

**GENETIC MARK-RECAPTURE SURVEY OF POLAR BEARS IN KANE BASIN:  
SATELLITE COLLAR RECOVERY**

**INTERIM REPORT TO THE NUNAVUT WILDLIFE RESEARCH TRUST**

**MAY 3, 2015**

**NWRT PROJECT NUMBER: 2-15-13**

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## **SUMMARY**

In accordance with commitments under the 2005 Polar Bear Memorandum of Understanding (MOU) (section 7.1), the Government of Nunavut, in collaboration with the Greenland Institute of Natural Resources conducted a 3 year mark-recapture study of the Kane Basin (KB) polar bear sub-population between April 2012 and May 2014. The objectives of the study were to provide updated information on subpopulation status. Data from the study are currently being analyzed and results will be reported in 2015. In contrast to previous polar bear studies in the region, most (67%) of the bears encountered during this study were not captured and tagged. Instead, bears were individually identified using DNA that was obtained by means of biopsy darts. However, in 2012 and 2013, a small sample of bears were captured in-order to attach satellite ear-tag and collar transmitters. These instruments have provided important information on the movements of polar bears in Kane Basin that will be used to re-evaluate the boundaries of this sub-population and study habitat use. The instruments were designed to degrade and fall off or to automatically self-release after a period of time so that the bears would not need to be recaptured to remove them. However, some of the self-releasing mechanisms failed. Consequently, it was proposed to locate and capture bears that were still wearing collars in-order to remove the collars.

Between April 7<sup>th</sup> and 13<sup>th</sup>, 2015, five adult female polar bears and accompanying offspring were captured and the satellite collars were removed. All of the collared bears were in average body condition and did not have any significant physical injuries as a result of the collars. Four of the 5 collared bears had some mild hair loss around the neck underneath the collars. The fifth had some bare skin under the collar. None had any cuts or skin abrasions. Most (60%) individuals showed signs of having recently fed. A sixth collar that had recently released itself was also recovered. The bear that had worn this collar was observed nearby accompanied by 2 cubs.

As of May 2<sup>nd</sup>, 2015, two of the 16 satellite collars deployed on bears in Kane Basin are still active. Both are in northern Baffin Bay near the boundary with Kane Basin. Efforts will be made to recover these collars in the summer of 2015 if these bear come ashore in Nunavut.

## **OBJECTIVES**

Objectives of the 2015 field season were: 1) Removal of all remaining active satellite collars from adult female bears in Kane Basin. 2) Collection of data on the condition and reproductive status of these individuals.

Objectives of the overall study are: 1) To estimate the abundance and composition of polar bears in KB. 2) To compare a new estimate of abundance with those derived from earlier studies to gain insight into population trend. 3) To estimate survival and reproductive parameters (to the extent possible) in-order to facilitate population viability analyses. 4) To delineate the boundaries of the KB sub-population and reassess the

validity of this area as a demographic unit. 5) To evaluate polar bear distribution and habitat use with respect to environmental variables, particularly ice conditions, topography and food availability distribution.

## **MATERIALS AND METHODS**

Using a helicopter, collared bears in Kane Basin were located by means of GPS coordinate data transmitted from the collars as well as aerial tracking of the VHF signal beacons on each collar. Once located, bears were captured according to standard immobilization protocols using the drug Zoletil® administered at published doses (Stirling et al. 1989). For each captured bear, standard body measurements were taken and a physical examination was completed to assess overall condition prior to release. Physical effects of the collars on the bears were noted and photographs were taken to document any collar related impacts.

## **PROJECT SCHEDULE**

To date the project has remained on schedule as originally proposed. However, reporting of final project results is expected to be delayed until summer 2016. This delay reflects additional time required for laboratory and data analyses.

<b>OUTPUT OR STEP</b>	<b>START DATE</b>	<b>END DATE</b>	<b>PERSON DAYS</b>
Logistical preparations	01/12/2014	01/04/2015	6
Fieldwork	08/04/2015	19/04/2015	12
Final data analyses, preparation of reports and peer-reviewed publications	01/12/2014	31/07/2016	TBD
Community Consultation on Results	TBD	TBD	TBD

## **PRELIMINARY RESULTS & DISCUSSION**

Between April 7<sup>th</sup> and 13<sup>th</sup> five collared adult female polar bears were located and captured (figure 1). Each of these bears was accompanied by offspring; a total of 4 cubs-of-the-year and 4 2-year-olds.

None of the collars had caused significant physical injuries to the bears. Four of the 5 individuals had mild hair loss around the neck underneath the collars (figure 2). The fifth had some bare skin under the collar. None had any cuts or skin abrasions. Collared bears were in average body condition with condition scores ranging from 2.5 to 3.5 on a scale of 1 to 5 (Stirling et al. 2008). Most bears (60%) showed signs of recent feeding such as fresh blood on the face and paws or full stomachs. A sixth collar that had recently released itself was also recovered. The bear that had worn this collar was observed nearby accompanied by 2 cubs.

