



**SUBMISSION TO THE**

**NUNAVUT WILDLIFE MANAGEMENT BOARD**

**FOR**

**Information:**

**Decision: X**

**Issue:** Total Allowable Harvest (TAH) Recommendations for the Davis Strait (DS) Polar Bear Subpopulation

**Background:**

- The Davis Strait (DS) polar bear subpopulation is shared between Greenland, Nunavut, Nunatsiavut (Newfoundland and Labrador) and Nunavik (Québec) (Figure 1). The last inventory study to estimate abundance was conducted between 2005-2007, which resulted in an estimate of  $2,158 \pm 360$  bears (Peacock et al. 2013). The DS polar bear subpopulation was considered stable at that time, but was displaying lowered reproductive rates.
- The Nunavut communities of Iqaluit, Kimmirut, and Pangnirtung harvest from DS. The current TAH for DS is 61 bears per year. This TAH was set under the Flexible Quota System (FQS) at a 2:1 harvest sex ratio. The average harvest between 2012/2013 and 2021/2022 was 42 bears per year (Figure 2). The lower actual harvest relative to the TAH is likely a result of reduced market value of polar bear hides. The harvest limit in Labrador is 12 bears per year, with no mandated harvest sex ratio. There is no mandatory harvest reporting in Quebec; harvest numbers are approximated based on tags issued for hides that are sold.
- The population data were out-of-date, and a new study was needed to assess the status of this subpopulation. Following community consultations during 2016, a new 2-year study began in 2017. The method used for this study was the less-invasive genetic mark-recapture DNA-biopsy sampling. The new study was conducted between 2017 and 2018 (Dyck et al. 2021).
- Alongside scientific monitoring, an IQ study on the health, abundance, and distribution of polar bears in DS was conducted with Hunter and Trapper Associations (HTAs) from Pangnirtung, and Kimmirut, and Government of Nunavut, Department of Environment (GN ENV) collaborators at Environment and Climate Change Canada (ECCC) and the University of Calgary (Tomaselli et al. 2022). Initially, it was planned to have both individual and group interviews in person, however, the COVID-19

pandemic prevented local in-person meetings for group interviews in Pangnirtung only. As a result, there were 14 participants individually interviewed in Pangnirtung, 21 participants individually in Kimmirut, and 4 group interviews in Kimmirut.

### **Current Status:**

- The final report and results for the 2017-2018 study are available and were distributed to all relevant co-management partners in May 2022. The new abundance estimate of 2,015 bears is slightly less than the estimate from the last study in 2005-2007 in which abundance was estimated at 2,158 (Dyck et al. 2021).
- This corresponds with the Nunavut management objective to slightly reduce the Davis Strait subpopulation which was part of the rationale to increase the total allowable harvest from 46 to 61 bears in 2013.
- Population growth between 2006 and 2018 was 0.989 which corresponds to a 90% probability that population growth was  $<1$  and thus the population did not increase over this period.
- Body condition of bears was better in 2017-2018 compared to 2005-2007; in both study periods bears, on average, were not in poor condition.
- Reproduction was similar in 2017-2018 compared to 2005-2007, although reproduction remains lower than neighbouring subpopulations, such as Baffin Bay.

### **Consultations:**

In-person community consultations with relevant representatives from DS Hunters and Trappers Associations (HTA) were held between May 8-11, 2023. Consultations included discussions around the results of the scientific study and the IQ study and how both contributed to knowledge on DS polar bears. HTA members agreed generally with the findings of the reports, although the scientific polar bear abundance showed a decline, whereas, IQ showed an increase. It was noted that these differences are likely due to differences in spatial coverage, perspective (i.e., snowmobile vs. helicopter), and timeframe (1970s-2019 vs. 2005-2018). GN ENV staff sent discussion questions regarding TAH recommendations to HTAs after the consultations. To date, no HTAs have sent feedback. Staff from Nunavut Tunngavik Inc., Nunavut Wildlife Management Board, and Qikiqtaaluk Wildlife Board (QWB) also attended several meetings (see details in DS Consultation Summary Report by GN ENV).

