



**SUBMISSION TO THE  
NUNAVUT WILDLIFE MANAGEMENT BOARD**

**FOR**

**Information:**

**Decision: X**

**Issue:** Davis Strait Polar Bear Total Allowable Harvest and Domestic Inter-jurisdictional Management.

**Background:**

Within Canada, the Davis Strait (DS) Polar Bear Population is shared by Nunavut, Quebec and Labrador. This population is also opportunistically harvested by residents of Greenland, although historical harvest levels have been low.<sup>1</sup>

The population was first inventoried in the 1970s (1974-79) by a mark-recapture study conducted during the spring-time. This study did not cover the entire area which is now defined as “Davis Strait” and likely underestimated the population size at approximately 900.

Based on the population estimate derived from the 1970s study, jurisdictions around DS attempted to managed harvesting around a combined maximum of 57 bears annually; informally acknowledging harvest levels in each jurisdiction as follows: Nunavut 34 Quebec 15, Nunatsiavit 6, and Greenland 2.<sup>2</sup>

In 1992 and 1993 surveys found larger densities of bears as well as older bears. Satellite tracking information from 1991 to 94 also indicated large numbers of bears offshore in pack ice. This was also confirmed by Traditional Knowledge. Subsequently, through population modeling it was estimated that the population needed to be at least **1400** to sustain a harvest of 57 animals. The population estimate, as reported by the Government of the NWT, was increased in 1995 to **1400** to sustain a harvest of 57 (4.1%).<sup>3</sup>

During the Nunavut MOU consultations in 2005, Inuit indicated that the DS population had increased and, based on Inuit Knowledge, the NWMB and GN supported an increase in the Nunavut TAH from 34 to 46. This raised the total combined harvest from 55 to 65.

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<sup>1</sup> Current 5-year mean of 2 bears annually

<sup>2</sup> Harvest levels in Nunavut and Nunatsiavit are regulated as a TAH and quota respectively. Harvest in other jurisdictions is not regulated.

<sup>3</sup> This revised estimate was also supported by the Canadian Polar Bear Technical Committee

The population was identified as the highest priority for research, and the GN initiated a population inventory mark-recapture study (2005-2007). The results indicated that the population significantly increased from the estimated 900 bears in the 1970s. Specifically, the results indicated that, as of October 2007, the new population estimate was 2158 bears with a 95% confidence interval of 1833 – 2542. Population growth rate before accounting for harvest was estimated at 3.7%. The current total combined harvest from DS of approximately 67<sup>4</sup> bears annually represents about 3.1% of the 2007 population estimate. At this level of harvest, the population would remain stable if it is assumed that productivity (i.e., reproduction and survival) remains unchanged in future<sup>5</sup>. However, results from the study provide evidence that DS is experiencing a decline in productivity that is predicted to lead to a decline in the abundance of bears in future<sup>6</sup>. This reduced productivity may, in part, be attributable to the effects of high bear densities<sup>7</sup> which came about during a period of population growth from the 1970s to the present. In addition, an observed long-term negative trend in sea-ice (i.e., longer open water periods) which may be the result of climate change has raised concerns that polar bear habitat and access to prey (i.e., seals) are undergoing long-term declines that will affect the status of this population.

Inuit have identified that large numbers of bears create public safety concerns; especially for people going out on the land, and that the bears are having negative impacts on other wildlife; for example by consuming large numbers of young seals and damaging nesting bird colonies.

## **Current Status**

So far, Canadian jurisdictions around DS have taken a coordinated approach in responding to the findings of the recent population study. A User-to-User workshop was held in Kuujuaq, Quebec from 13 to 16 September, 2010. The purpose of the workshop was to review study results alongside local knowledge/IQ and to discuss future harvest management. In brief, the outcome of the workshop was as follows:

- The Nunatsiavut Government requested that their TAH be increased from 6 to 12 bears. All parties present at the workshop supported this request recognizing the relatively small size of Nunatsiavut's existing quota relative to the proportion of DS bears using land and sea-ice in, or adjacent to, this jurisdiction.

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<sup>4</sup> Based on 5-year average

<sup>5</sup> Given observed trends in sea-ice and the condition and reproductive performance of bears in DS, this assumption is unlikely to remain valid for an extended period.

<sup>6</sup> Body condition and size is also declining

<sup>7</sup> Densities of bears in DS are amongst the highest recorded in a polar bear population.

- The Newfoundland Government indicated they did not support an increase in harvesting levels in DS; instead, they want to see the existing allowable harvest reallocated amongst jurisdictions such that a portion of Nunavut's TAH is reallocated to NL.
- Under the James Bay Agreement, Quebec has a guaranteed minimum harvest of up to 60 bears from the DS, Foxe Basin and Southern Hudson Bay sub-populations combined. There is no specified or regulated harvest for DS. Consequently, it was determined that there is presently no means to reallocate harvesting between Quebec and other jurisdictions.
- A motion was passed by user groups represented at the workshop to eliminate the TAH in Nunavut completely for a set period of time, and permit unlimited harvesting.

### **Recommendations:**

Having evaluated the scientific evidence and available traditional knowledge as well as taking into account the outcome of the Kujuaq workshop, the GN recommends a management objective for DS of modest population reduction in the medium term (10 years). This management objective also takes into account;

- (a) The current abundant status of the population;
- (b) Evidence suggesting that population productivity and abundance may decrease in future as a result of processes unrelated to harvest
- (c) Concerns over public safety and impacts on other harvest wildlife resulting from the high density of bears presently in DS; and
- (d) The need to ensure on-going hunting opportunities for communities.

Given this management objective, the Department of Environment (DOE) recommends to the NWMB a total harvest increase of 15 bears from DS. As per discussions at the Kujuaq workshop, DOE recommends that 9 of these 15 bears be allocated to the 3 Nunavut communities, and that the remaining 6 be made available to Nunatsiavut, in response to their request for an increase of 6 bears.

This modest increase is expected to bring the average total annual harvest in DS to approximately 82 bears; an increase of 22%. At this level of harvest, population size would remain at or near 2007 numbers if rates of reproduction and survival remained unchanged. However, given the findings of the recent study, the assumption that these rates will remain constant in future is very unlikely to be valid. On-going density effects, changes in environmental conditions such as sea-ice (hence carrying capacity) and unreported harvest are all potential factors, not taken into account in population projections, that are

likely to influence rates of reproduction and survival in future. Although the impact of these limiting factors cannot be accurately quantified or reliably modeled, they are most likely to exert a downward influence on population size and productivity.

In recommending an increase in harvest level, it is assumed therefore that harvest combined with other limiting factors will act to decrease the abundance of the DS population in accordance with the management objective. However, since the combined effect of these factors on population size cannot be accurately predicted, a modest increase in harvest level is recommended that on its own would have relatively little effect on population status in the medium term.

Recognizing that there is significant uncertainty surrounding future changes in the status of this population, the risk associated with the proposed increase in harvest must be mitigated by a commitment to monitoring. DoE, therefore recommends that a follow-up study, which cost effectively capitalizes on the high proportion of marked bears still present in DS, be conducted within 10 years after the increase to estimate population size and status and reassess harvest levels. If a study cannot be done, it is recommended that the TAH revert back to the 2010/11 levels in-order to manage risk of over harvest and exercise the precautionary principle inherent within the NLCA.

This combination of a modest increase in harvest levels and a commitment to future monitoring represents a reasonable application of the precautionary principle.