



## SUBMISSION TO THE

## NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

**Information: X**

**Decision:**

**Issue:** Consultations on Polar Bear Quota Recommendations for the Western Hudson Bay (WH) and Baffin Bay (BB) populations for 2006/2007.

### **Background:**

In 2005/2006 the new polar bear MOUs came into effect and the polar TAHs were increased for the BB and the WH polar bear populations. The polar bear MOUs (Section 5.7.1) state that when new research information becomes available the TAH will be corrected as necessary.

New information on the WH and BB populations has been received (Appendix I). That information (Appendix I) suggests that a long-term moratorium is required to restore the WH population and the BB population to the target numbers.

However, the information from local hunters (Appendix II and III) is in contradiction to the scientific information. That information suggests that the populations may not be declining to the extent suggested by the scientific information.

At the time of writing, consultations are underway with the BB communities, and consultations with the WH communities will be completed before the December NWMB meeting. At these consultations DOE is presenting the new information, and is recommending that:

- 1) The BB TAH be returned to the previous harvest level (before the last increase).
- 2) The WH TAH be set at a level consistent with the most recent population estimate.

### **Consultations:**

Consultations with the affected communities are underway and will be completed by the December 2005 NWMB meeting. Additional information on consultations is described in Appendix I. The experience and knowledge of local hunters is in apparent contradiction to the scientific information. The reasons for this difference in perspective were discussed but not resolved. 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.

**Recommendations:**

The following recommendations are being presented during the consultations:

***Western Hudson Bay (WH): reduce the TAH from 56 to 16 per year.***

A division of 16 tags according to the historical share would be as follows:

	Historical	Current	<b>Proposed</b>
Arviat	20	22	<b>6</b>
Whale Cove	12	14	<b>4</b>
Rankin Inlet	12	14	<b>4</b>
Chesterfield Inlet	1	3	<b>1</b>
<u>Baker Lake</u>	<u>2</u>	<u>3</u>	<u><b>1</b></u>
Total	47	56	<b>16</b>

***Baffin Bay (BB): reduce the TAH from 105 to 64 per year.***

	Historical	Current	<b>Proposed</b>
Pond Inlet	22	30	<b>22</b>
Clyde River	21	45	<b>21</b>
<u>Qikiqtarjuak</u>	<u>21</u>	<u>30</u>	<u><b>21</b></u>
Total	64	105	<b>64</b>

**NOTE:** It is recognized that the RWO will identify the allocation of the TAH for these shared populations. The values identified above for each community are to show historical distribution pattern only.

**Prepared By:** M. Taylor

**Date:** 01 November 2005

## Appendix 1: Polar Bear Management Initiative Community Consultations for the BB and WH Populations

### **Western Hudson Bay (WH):**

A recent population analysis by the Canadian Wildlife Service (CWS) for the WH population has demonstrated that the population has declined from about 1100 in 1994 to about 950 in 2004. This decline occurred at removal rates that had previously allowed the population to increase. The scientific data are entirely consistent with the hypothesis that survival and birth rates have been reduced by climate change, which caused the historical removal rates to cause decline in numbers. However, in December 2004 Nunavut increased the TA for WH polar bears by 9/year (from 32 to 41) based on Inuit perceptions that the population had increased.

The final Canadian Wildlife Service Analysis indicates that population numbers and productivity have declined to so that a maximum of 24 bears per year can be taken from the population at 2 males per female without exceeding risk management guidelines (i.e., less than a 10% chance of an unacceptable decline). The Manitoba Polar Bear Alert program removes an average of 8 bears per year. This leaves a total yield of 16 bears for Nunavut hunters.

