

REPORT TO THE HUNTERS OF THE KIVALLIQ REGION CONTAMINANTS IN QAMANIRJUAQ CARIBOU – SEPTEMBER, 2017

- 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 amount of contaminants such as mercury and lead in kidneys of caribou. These contaminants may be carried to the Arctic by wind.
- 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.
- Starting in 2015, these samples will be tested every year for ‘new’ contaminants (like stain repellents and flame retardants).

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 2017-18

- Samples from 20 caribou (10 bulls; 10 cows) were collected from Arviat in the fall of 2016.
 - Kidneys were analyzed for a range of contaminants, as they are every year.
 - Livers are being analyzed for new contaminants.
 - We choose kidneys and livers for analysis because that is where the contaminants tend to accumulate.
- Samples were taken from an additional 20 cows immediately after the rut, to see if mercury could be stopping some cows from getting pregnant.
- Lichen, seaweed and mushrooms from Baker Lake, Chesterfield Inlet, Rankin Inlet and Arviat were analyzed for mercury to see if seaweed was an important source of mercury for caribou.

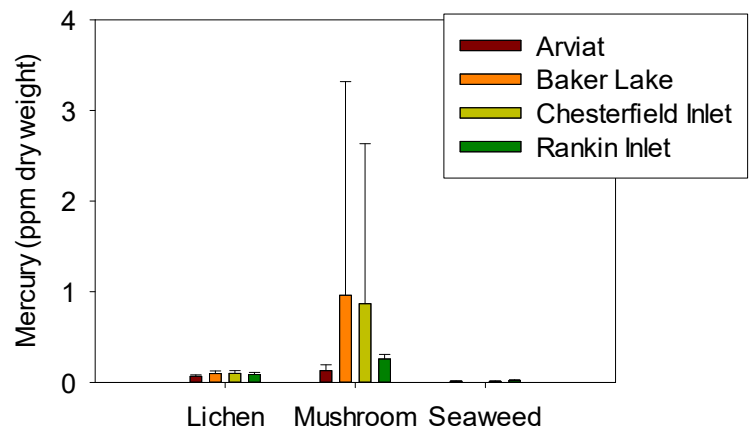
THIS PROJECT IS SUPPORTED BY THE NORTHERN CONTAMINANTS PROGRAM

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WHAT WE HAVE LEARNED NEW THIS YEAR

- Mercury levels are higher in 2016 than they were in 2015. We think that mercury increases and decreases in caribou as a natural cycle and this is just part of that cycle.
- Some of the chemicals now being used in car air conditioners may be increasing contaminants (PFBA) in Arctic caribou. This requires further study.
- Only two of the cows that were sampled for mercury right after the rut were not pregnant and these were old cows (13 and 16 years old) who had similar levels of mercury as the pregnant cows. **Mercury is clearly not keeping the Qamanirjuaq caribou from becoming pregnant.**

- Mercury was higher in mushrooms than in lichen and lowest in seaweed. Concentrations did not differ among communities suggesting long-range transport as a source. **Seaweed is not a significant source of mercury for the Qamanirjuaq caribou.**



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.
- We have not been studying the Qamanirjuaq caribou herd long enough to be able to say very much about whether mercury and cadmium are increasing or decreasing over the long term, but the Porcupine caribou from the western Arctic show us that although cadmium and mercury in caribou organs fluctuate over time in that herd, they do remain stable over the long term. It is good news that they are not increasing!
- **Caribou muscle (meat), marrow and brain have very low levels of contaminants.**

WHAT CAN WE DO?

Our monitoring program provided evidence for national and international agreements to limit the amount of mercury being deposited into the environment. The Minamata Convention came into force on August 16, 2017 and will ensure that Arctic caribou are not exposed to increasing levels of mercury. **This is a big success for us!** Continued monitoring will ensure that environmental controls of a variety of contaminants are adequate to protect Arctic wildlife and that they are implemented effectively.

WHAT CAN YOU DO?

Participate in monitoring and research projects, engage with HTAs, ask questions!