

## **Letter to the organizations managing the Davis Strait polar bear subpopulation**

In Canada, the Davis Strait polar bear subpopulation straddles Quebec, Nunavut, and Labrador. Together, the three Provincial and Territorial governments share responsibility for the management of this subpopulation. In early 2010, the Government of Newfoundland and Labrador, the Torngat Wildlife and Plants Co-management Board and the Nunatsiavut Government determined that the harvest of this subpopulation was disproportionately allocated across the three jurisdictions and did not meet Nunatsiavut needs. At the time of this request, there was no formal mechanism for the joint management of polar bear subpopulations. As such, the jurisdictions asked Environment Canada to assist in the establishment of a process that would provide recommendations to address this issue, as well as the opportunity to establish a structure to cooperatively manage this shared resource.

Representatives of all concerned Provinces, Territories, Wildlife Management Boards and other concerned organizations (hereafter known as the ‘Interjurisdictional Davis Strait Committee’ or IDSC), met in Montreal on 04 February 2010 to initiate this process. It was decided that in order to determine the appropriate allocation of harvest, it was necessary to provide advice on the establishment of a management objective, to set harvest levels in accordance with these objectives, and to appropriately allocate the harvest between the three jurisdictions. It was acknowledged that the management objective(s) should be based on conservation principles and should take into account concerns for human safety. It was determined that advice regarding harvest levels should be based on the best available western science and traditional knowledge, and should also include input from Users that harvest polar bear from the Davis Strait subpopulation. As such, it was felt to be most appropriate that User advice be sought via a User-to-User workshop. Upon receiving advice from all three sources, the IDSC would then review the information and provide recommendations to the authorities for their consideration.

To facilitate collection of the necessary information, a Core Group of participants from the IDSC planned a two-and-a-half day User-to-User workshop that was held in Kuujuaq, Quebec from 13-16 September 2010. At this meeting, participants (members of the IDSC and Users from the three jurisdictions) heard presentations from jurisdiction representatives on their respective polar bear management processes, as well as a presentation from Dr. Stephen Atkinson (polar bear biologist, Government of Nunavut) on the most recent western science population analyses, and a Nunavut public opinion survey presentation by Moshi Kotierk (Social Science researcher, Government of Nunavut). In addition, following an extended period of discussion, the Inuit representatives from Nunatsiavut, Nunavik and Nunavut presented two resolutions to the IDSC that were based on their traditional knowledge of the Davis Strait polar bears.

It should be noted that this process provided the first opportunity for Users from the three jurisdictions to meet face-to-face, exchange information and formulate common positions. Minutes of the meeting are appended to this document as Annex 1.

Summaries of these presentations are as follows:

### **Western science:**

A population inventory conducted in Davis Strait between 1974 and 1979 estimated that the population size was approximately 900 bears. This study was carried out on spring sea-ice where access to some bears in the population may have been limited. As such, it is recognized that the study may have underestimated the population size. Results from a new mark-recapture study conducted during the fall of 2005 to 2007 were first presented in 2009, and provided an estimate of 2 142 polar bears (95% confidence interval, 1811 – 2,534). More recent analyses of these data now estimate the Davis Strait subpopulation to be at 2 158 (95% confidence interval, 1 978 – 2 338). The preliminary results, which were used to inform the initial Montreal meeting, suggested that the Davis Strait subpopulation was (as of 2008) likely to decline in the absence of harvest and that any harvest would be appreciably additive. However, more recent analyses of the data indicate the unharvested population growth rate was approximately 3.3% in 2008. Taking into account the current 5-year mean annual harvest, the growth rate was 0% (i.e. considering current harvest regimes, as of 2008 the population was neither increasing nor decreasing in size).

It was also noted that polar bear density in the Davis Strait subpopulation is very high at 5.6 bears/1 000 km<sup>2</sup> of sea ice<sup>1</sup>, but that bears are currently showing relatively poor reproductive performance compared to other subpopulations. This may indicate that the population has reached carrying capacity (i.e. has peaked in size) and may decline in the future. It was further noted that a return to a lower density (i.e. a population decrease) is possible in the absence of any harvesting as a result of density-dependent processes and/or changes in environmental carrying capacity. Indeed, several lines of evidence support the prediction that the abundance of polar bears in the Davis Strait subpopulation will decline in future, including an aging population, decreased reproduction (i.e. low litter production rates and small litter sizes), as well as documented declines in body condition and size. Furthermore, if the current trend continues, a reduction in the quality and quantity of sea ice habitat, due to climate change, is predicted, and this may lead to reduced availability of prey species.

