SUBMISSION TO THE

NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information: **Decision: X**

Issue: Proposed modification to the Total Allowable Harvest of the M'Clintock Channel polar bear subpopulation from 3 to 18.

Background:

- The M'Clintock Channel (MC) polar bear subpopulation is entirely within the Kitikmeot region of Nunavut (Figure 1). The current boundaries for MC are based on recoveries of tagged bears and movements of adult females with satellite radio-collars in adjacent areas (Taylor and Lee, 1995; Taylor et al., 2001) and gene frequencies in the respective subpopulations (Paetkau et al. 1999, Campagna et al., 2013; Peacock et al. in prep). These boundaries appear to be a consequence of large islands to the east and west, the mainland to the south, and the multi-year ice in Viscount Melville Sound to the north. A 6-year mark-recapture study in the mid-1970s (Furnell and Schweinsburg 1984) reported ~1100 animals for an area that overlapped both M'Clintock Channel and the Gulf of Boothia (Fig. 1.). The Federal/ Provincial/ Territorial Polar Bear Technical Committee (PBTC) "corrected" the MC estimate to 900 bears (COSEWIC, 2008) possibly based on approximate extrapolation of apparent densities from the Furnell and Schweinsburg (1984) study. During community consultations in 1993, local hunters suggested reducing the MC estimate to ~700 animals because of a perceived decline in abundance in the southern and western portion of the subpopulation at current harvest rates. The revised TEK estimate of 700 was accepted by the PBTC as an interim value until a new study could be completed, and subsequent MC polar bear quotas and status determinations were based on the TEK estimate. No confidence intervals were identified for either estimate.

- Following completion of a mark-recapture inventory in spring of 2000, the subpopulation was estimated to number only 284 bears (SE = 59.3; Taylor et al. 2006). The legal harvest (averaging 34.0 bears per year from 1979–1999) for M'Clintock Channel, which was based on the 700 estimate was not sustainable. The Government of Nunavut implemented a moratorium on hunting for the 2001/2002 and 2002/2003 hunting seasons. The current annual quota for M'Clintock Channel was identified as three per year with a minimum 2/1 male to female harvest sex ratio requirement to allow eventual population recovery to 700. Considering the harvest of polar bears since the most recent study was completed in 2000, the current estimate for the MC population from simulations is 336 (SE = 130.

- The scientific data, which suggested low abundance of polar bears in M'Clintock Channel in 2000 due to over-harvest, is supported by several GN-funded TEK-studies. Gjoa Haven hunters reported that the number of bears near their community had declined over the past 30 years (Keith et al., 2005). Other areas where decreased numbers of polar bears have been reported included the Royal Geographical Society Islands, Pasley Bay, northern King William Island, Gateshead Island, Larsen Sound, and the M'Clintock Channel itself (Atatahak and Banci 2001). Inuit suggested that polar bears were no longer present in the Queen Maud Gulf area prior to the moratorium (Keith et al. 2005). Inuit hunters also reported a decline in the number of adult male bears in southern regions of M'Clintock Channel but found that large males could still be found further to the north (Atatahak and Banci 2001; Keith et al. 2005). This finding is consistent with what one could expect from a male-selective over-harvest (Taylor et al., 2008).

- In addition to unsustainable harvesting, recent changes in habitat and disturbance by humans were also identified by Inuit as potential reasons for the reduced abundance of bears in M'Clintock Channel (Keith et al., 2005). One noted habitat change has been the recent absence of multi-year ice and icebergs, which may reduce the quality of habitat because of tide crack (breathing hole) formation at the edges of these bergs and multi-year ice floes. Human disturbances such as the construction of DEW (Distant Early Warning) line sites, construction of Inuksuit, and noise from aircraft and snowmobiles are also thought to have contributed to the low density of bears around the community of Gjoa Haven (Keith et al., 2005).

