



SUBMISSION TO THE
NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information: X

Decision:

Issue: The planned 2011 aerial survey of the Western Hudson Bay polar bear population.

Background:

The last mark-recapture estimate of Western Hudson Bay (WH) polar bear population was done in 2004 by Environment Canada (EC). The Department of Environment (DoE) and EC are working to update the population estimate by incorporating new mark-recapture data collected between 2004 and 2010. Results are expected in spring 2011.

In addition, the use of aerial surveys as a method of assessing or monitoring the population is being studied. A pilot aerial survey was undertaken in 2010. The information generated will support design of a full WH survey.

Current Status:

Designing an effective aerial survey requires some knowledge of the distribution of bears in order to identify the areas which require surveying and how best to allocate the available search effort (flying time).

Far less is known about the summertime distribution of WH polar bears within the Kivalliq region in comparison to areas within Manitoba that are the focus of EC's mark-recapture studies.

The primary objective of the pilot survey was therefore to map the distribution and density of polar bears in the Nunavut portion of WH only; from just south of Chesterfield Inlet down to the Manitoba border.

HTOs in WH, the GN and NTI worked together to organize the pilot aerial survey. During a workshop in Churchill in July, HTO representatives from Arviat, Whale Cove, and Rankin Inlet provided local knowledge/IQ regarding summertime areas used by polar bears in WH. These were incorporated into the survey design.

The survey was conducted in late August and early September. Approximately, 55 hours were flown. To ensure areas identified by HTO's were covered and to fully evaluate the extent of polar bear distribution in the region some transects extended up to 75 km inland. Offshore islands were also sampled. A report summarizing the results will be distributed in winter 2010.

The test survey **will not** result in new TAH recommendations but will be used to make recommendations regarding a full survey of WH; currently under consideration by the DOE for 2011.

One of the limitations in using aerial survey methods in WH is the inability to detect bears underground in dens. Unless this source of bias is corrected, an aerial survey will underestimate the size of the population. The degree of bias cannot be accurately determined. However, based on current knowledge of the denning habits of polar bears in WH, it appears population size could be underestimated by as much as 15-20%.

Potential methods to accurately correct for denned bears are being explored but a solution has not currently been identified. Without a solution to this problem, a full aerial survey still has some useful applications including the following:

- Although not producing a total population estimate, an uncorrected aerial survey is capable of providing a relatively precise minimum population estimate. This estimate can be used to make TAH recommendations, albeit more conservative than those derived from a total estimate.
- Understanding population trend is as important as knowing population size. A minimum estimate derived from aerial survey can be used as an index to monitoring the trend in WH. This provides a non-invasive, quick and relatively inexpensive monitoring tool.
- While this would not provide the basis for setting TAH it would allow monitoring of population trend
- If the scientific estimate of the size of the WH (based on mark-recapture studies) is considerably different from that suggested by local/Inuit knowledge, even an uncorrected aerial survey may have sufficient precision and accuracy to distinguish between these two perspectives.