The current polar bear MOUs specify that when a population has been reduced by more than 10%, the population will not be harvested until it has recovered to the "target number". The target number in WH was increased from 1200 to 1400 based on IQ that the population had increased. The WH population appears to have been reduced by 21% from WH=1200 and by 32 from WH=1400. CWS has documented that the current population growth rate for WH has been reduced due to climate change. The current estimated annual rate of increase with no harvest in either Manitoba or Nunavut is 3.2% per year. However, Manitoba will continue to remove about 8 bears per year. I have not done the simulations to determine the length of time a Nunavut moratorium would have to be in place for the current population of 950 to increase to 1200 or 1400, but it would be, but it would be about 11 years moratorium to return to 1200 and about 17 years moratorium to return to 1400 (current target number).

At the end of the next harvest season the situation will of course be worse because we have decided not to reduce quotas this harvest year. Based on the past estimates of the rate of decline (about 20 per year) and our increased harvest (9 per year), the population estimate in 2005 should be something like 920 which will reduce our options accordingly.

A division of 16 tags according to the historical share would be as follows:

	Historical	Current	Proposed
Arviat	20	22	6
Whale Cove	12	14	4
Rankin Inlet	12	14	4
Chesterfield Inlet	1	3	1
Baker Lake	2	3	1
<b>Total</b>	<b>47</b>	<b>56</b>	<b>16</b>

The WH HTOs would be asked to choose between 2 alternatives.

- 1) A moratorium to allow the population to return to 1450 as per the MOU, or
- 2) TAH reduction to the above proposed safe harvest levels.

The safe harvest levels would likely (70% chance) result in some population increase.

#### **Baffin Bay (BB):**

The most recent Greenland harvest statistics document an increase in their kill from the BB population from about 68 per year (1993-1997) to about 129 per year. **The average Greenland kill in the past 2 years was about 185 per year.** The population estimate for Baffin Bay is regarded as recent and reliable, and indicates the BB population numbers 2074 individuals. This suggests that a combined harvest rate of more than 120 per year would pose an unacceptable risk to this population. Currently (using the past 2 year average for Greenland and assuming that the entire BB TAH is used in Nunavut) the expected combined kill would be  $185 + 105 = 290$ . The combined kill using the new TAH values and the most recent 5 year average would be  $129 + 105 = 234$ . Simulations (Tables 1-4) suggest **the population has already declined to about 1546 in 2005** and is in danger of becoming depleted in the near future if the combined Greenland-Nunavut kill is not curtailed. **Inuit hunters from both sides of Baffin Bay assert that the BB population has increased, however this perception may not be as general or as strong as initially indicated (preliminary results from Inuit knowledge study).**

Nunavut increased the polar bear TAH for BB by 41 (2005/2006) based on Inuit observations indicating polar bears had increased. We propose to return to the former TAH levels until a co-management agreement can be resolved with Greenland.

	Historical	Current	Proposed
Pond Inlet	22	30	22
Clyde River	21	45	21
Qikiqtarjuak	21	30	21

**Foxe Basin (FB):**

Inuit information in both southern and northern Foxe Basin was that polar bear numbers had increased. However the information from southern Foxe Basin communities was to the effect that the condition of many polar bears seemed to have declined. We did not hear about a decline in condition from community residents in northern Foxe Basin. The FB harvest levels identified in the 1996 polar bear MOU were intended to allow this population to recover slowly from an estimated reduction of about 1/3 from historical numbers. There is no scientific information to substantiate or dispute the Inuit knowledge that the population has increased. However, there is deep concern that Inuit information may have been compromised by climate change as it appears to have been in WH and BB. No consultations are planned for Foxe Basin communities at this time

**Davis Strait (DS):**

Inuit information from Nunavut, Labrador, and Quebec is that his population has increased substantively. This perception is based on actual sightings, range extensions, and frequency of problem bears. Past population inventory studies were conducted in spring when a large proportion of the bears were offshore on the pack ice, and not available to capture teams. The scientific information is old and unreliable. There is concern that the Inuit knowledge indicating that polar bear numbers have increased in DS may have been compromised by climate change as it appears to have been in WH and BB. However, preliminary results from a recent polar bear population inventory suggest that there is no cause for concern at current harvest levels. No consultations are planned for Davis Strait communities at this time

**Consultations and Process:**

1) Modification of the WH and BB TAH levels effective for the 2006/2007 harvest season will be provided to the NWMB as a draft Ministerial Management Initiative for the December NWMB meeting. The deadline for submissions for the December meeting is 10 November.