Current Status

- At the Nunavut Wildlife Management Board meeting in June (2013) the Kitikmeot Regional Wildlife Board requested an increase in the M'Clintock Channel Total Allowable Harvest by 15 bears, for a total of 18 bears.
- The request is based on anecdotal reports from local hunters that the population has been increasing.
- Beginning in April 2014, the Government of Nunavut is conducting a new 3-year genetic mark-recapture study to estimate the abundance of polar bears in MC.
- Results of the current abundance estimate will not be available until 2017.
- Using vital rates from the 1998 to 2000 research and harvest data between 2000 and 2012 in simulation models, the estimated number of bears in MC is 336 (SE 130).

Recommendation:

- The MC subpopulation was considered to have been severely depleted at the time of the most recent population estimate of 284 bears (2000), and in order to ensure recovery of the population to the target number of 750 bears as per the 2005 MOU, a small TAH of 3 bears was recommended. At the current harvest levels, it would take until 2027 to reach the target number of 750 bears, assuming the vital rates of the 2000 study did not change significantly.
- During consultations for the development of the new Nunavut Polar Bear Co-Management Plan, the HTO boards and members of the communities of Cambridge Bay, Gjoa Haven, and Taloyoak stated they were satisfied with the current abundance of bears in MC. Community and HTO members expressed that it is unsafe to camp on the land in many areas within the subpopulation boundary.
- In order to address a public safety concern, the GN-DOE is in support of a small increase of the MC TAH up to a total of 6 bears until new information becomes available, and a more rigorous assessment of the population status can be performed (Figure 2). This small increase in TAH for such a short time frame is not considered a conservation concern.

Information to consider when determining the TAH:

- The currently available data for the MC polar bear population is dated. It is uncertain how environmental changes, low bear densities and current sex and age structure of bears have affected population growth and distribution, even though the population was managed for an increase since 2000.
- A new population estimate will be tentatively available in 2017 which will allow the re-evaluation of the status and sustainable harvest levels for the MC population.
- Currently, the target number for the MC population is 750 as per the 2005 MOU. The development of the new Nunavut Polar Bear Management Plan will bring opportunities to discuss and consider future desired management objectives and goals for the MC polar bear subpopulation (e.g., target number for MC).
- If a decision by the NWMB is made to change the current MC TAH, then the allocation of tags should occur under the guidance of the responsible RWO, following the flexible quota system.

