

# Report to the Hunters of the Bluenose West Caribou – Feb 2019

The Northern Contaminants Program monitors contaminants in Arctic Caribou in Canada. Each year, we monitor the Porcupine (western Arctic) and the Qamanirjuaq (eastern Arctic) caribou. Each year, we also monitor an additional two herds depending on availability and concern.

We use this information to

- Provide information to Northerners so that they may be better able to make informed choices about food consumption and
- Help guide policies that limit contamination of the environment.

## ACTIVITIES IN 2017/18

- The following samples from the Bluenose West Caribou Herd were contributed to our program by GNWT
  - 13 cows collected in spring 2005
  - 1 cow and 9 bulls collected in spring 2014
- Kidneys were analyzed for a range of metals, including mercury, cadmium, copper, arsenic, selenium and lead.
- Livers were analyzed for new contaminants that are found in stain guards and fire retardants.



## WHAT DID WE LEARN?

- Contaminant levels in the Bluenose West Caribou Herd are similar to those in other Arctic herds.
- Because age and gender can affect the level of contaminants in a caribou, we were unable to compare our results to those from previous studies on the Bluenose West Caribou.

We are continuing to monitor contaminants in the Arctic caribou to keep track of the levels of contaminants in their organs, and to try to better understand how and why they accumulate in caribou the way they do.

## THIS PROJECT IS SUPPORTED BY THE NORTHERN CONTAMINANTS PROGRAM

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## WHAT DO WE KNOW FROM STUDYING OTHER CARIBOU HERDS?

- Arctic caribou are largely free from contamination and are healthy to eat.
- Some caribou have mercury and cadmium in their organs. Some of the cadmium and mercury occurs naturally in the land, but some is brought here by wind from industry down south. Some mercury may also come from forest fires or volcanoes.
- Mushrooms may provide a pulse of mercury in the fall, because some mushrooms can accumulate large amounts of mercury and are a preferred food when they are available.
- Mercury is generally higher in the spring than the fall, because the caribou eat lichens through the winter which are higher in mercury than their summer foods of grasses and flowering plants.
- In the fall, mercury concentrations are higher in cows than in bulls, because cows are smaller and eat proportionally more food, therefore more mercury.
- In the spring, mercury may be lower in cows than in bulls, because some of the mercury is lost to the fetus and through milk production.
- Cadmium and mercury in caribou organs fluctuate over time but over the long term are remaining stable in the Porcupine and Qamanirjuaq caribou, so they are likely stable in other Arctic caribou.
- Mercury in the Arctic caribou may be affected by rain, snow, wind, temperature, migration patterns, time of green-up and forage quality as well as mercury emissions coming from industry, forest fires and volcanoes.
- PBDEs (polybrominated diphenyl ethers) are environmental abundant chemicals used in flame retardants. Levels in caribou are very low and have not changed significantly in the Porcupine and Qamanirjuaq caribou from 2015 through 2017.
- Per- and polyfluorinated alkyl substances (PFASs) are man-made chemicals that are used in things like water repellants, stain guards and fire-fighting foams. Levels in caribou liver are low and some (eg. PFASs) are declining over time in the Porcupine and Qamanirjuaq caribou, likely due to legislation banning their use.
- **Caribou muscle (meat), marrow and brain have very low levels of contaminants.**

## HOW OUR RESEARCH IS HELPING THE WORLD

Our monitoring program provided evidence for national and international agreements to limit the amount of mercury being deposited into the environment. The Minamata Convention on Mercury came into force on August 16, 2017 and will help ensure that Arctic caribou are not exposed to increasing levels of mercury.

**This is a BIG SUCCESS for us!**

