

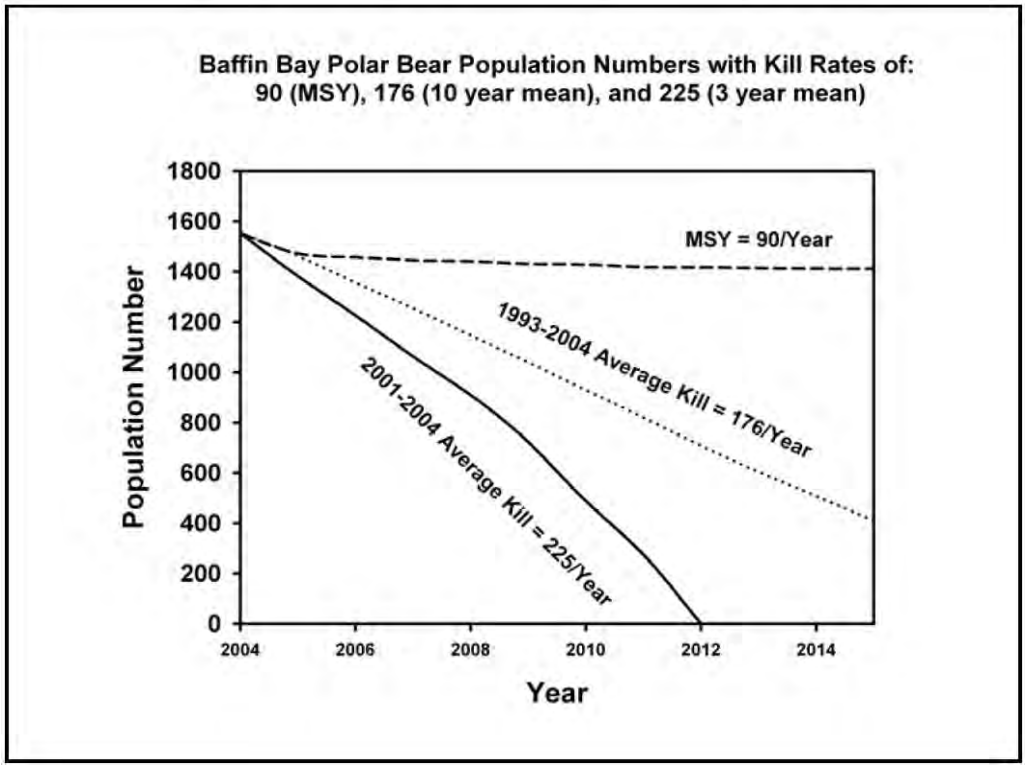
Two different representations of the maximum sustainable harvest at a population size of 2074 bears (1997 estimate from mark-recapture study). *Above*: Population Viability Analysis (PVA) harvest risk analysis, reproduced from Taylor et al. (2005). A maximum sustainable harvest (accepting a 20% risk that the population would decline) was around 120 bears per year. *Below*: Baffin Bay population projections, reproduced from GN-DOE PowerPoint presentation (December 2005). The estimated maximum sustainable harvest without causing the population to decline was around 120 bears per year at a population size of 2074 bears.





Baffin Bay population projections, reproduced from GN-DOE PowerPoint (December 2005). The estimated maximum sustainable harvest without causing the population to decline was around 120 bears per year at a population size of 2074 bears.

Appendix 4: Baffin Bay sustainable harvest: GN-DOE Baffin Bay population projections, 2004



Baffin Bay population projections, reproduced from GN-DOE PowerPoint presentation (December 2005). The estimated maximum sustainable harvest without causing the population to decline was around 90 bears per year at a population size of 1546 bears.

Appendix 5: Current and Historical Floe Edge in Baffin Bay Region

Above map was created through IQ research. As the map illustrates the floe edge along Northeast Baffin Island used to be further out than it is now.[14]

Appendix 6: NWMB letter regarding late submissions and responses with regards to the public hearing of the NWMB into the TAH for the BB polar bear population

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Nunavunmi Anngutighatigut Aulapkaijitkut Katimajiat
Nunavut Wildlife Management Board

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Tammaqtailinahuarniriit anngutighat atuqhugit Inuit qaujimajatuqangillu ilihimaniillu ilitquhiannin
Conserving wildlife through the application of Inuit Qaujimajatuqangit and scientific knowledge

FAXED Jul. 14/08

June 27, 2008

Honourable Olayuk Akesuk
Minister of Environment
Government of Nunavut

Paul Kaludjak
President of Nunavut
Tunngavik Incorporated

Jayko Alooloo
Vice-Chairperson
Qikiqtaaluk Wildlife Board

Elijah Panipakoochoo
Vice-Chairperson
Mittimatalik Hunters and
Trappers Organization

James Qillaq
Chairperson
Namautaq Hunters and
Trappers Organization

Koalie Kooneeliusie
Chairperson
Nattivak Hunters and
Trappers Organization

Dear Colleagues:

Re: Late written submissions and responses with respect to the public hearing of the Nunavut Wildlife Management Board into the level of Total Allowable Harvest for the Baffin Bay Polar Bear Population

Thank you all for the attendance and participation of your representatives at the Baffin Bay Polar Bear Hearing held by the Nunavut Wildlife Management Board (NWMB or Board) on April 22nd and 23rd 2008 in Mittimatalik.