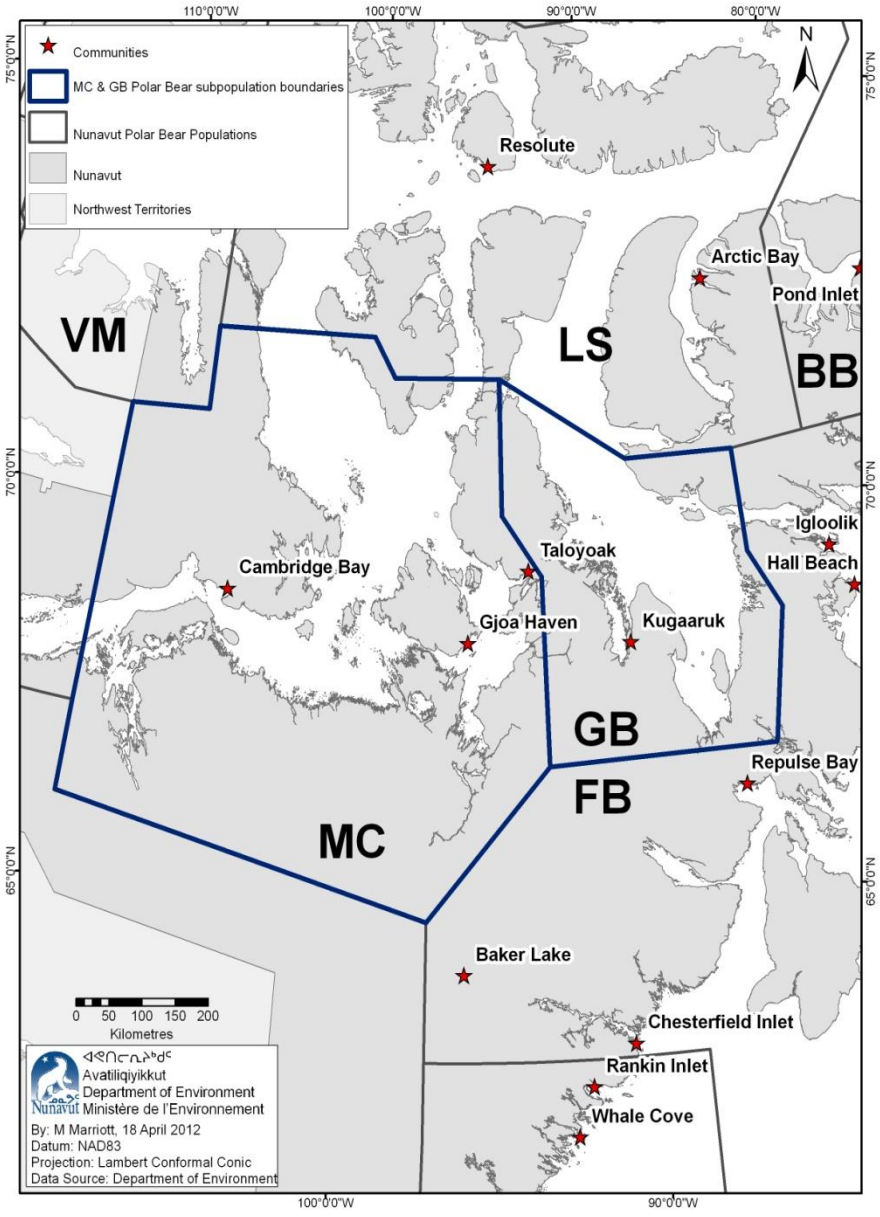

Figure 1. The geographic boundaries of the M'Clintock Channel polar bear subpopulation (MC).

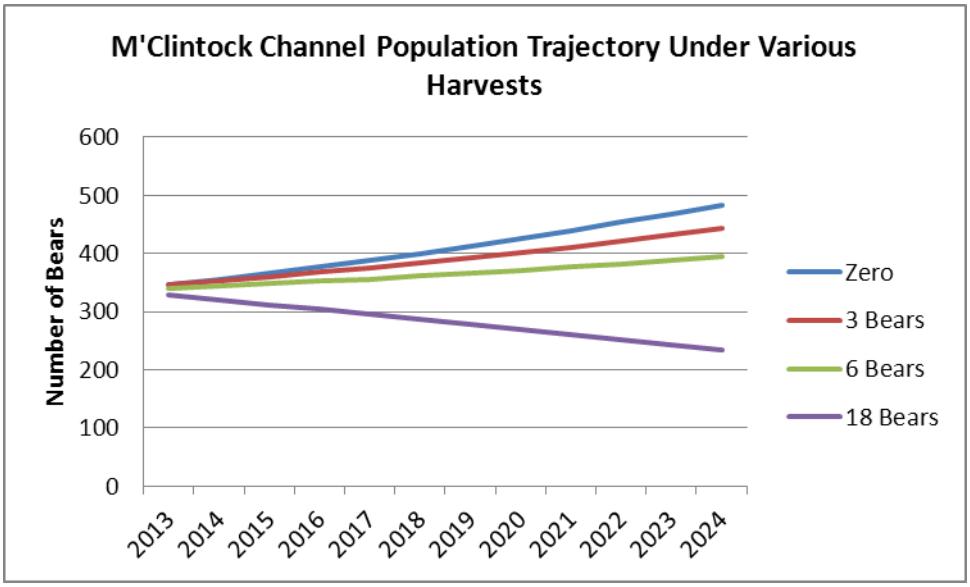

Figure 2. Predicted population trends for the M'Clintock Channel subpopulation over a 12 year period under four different harvest scenarios, no harvest, the current TAH of three bears, an increase to six bears, and the requested increase to 18 bears.

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