As of May 2<sup>nd</sup>, 2015, two of the 16 satellite collars originally deployed on bears in Kane Basin in 2012 and 2013 are still active. Both are in northern Baffin Bay near the boundary with Kane Basin. Efforts will be made to recover these collars in the summer of 2015 if these bear come ashore in Nunavut.

**REPORTING TO COMMUNITIES/RESOURCE USERS**

Following a consultation meeting in 2012, the project received support from the Iviq HTO. One HTO member participated in fieldwork for a day in 2012. In 2013 and 2014, an HTO member participated for the full duration of the fieldwork. Written annual progress reports summarizing the fieldwork have been provided the HTO.

COMMUNITY/HTO	BEFORE	DURING	COMPLETION
Grise Fiord/Iviq HTO	Jan 2012, in-community	April 2012, 2013, 2014, in-community during fieldwork  Winter 2012, 2013 & 2014, by correspondence	Fall/winter 2016, in-community

**REFERENCES**

Stirling, I., C. Spencer, and D. Andriashek 1989. Immobilization of polar bears (*Ursus maritimus*) with Telazol® in the Canadian Arctic. *J Wildl Dis* 25:159–168.

Stirling, I., G. W. Thiemann, and E. Richardson. 2008. Quantitative support for a subjective fatness index for immobilized polar bears. *Journal of Wildlife Management* 72:568-574.

Figure 1. Locations of recovered satellite collars.

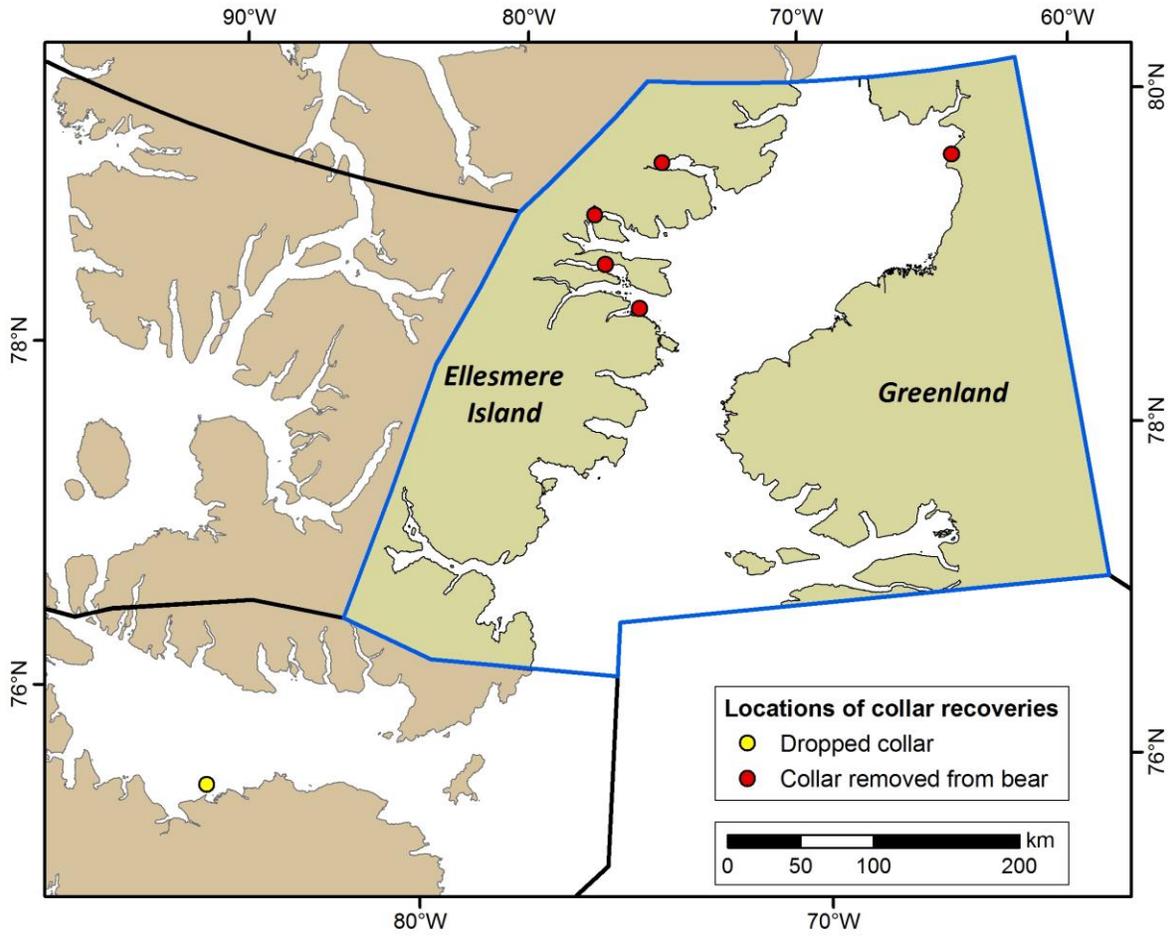


Figure 2. Photographs of collared bears (a) before and (b) after collar removal.