## Recommendations:

1. ENV recommends **no change to the current TAH of 61.**

These recommendations were derived by taking all available information into consideration. Particular comments are as follows:

- a) Although a TAH of 61 was put into place at a sex selective ratio of 2:1, our recommendation of a TAH of 61 would be at a ratio of 1:1 under the Harvest Administration and Credit Calculation System (HACCs). Since HACCs began, the average female proportion of harvest in 2019/2020 until 2021/2022 was 30.1%. Females have been underharvested relative to the annual recommended quota by approximately 38.2% on average during 2017/2018 – 2021/2022 time-period. This is similar to the 2:1 ratio, but allows Inuit to harvest up to 1:1 if needed.
- b) The recommended TAH keeps in mind that the previous management objective was to slightly reduce the DS subpopulation, while maintaining a viable polar bear subpopulation, and that the ecosystem of which DS bears are an integral part of continues to undergo change due to climatic changes. Setting DS harvest levels too high increases the risk for biological decline or depletion in DS.

## References:

- Dyck, M., K. D. Dunham, J. V. Ware, D. N. Koons, E. V. Regehr, D. W. Hosmer, A. E. Derocher, A. Dale, J. Pisapio, and G. Szor. 2021. Re-estimating the abundance of the Davis Strait subpopulation by genetic mark-recapture. Prepared for Department of Environment, Government of Nunavut, Igloolik, Nunavut, 108 pp.
- Government of Nunavut, Department of Environment. 2023. Consultation with Pangnirtung, Amaruq, and Mayukalik Hunters and Trappers Association on the Re-estimating the Abundance of the Davis Strait Polar Bear Subpopulation by Genetic Mark-Recapture 2022 Report and the Nunavut Inuit Qaujimajatuqangit on the Health of the Davis Strait Polar Bear Population 2022 Report, May 8-11, 2023. Iqaluit, NU. 24 pages.
- Peacock, E., Taylor, M.K., Laake, J., and Stirling, I. 2013. Population ecology of polar bears in Davis Strait, Canada and Greenland. *Journal of Wildlife Management* 77: 463-476.
- Tomaselli, M., Henri, D., Pangnirtung Hunters and Trappers Organization, Mayukalik Hunters and Trappers Organization, Akavak, N., Kanayuk, D., Kanayuk, R., Pitsiulak, P., Wong, P., Richardson, E., and Dyck, M. 2022. Nunavut Inuit Qaujimajatuqangit on the Health of the Davis Strait Polar Bear Population. Final Project Report.