2) Consultations with the BB communities will occur in mid-November after the Biologists annual meeting. The venue will be to travel to each of the 3 communities for an HTO meeting and community meeting if the HTO requests a community meeting. The consultation will be conducted by one representative from Department of Environment and one representative from QWB. The agenda will be to communicate the new harvest information from Greenland and to explain the need for conservation action. We will regard the new Greenland harvest information as equivalent to new population information because of its direct bearing on sustainable TAH levels. Simulations for different management scenarios will facilitate communication of the consequences of a failure to act. Hopefully the results of the Inuit Knowledge study on current BB polar bear numbers and trends will be available as the final report for the meeting. We will try to reconcile perspectives and develop support for an interim return to previous harvest levels until a co-management agreement can be reached with Greenland. An amendment to the Polar Bear MOUs will need to be identified to capture the TAH changes

3) Consultations with the WH communities will occur in Rankin Inlet after November 28, but before the NWMB meeting from 6-8 December. The Environment contingent will include the Regional Manager, Regional Biologist, Manager of Research. Two representatives from each HTO will be invited to attend the meeting. A representative from KWB will also be invited. The meeting agenda will be the same as that for BB. Information will be exchanged and discussed. The proposed TAH changes will be identified for the 2006/2007 harvest season, and discussed. We will attempt to gain support for these changes as essential conservation measures, and to capture the changes as an amendment to the WH polar bear MOU.

4) Depending on the results of the consultations, TAH recommendations may be identified for the NWMB to consider. These recommendations may be prepared in time to be discussed at the December NWMB meeting.

## Appendix II. Baffin Bay (BB) Polar Bear Population Simulations:

Each set of 8 figures is from a single simulation. The captions give the information about the input values used for the simulation

What is displayed in each of the 8 frames is identified by the frame titles. The most interesting ones are the upper left (Total Population) and the lower second from the left (% Exceeding Criteria).

The total population shows the population trajectory for males, females, and the total number. The colors don't reproduce well, but the total is the highest values because it is the sum of the males and females. The lowest values are the males because they are selected for in the harvest so males are less abundant. The decline (or increase) of females is the middle line. The error bars are plus/minus one standard error.

The % Exceeding Criteria figure shows the fraction of the 2500 runs that caused the population to decline to unacceptable limits. These limits were set as a reduction so great that a harvest moratorium of 5 years or greater would be required for the population to recover to the target number (the former number of 2074) in this case.

The 4 sets of simulations are:

- 1) The actual conditions based on the pooled Nunavut and Greenland harvest to 2005/2006
- 2) The effect of the Greenland harvest alone (if Nunavut had declared a harvest moratorium starting in 1997/98)
- 3) The projected effects of the quota increase identified in the new MOUs if the Greenland kill remains at current levels
- 4) We can vary the total kill to determine the maximum number that could be harvested at estimated current numbers (1546). At current numbers we estimate that only 69 bears could be taken by both Greenland and Nunavut or the population will continue to decline. For reference we are asking our communities to reduce their kill to 64. The unregulated Greenland kill is added on top of that.

These simulations indicate a dramatic decline (Table 1) from past harvest levels. Our recent BB quota increase will accelerate that decline markedly (Table 3). The Greenland kill alone is sufficient to cause the population to decline (Table 2). The current biological TAH for BB is 69, so the projected actual combined kill of 265 is beyond any reasonable conservation limits by a wide margin.

We are rapidly reducing the BB population by over-hunting. The current estimate is that the population has been reduced from 2074 in 1997/98 to 1546 in 2003/2004. There are even fewer now.

Hopefully the co-management talks with Greenland will occur before there is long-term damage to this population that will make essential conservation measures very hard for both sides to accept.