Biologists have prepared a presentation that summarizes their findings. This presentation is provided as an annex to this document (Annex 2).

### **Aboriginal Traditional Knowledge and User experience**

Inuit populations are encountering an increased number of bears near communities and out on the land, as well as more frequent human-bear interactions. They also report a rise in the frequency with which there is destruction to property including camps, snowmobiles and meat caches. This creates a significant negative impact on Inuit, and presents safety issues both within communities and for hunters out on the land. The Users also indicated that the increased number of bears was negatively impacting other animal resources that are important to Inuit for subsistence (e.g. predation of waterfowl species and their eggs). They also feared that this predation may have a notable impact on the survival of these species.

<sup>1</sup>. For comparison, densities in other seasonal ice subpopulations such as Baffin Bay, Western Hudson Bay and Southern Hudson Bay are approximately 3.5 bears/1 000km<sup>2</sup>.

The Users present at the workshop in Kuujjuaq created two resolutions that are provided as annexes to this document (Annex 3 & 4).

**Summary of conclusions reached following the Montreal meeting, the User-to-User Workshop, and follow-up teleconferences:**

1. Polar bears from the Davis Strait subpopulation are abundant and, as of 2008, the population was probably stable. While it is likely that the population estimate from the surveys in the 1970's underestimated the abundance of bears in Davis Strait, evidence suggests that the subpopulation has increased since that time. As noted during the western science presentation in Kuujjuaq, a population decline may now ensue (see Annex 2), although at this time local communities and hunters are experiencing an unacceptable amount of negative impact from interactions with bears.
2. The Inuit Users have witnessed an increase in the number of polar bears in Davis Strait.
3. While the scientific evidence presented in Kuujjuaq indicated some degree of fidelity to sub-regions, as well as regional variability in survival and recruitment, there is currently not enough evidence to warrant a change in the delineation of this subpopulation. Should new information become available through further investigation and analyses, this issue could be reconsidered.
4. While Users are challenging the naming and overall notion of subpopulations, as well as current subpopulation delineations in general, western science suggests that the Davis Strait subpopulation represents an appropriate grouping for harvest management decision making and should be maintained (see point 2, above).
5. At the meeting in Kuujjuaq, some users noted that quota systems could create a perverse incentive to maximize harvest whereas a harvest management system not based on a definitive quota system may better align with traditional Inuit conservation values, thereby leading to a lower overall harvest. Accordingly, the users requested that a pilot project be set up for period of five years in Nunavut. During this time, the quota system, as currently defined, would be abandoned in Davis Strait. Note that such a system could include the recording of take and may still impose other limits (e.g. take within a specific time period, "bag limit" or possession limit). While this concept has merits and is successfully employed in other hunting management regimes (e.g. waterfowl) it requires extremely careful consideration. Canada's capacity to responsibly manage wildlife is scrutinized both within Canada and by the international community. This will need to be factored into decision making processes. It is important to note that discussions with management authorities since the Kuujjuaq meeting indicate that there is not a great deal of support for the concept of abandoning the quota system.
6. At this point in time a reallocation of the current harvest (i.e. a reduction in harvest in Nunavut and Nunavik coupled with an increase in harvest in Labrador)

