

Report to the Hunters of the Lorillard Caribou – May 2020

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.

The Lorillard Caribou Herd was sampled for this program in 2018. We compared the Lorillard data to other herds from Arctic Canada.

WHAT DID WE DO?

- Hunters in Baker Lake collected samples from three bulls and one cow in the fall of 2018.
- The samples were sent to Whitehorse where they were processed before being sent to a lab in the south to be tested.
- Kidneys were tested for a range of metals, including mercury, cadmium, copper, arsenic, selenium and lead.
- Livers were tested for new contaminants that are found in stain guards and fire retardants.



WHAT DID WE LEARN?

- Although it is difficult to come to any firm conclusions based on only four animals, we can say that contaminant levels in the Lorillard Caribou are similar to those in other Arctic herds. There have been no health advisories issued on any Nunavut caribou.

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 Minimata 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.

WHAT DO WE KNOW FROM STUDYING OTHER ARCTIC CARIBOU HERDS?

- Arctic caribou are largely free from contamination and are healthy to eat.
- Some caribou have mercury and cadmium in their organs. Some cadmium and mercury occurs naturally and can come from forest fires or volcanoes, but some is brought to the Arctic by wind from industry down south.
- Mushrooms may provide a pulse of mercury in the fall, because some mushrooms can build up large amounts of mercury and are a preferred food when 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 spring, mercury may be lower in cows than in bulls, because some of the mercury is lost to the fetus and through milk production.
- 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 environmentally 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 2018.
- 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. polyfluorinated sulfonic acids) 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.

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 build up in caribou the way they do.

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



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