Rising Temperatures & Foodborne Illness

Climate change will challenge food security and traditional harvesting in many First Nation communities. Higher temperatures can increase the risk of food spoilage and foodborne pathogens, like *Salmonella* bacteria and parasites. This danger can extend to wild-harvested foods and can have far-reaching effects on the health, nutrition, and mental wellbeing of those in First Nation communities.

What are foodborne illnesses?

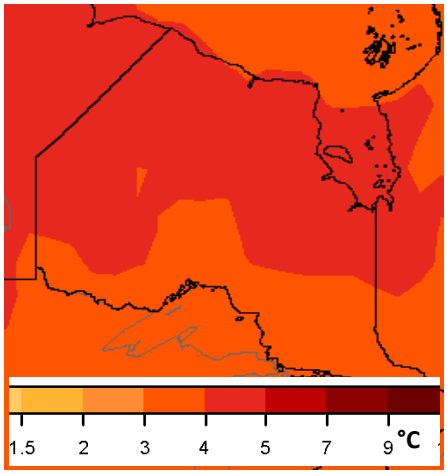
Foodborne illness is the term used to describe when people become sick after eating food that contains harmful bacteria (like E. coli or Salmonella), parasites (like roundworm), viruses (like Norovirus), toxic mushrooms or other chemicals. You might have heard it described as "food poisoning". Common foodborne illness symptoms include vomiting, diarrhea, abdominal pain, fever, and chills. Most foodborne illnesses are acute, meaning they happen suddenly and last a short time, and most people recover on their own without treatment. Occasionally, foodborne illness may lead to more serious complications.

Magnified image of E. coli

Roundworms (arrows) in the intestines of a harvested grouse. Photo provided by Isabell Souliere

How will the odds of getting foodborne illness change with climate change?

Climate, like air temperature, water temperature, and rain patterns, can affect how quickly pathogens grow and spread. In warmer temperatures, like we are expecting with climate change, food can spoil more quickly both when harvested and once in the kitchen. For example, research has found that outbreaks of *E. Coli* and *Salmonella* in Canada occur more often in warmer temperatures. Foodborne pathogens like parasites will also grow and spread more quickly and infect more of the game species that are harvested.



Predicted rise in fall temperatures by the 2050s (compared to the average for 1986-2005) (RCP8.5, 75th percentile, CMIP5) http://climate-scenarios.canada.ca/?page=download-cmip5

What have people noticed?

Already, during the fall or early winter season when many people are setting out fish nets, or hunting moose and partridge, temperatures are warmer than in the past. This has made it harder for people to keep harvested meat cool, which is necessary to stop it from spoiling. People speak of seeing more worms as wells as other diseases in fish, partridge and moose, making them wonder if the animals are safe to eat. Burying meat in the ground is not as effective at keeping meat cool as it was in the past because the ground is much hotter.

How can we prepare?

Harvested game

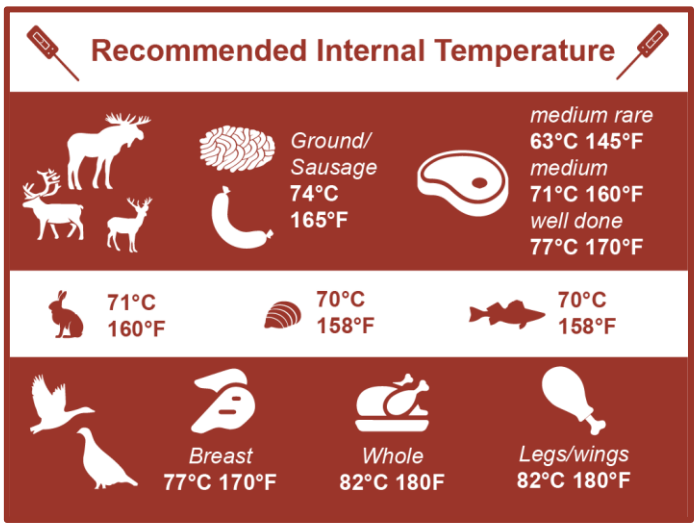
Ice and coolers can keep harvested fish cool while they are transported. Photo https://lakeofthewoodsmn.com

Hotter temperatures can pose a special challenge for harvesting wild game. Keeping meat, fish, and even harvested berries cool from the time they are collected in the bush until harvesters return home is important for preventing the growth of bacteria that can contaminate food and make people sick. Some hunters have adapted to changing temperatures by waiting for cooler weather later in fall or earlier in spring to hunt.

Small game, like fish and birds, can be kept in coolers for transport. Keeping harvested berries cool and out of the sun will help stop them from spoiling. For keeping large game cool in warm weather:

- have a plan in place to get game out of the bush as quickly as possible
- field dressing (removing the intestines and stomach) should be done as soon as possible
- removing the hide (skinning) can help cool game that have a thick coat, like moose
- harvested game can be kept cool during transport by packing ice inside the body and keeping it where air can circulate, such as the back of a pickup truck

Proper food-handling



Proper thawing, chilling, and storage of food can help prevent food spoilage and dangerous bacterial growth that could lead to foodborne illnesses. Hand washing and cleaning work surfaces and utensils can also help prevent other foods and surfaces from being contaminated. Meat, including wild game, should be cooked to a temperature high enough to kill potential bacteria and parasites. Meat thermometers are a useful tool for this.

Community initiatives

Some communities have already begun taking steps to prevent food spoilage in light of warmer temperatures. Chapleau Cree First Nation, for example, created a community moose cooler, where harvested moose can be hung and butchered in a cool space. In the Hudson Bay area, two Nunavut communities, Sanikiluaq and Arviat, completed community freezer projects in 2016. These large freezers can store a lot of game and are open for members of the community to use.

Inside of community cooler in Chapleau Cree First Nation Photos by Dakota Souliere.

Want to know more?

Health Canada's *Food Safety for First Nations People of Canada*
https://www.gov.mb.ca/inr/pdf/pubs/nhfi_food_safety_for_first_nations_people_of_canada.pdf

UP NORTH ON CLIMATE
Climate Change Impact and Adaptation Study for the North of Ontario