

To collar or not to collar?

Community-driven questions

Collaring technology (radiotelemetry) helps answer questions that are practically impossible to answer with other methods:

- ◆ Where do bears go when we can't see them?
- ◆ How does **shipping** affect bears on the ice?
- ◆ How far do they move? Have **denning** locations changed?
- ◆ How are bears **adapting** to changes in sea ice?
- ◆ Do they use different areas now than in the past?
- ◆ Do changes in their movements change how bears and **humans** interact?



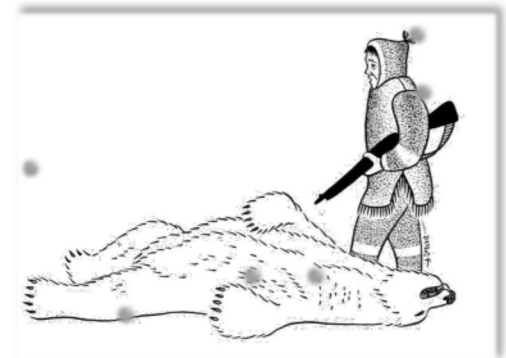
Nunavut's role

- ◆ Nunavut biologists report to co-management partners, federal agencies, and international entities on the status of polar bears, which supports **harvest and export of Nunavut polar bear products**.
- ◆ Information on polar bears in Nunavut informs **environmental impact assessments for proposed industrial development such as mines, cargo shipping, etc.** Movement data would help provide more accurate assessment of impacts.
- ◆ Movement data improves accuracy of survival rates and population estimates. The **abundance and survival of bears directly impacts harvest levels**.



Why not use Inuit Qaujimajatuqangit?

- ◆ **It is used!** Inuit Qaujimajatuqangit (IQ) is one of the most powerful tools. **Local knowledge and IQ are reporting that climate change, industrial development, and shipping could affect polar bears.**
- ◆ Biologists understand and respect the societal values that create concerns for collaring and have **worked to use less invasive methods for knowledge gathering.**
- ◆ No single method of knowledge gathering can tell the full story. It is best to use all the tools we have and **choose the best method for the specific question.**
- ◆ Polar bears can go where humans cannot easily follow. **Radiotelemetry allows humans to 'follow' a bear 24 hours a day, seven days a week for sometimes more than a year.**



More details on collaring polar bears from a scientific perspective.....

- ◆ Radiotelemetry has been used for decades on many species, from fishes to butterflies, whales and caribou. The battery must be big enough to transmit data signals for months or years at a time; that is why the collar for bears is larger than some other species.
- ◆ Collaring requires the bear to be sedated for about an hour. The **drugs are safe and cannot be detected in the meat after four weeks**. Like humans, bears metabolize, or process, drugs out of their system using their liver and kidneys.
- ◆ The collars **weigh less than 5 lbs** and have not shown to impact having offspring, feeding, moving around, or fur loss.



Female bear when the collar was put on, and same bear 2 years later when collar was removed, indicating no effect on

- ◆ After handling, movement and behaviour **return to normal after 48-72 hours**.
- ◆ Collars on a few bears can **provide vast amounts of data**.
- ◆ **The collars have release mechanisms that are programmed to make the collars fall off automatically with no handling.**
- ◆ There is no scientific information suggesting bears become deaf or more aggressive after handling.



Female polar bear with a modern satellite collar, also showing the release mechanism (black box).

◆ In the 1980s and '90s, collars helped show the main area bears of a sub-population occupy (which is used to represent management units; see Fig. 1). All these **movement lines are available in the Polar Bear Movement Atlas (Fig. 2) that was sent to all co-management partners in 2002.**

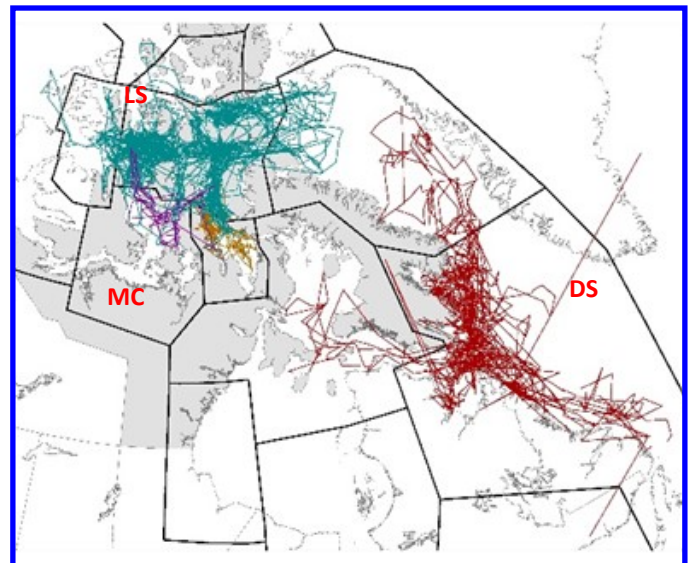


Fig.1. Examples of **year-round movements** of female polar bears in Davis Strait (DS; red lines), M'Clintock Channel (MC; purple lines), Lancaster Sound (LS; teal lines), and Gulf of Boothia (gold lines) that were used to define the boundaries (black lines drawn on top of map).

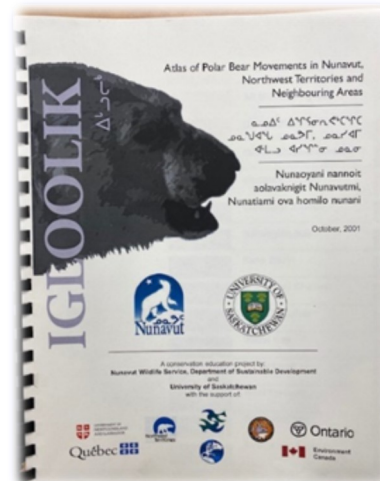


Fig. 2: All the radiotelemetry movements of bears in Nunavut when collars were on bears in 1980s-1990s were recorded and given to co-management partners in 2002.

- ◆ This technology was recently used in **Baffin Bay (BB)** and **Kane Basin (KB)** between **2011 and 2015**. Collar data showed **bears had shifted more to the north, spent more time on land, entered dens later, and overall moved less than in the 1990s, all likely because of the changes in sea ice.**
- ◆ For video of collared bears hunting seals visit: <https://www.youtube.com/watch?v=qXQBjZLNyT0> or visit USGS site: <https://www.usgs.gov/news/polar-bears-film-their-own-sea-ice-world>
- ◆ If you have any questions, contact the Nunavut polar bear biologist in Igloolik at **867-934-2181** any time.