- is unacceptable to the Nunavut and Nunavik representatives. Current harvest levels have been in place for some time and any notion of re-allocation was not met with any support at either the Montreal or User-to-User meetings.
7. There was consensus during the meeting in Kuujjuaq that, in jurisdictions where a quota will be used, a flexible quota system, that allows for unused harvest carry-over from one year to the next, and a longer hunting season (as is current practice in Nunavut) may provide an appropriate way to address some User needs, while adhering to conservation principles.
  8. While Users have provided an extensive list of recommendations, it is important to note that some are within the purview of Provincial and Territorial governments, while others are the responsibilities of Wildlife Management Boards.
  9. A management objective should be established for the Davis Strait subpopulation in accordance with effective management principles and taking into account the long-term health of the subpopulation. This management objective could be reached through a combination of natural and anthropogenic causes, as well as through an increase in harvest, coupled with a commitment to continued monitoring of the subpopulation.
  10. In order to address Inuit safety concerns such as human-bear interactions and conflict, and considering the new population estimates and trend and harvest data, this management objective may be most appropriately set at a level that is below the current population size. During the meeting in Kuujjuaq, some Users noted that a management objective of 1 800 polar bears may be appropriate considering their harvest needs, and the level of human-bear conflicts.
  11. Population modeling, carried out following the meeting in Kuujjuaq, and based on current numbers, suggests that an increase in Total Allowable Harvest of 12 bears should not have a notable impact on the Davis Strait subpopulation (i.e. population growth rate would be  $0.99 \pm 0.01$  standard error).
  12. It is important to note that, due to uncertainties associated with the pressures impacting this subpopulation, there are risks that reaching and sustaining a management objective may not be feasible. This risk can be mitigated by increasing the frequency of population surveys.
  13. Any increase in harvest should be allocated first to Nunatsiavut Inuit as their current share does not reflect an equitable allocation of the harvest taking into account a much increased population of hunters in Labrador in recent years.
  14. An increase by six bears/year (for a new Total Allowable Harvest of 12 polar bear/year) for Nunatsiavut could be supported. It is important to note that this recommendation was supported by participants from Nunavut, Nunavik and Nunatsiavut. For Nunavut, any change in harvest level would be most appropriately discussed through community consultations. Nunavik will retain the Guaranteed Harvest Level afforded under the James Bay and Northern Quebec Agreement.

15. For the 2011 season, the Nunatsiavut request for a quota increase may be addressed through the adoption of a flexible quota approach. In 2010, five (5) bears were left un-harvested from the quota of six. These five bears could be added to the 2011 quota.
16. Users should be encouraged to continue their participation in management decision-making processes through involvement in workshops such as one held in Kuujuaq. The opportunity to formalize this role, as has been done in the Western Arctic (i.e. Inuvialuit - Kitikmeot agreement), should be explored.
17. Jurisdictions should continue to coordinate decision-making both through specific, purpose building meetings and teleconferences, as well as through use of the Polar Bear Administrative Committee (PBAC). Use of the PBAC or informal contact will be necessary in some cases in order to meet the tight regulatory timelines of some jurisdictions. For example, in Nunavut management objectives and recommendations of TAH have to be submitted to the NWMB before February 2011 to allow for implementation in time for the July 2011/12 harvest season.
18. All incidences of human-bear conflict should be documented and reported on an annual basis to authorities who will share the data with the PBAC through the Polar Bear Technical Committee.

## **Recommendations**

The Interjurisdictional Davis Strait Committee therefore recommends that jurisdictions,

1. recognize the thorough engagement of Users and managers from the relevant jurisdictions in this process,
2. use the information provided to guide appropriate decision-making,
3. ask the Interjurisdictional Davis Strait Committee, in collaboration with the PBAC, to continue its work, providing more precise recommendations for a management objective, associated Total Allowable Harvest levels and allocation of the harvest between Nunavut, Nunavik and Nunatsiavut,
4. independent from any changes to harvest level, adopt a flexible quota system in Labrador to address immediate Nunatsiavut requests for an increase in Total Allowable Harvest while efforts associated with recommendation 3 (above) continue,
5. as initiated through this process, continue to make collaborative Total Allowable Harvest decisions that acknowledge both the autonomy of each jurisdiction, as well as the shared nature of the Davis Strait polar bear resource,
6. review and update recommendations whenever new monitoring data or scientific population estimates become available,
7. conduct population surveys during the fall months, whenever possible, to ensure robust, compatible and accurate population estimates,

8. whenever possible, and subject to the availability of funds, conduct population inventories at intervals that match the harvest decision made.
9. If TAH is increased by 12 bears, jurisdictions should anticipate that some form of monitoring will be required within the next 10 years to manage risk that the population does not fall below 1 500-1 800 bears.
10. develop a standardized reporting system to be implemented across jurisdictions regarding encounter rates/human-polar bear interactions and defense kills so that changes in frequency are documented and are quantifiable,
11. explore with experts the determination of appropriate Inuktitut names for the subpopulation,
12. encourage jurisdictions to explore the benefit of systematically documenting Aboriginal Traditional Knowledge

Annexes:

1. Minutes of the Kuujjuaq User-to-User meeting
2. Western science presentation
3. Resolution #1 from the Users
4. Resolution #2 from the Users