

# Report to the Hunters of the Qamanirjuaq Caribou – Feb 2019

With the help of local hunters, we have been taking kidney, liver and muscle samples of Qamanirjuaq caribou since 2006. We collect these samples to study changes in the levels of contaminants in kidneys and livers of caribou. These contaminants may be carried to the Arctic by wind. Since 2015, these samples are also being tested every year for ‘new’ contaminants (like stain repellents and flame retardants).



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.

## WHERE IS THIS STUDY BEING DONE?

Samples for this study are collected from Arviat. Although we could sample the herd anywhere within its range, we can be most effective by working with hunters from one community so that the hunters become very familiar with the samples we need.

## ACTIVITIES IN 2018/19

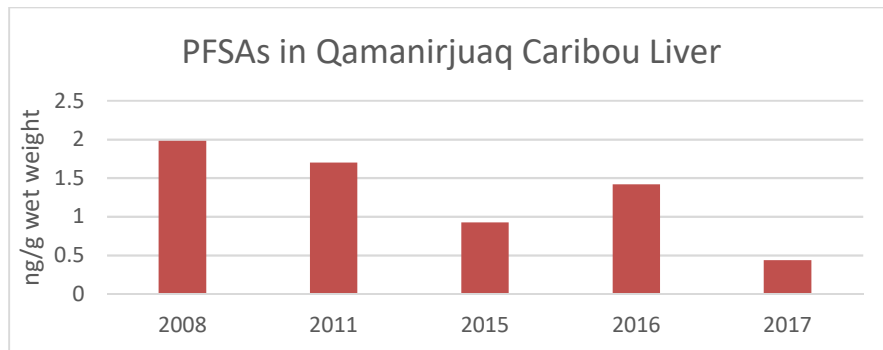
- Samples from 16 caribou (8 bulls; 8 cows) were collected from Arviat in the fall of 2018.
  - Kidneys were tested for a range of contaminants including mercury, cadmium, copper, arsenic, selenium and lead as they are every year.
  - Livers are being tested for new contaminants.
  - We choose kidneys and livers for analysis because that is where the contaminants tend to build up.
- We received and analyzed results from the 2017 collection.

## WHAT WE HAVE LEARNED FROM THIS WHOLE PROJECT

- 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.
- Caribou muscle (meat), marrow and brain have very low levels of contaminants.
- Mushrooms may provide a pulse of mercury in the fall, because mushrooms build up large amounts of mercury and are a preferred food when they are available.
- Seaweed does not provide a significant amount of mercury to the Qamanirjuaq caribou.

## WHAT WE HAVE LEARNED NEW THIS YEAR

- Overall, mercury, selenium and zinc are increasing in the Qamanirjuaq caribou, although increases are slight and may be better described by a cyclic pattern, similar to that seen in the Porcupine caribou.
- PBDEs (polybrominated diphenyl ethers) are environmental abundant chemicals used in flame retardants. Levels in the Porcupine caribou are very low and have not changed significantly 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 Qamanirjuaq caribou, likely due to legislation banning their use.



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

## 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!**

Continued monitoring will make sure that laws controlling pollution are effective enough to protect Arctic wildlife.

## THIS PROJECT IS SUPPORTED BY THE NORTHERN CONTAMINANTS PROGRAM

For more information please contact Mary Gamberg, Gamberg Consulting  
Phone: 867-334-3360 [mary.gamberg@gmail.com](mailto:mary.gamberg@gmail.com)