As you are aware from the March 13th 2008 NWMB letter to you, as well as from the Board's March 18th 2008 Public Notice, all written submissions for the hearing were required to be filed with the NWMB by April 11th 2008.

On the first day of the hearing, the Mittimatalik and Nattivak Hunters and Trappers Organizations (HTOs) requested NWMB permission to file late written submissions. After canvassing the views of the other parties, the NWMB decided to accept the two late filings on April 22nd, on the condition that any party that may be prejudiced as a result of the late filings be permitted to file one or more written response submissions with the Board by no later than 5:00 PM on May 2nd 2008. In fact, the NWMB received no submissions in response to the two HTO submissions filed on the first day of the hearing.

On the second day of the hearing, the Qikiqtaaluk Wildlife Board (QWB) also requested NWMB permission to file late written submissions. The Board agreed to late filing by QWB on April 23rd, subject to the same condition as was set out the day before - that any party that may be prejudiced as a result of the late filing be permitted to file a written response submission with the Board by no later than 5:00 PM on May 2nd 2008. However, despite the NWMB's acceptance of late filing by QWB, no written submission was actually filed by QWB.

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Also on April 23rd, Nunavut Tunngavik Inc. (NTI) requested NWMB permission to provide new information (i.e., information not included in any party's filed submissions) in its oral submission to the Board. With respect to NTI's request – and following considerable discussion with the parties - the NWMB decided to accept the new information on the condition that the Department of Environment (DOE) - and any other party concerned about prejudice - be provided with up to three weeks to file a written response submission, with the three week period to commence as of the date of reception by DOE and the other parties of a written transcript of NTI's oral submission containing the new information. A translated copy of that transcript is attached to this letter as Appendix A.

That same day, DOE – in response to comments from the NWMB's Director of Wildlife on the first day of the hearing – offered to submit further written data regarding the statistical analyses and the parameters of the data analysis contained in its original written and oral submissions. A translated copy of that DOE document is attached to this letter as Appendix B. Please note that DOE has indicated that Appendix B includes both its original submission (duly filed in April prior to the hearing) as well as "*changed or added text*" - which new text has been highlighted in yellow by DOE.

The NWMB has decided to treat the DOE offer to file further written submissions in the same way as it treated the NTI request. The Board accepts the new DOE written data on the condition that NTI - and any other party concerned about prejudice - be provided with up to three weeks to file a written response submission, with the three week period to commence as of the date of reception by NTI and the other parties of the supplementary written submission from DOE containing the new information.

While the NWMB is pleased to receive supplementary information and responses to assist it in making a fair decision, the Board's schedule for making that decision has been affected by the extra time required to prepare and translate Appendices A and B, the several weeks that will be needed by the parties to develop and translate their additional response submissions, and the time required by the NWMB to consider those additional documents. Accordingly, the Board recently corresponded with the Minister, requesting additional time to deliver its decision to him. The Minister has generously responded that he is prepared to receive the NWMB's decision in September.

As a result, the Board has determined that it is in a position to provide the parties with a total of four weeks to prepare, translate and deliver their additional response submissions. The specific filing deadline is therefore the following:

- **Written and translated (Inuktitut and English) response submissions to NTI's Appendix A new information and to DOE's Appendix B new information must be delivered to the NWMB and all other parties by no later than 5:00 PM on July 25th 2008.**

Documents may be filed with the Board in person, by courier or by mail. Fax or electronic transmissions will only be accepted if your department/organization confirms by phone with

the NWMB – prior to the deadline for the submission – that a complete and legible copy of the transmission has been received by the Board. All documents should be clearly marked as pertaining to the NWMB Hearing on Baffin Bay Polar Bears. Documents are deemed to have been filed on the actual day of receipt by the Board.

The NWMB's contact coordinates are the following:

NUNAVUT WILDLIFE MANAGEMENT BOARD
Parnaivik Building
P.O. Box 1379, Iqaluit, NU, X0A 0H0
Phone: (867) 975-7300
Fax: (867) 975-7320
E-Mail: receptionist@nwmb.com

Please keep in mind that the more thorough, reliable and persuasive supporting evidence, arguments and justifications are, the more weight they will be given by the NWMB in the *Nunavut Land Claims Agreement* (NLCA) decision-making process.

In due course, the NWMB will inform the observers permitted to attend its decision-making meeting pursuant to the terms of the NLCA, of the date, time and location of that decision-making meeting.

If you require further information, or if you have any questions arising from this letter, please do not hesitate to contact the NWMB's Chief Operating Officer, Jim Noble.

Yours sincerely,

Harry Flaherty,
Acting Chairperson of the
Nunavut Wildlife Management Board

c.c. Richard Connelly, for further distribution to the Chairpersons of Nunavut's Regional Wildlife Organizations and Hunters and Trappers Organizations