# Appendix 1

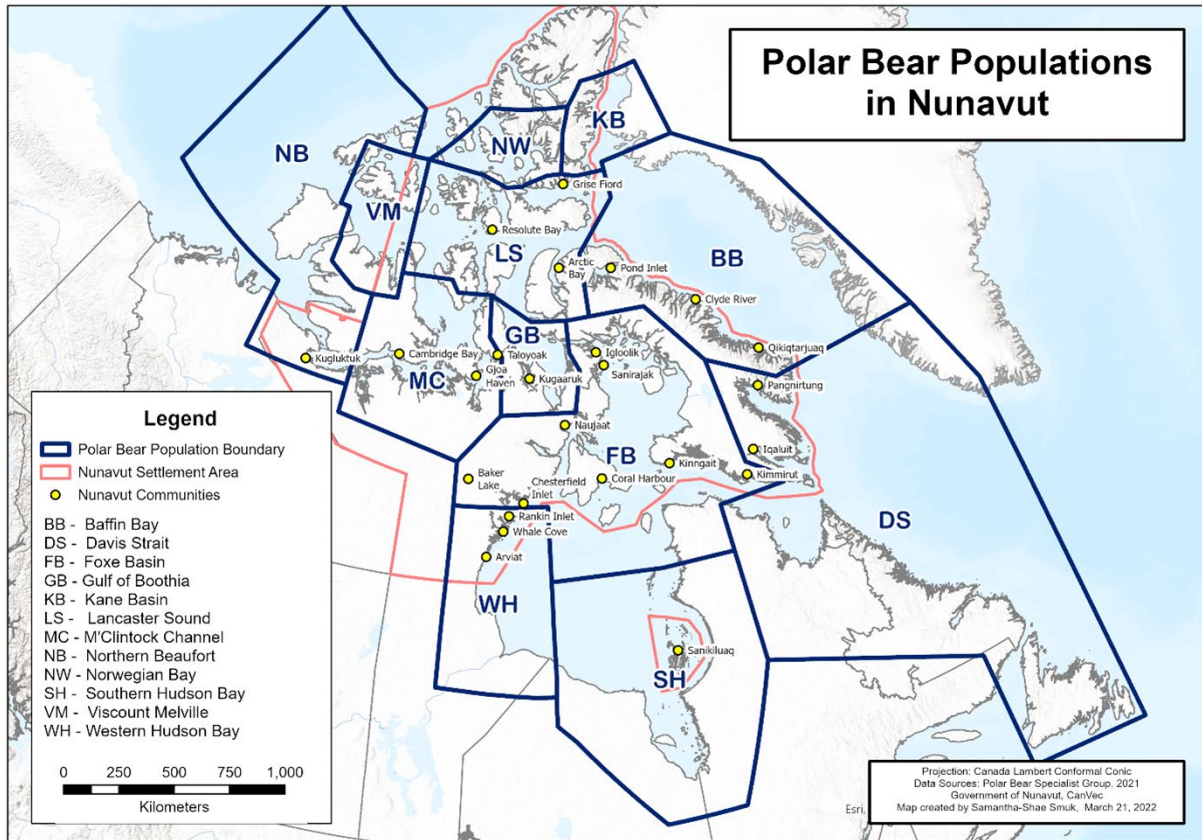


Figure 1. Overview of Nunavut polar bear subpopulations (DS = Davis Strait, BB = Baffin Bay).

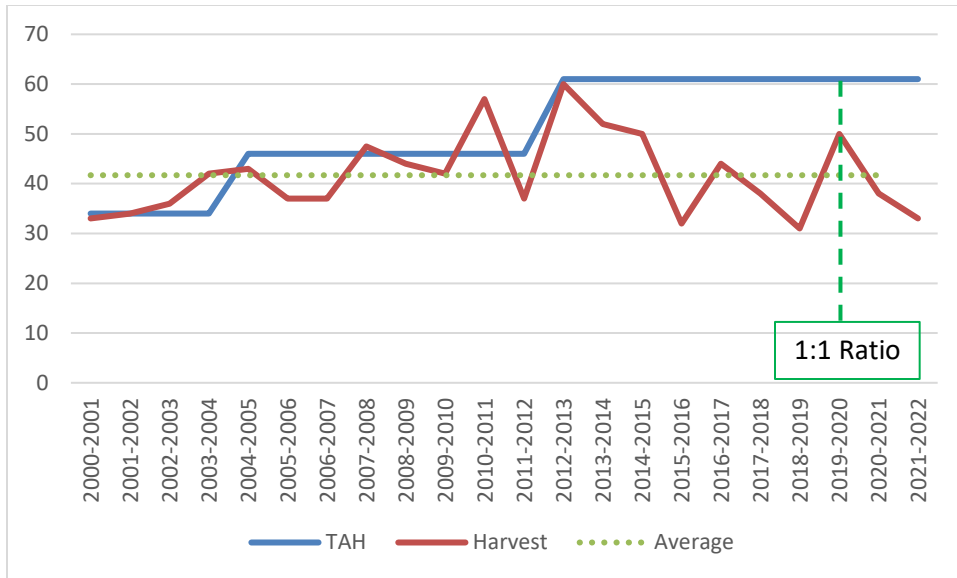


Figure 2. Overview of the Davis Strait polar bear Total Allowable Harvest (TAH), actual and average harvest since 2000. The harvest sex ratio was changed to 1:1 in the 2019-2020 harvest season.