Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

NORTHWEST TERRITORIES CONTAMINANTS FACT SHEETS

Fish

The Northwest Territories is blessed with a huge number of fish-bearing waters, from thousands of lakes and rivers to the Arctic Ocean. Fish, such as lake trout, char, jackfish (pike), pickerel (walleye), loche (burbot), whitefish, connie (inconnu), cisco, sucker and grayling have always played an important part of traditional diets. People in the Northwest Territories are becoming more aware of contaminants in the environment.

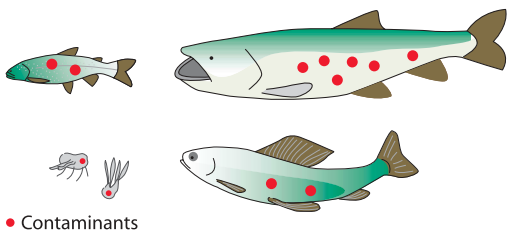
This fact sheet will describe what types of contaminants are in fish, how they get there, and what this means to the health of the people who eat them.

Contaminants in fish can vary depending on their place in the food chain.

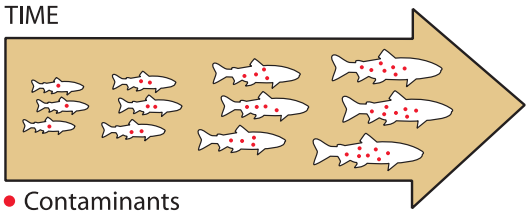
Contaminant levels in any particular fish are affected by many factors such as the type of fish, where it lives, what it eats and how old it is.

Different fish eat different things. Many fish (predators) eat other fish (prey). Predator fish such as lake trout, jackfish, and loche are higher on the food chain than fish that eat tiny plants, insects or plankton, such as whitefish, grayling, and cisco.

Fish that eat other fish as food can have higher levels of contaminants because the concentration of most contaminants increases with each step in the food chain. This is called biomagnification.



Also, contaminant levels in a fish can slowly build up over time, if the fish continues to eat foods with contaminants. This is called bioaccumulation. This means that older, larger fish can build up higher levels of contaminants than younger, smaller ones.



The levels of certain contaminants change from lake to lake.

Differences from lake to lake can be due to human activities or to natural causes. For example, if a contaminated site such as an old mine drains into a small lake, some contaminants could enter the water and be present in unnaturally high levels.

Other lakes are far from contaminated sites and still have unusually high levels of certain contaminants. The presence of heavy metals can be caused by the rocks around the lake or by other natural features of the lake.

Persistent organic pollutants (POPs) are contaminants that can build up in fish.

Most contaminants are not present at levels high enough to cause any concern for the health of people eating fish.

PCBs and the pesticides DDT, toxaphene and chlordane can be found in fish. These are examples of persistent organic pollutants or POPs (see PCBs, DDT and POPs fact sheets). They are long-lasting chemicals made by humans, and they can build up in the organs of fish, which are naturally fatty.

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Because POPs build up mostly in fat, smaller and less fatty fish may have smaller amounts of PCBs. The pesticides DDT, toxaphene and chlordane, as well as other POPs, also build up in fatty organs such as loche (burbot) livers. These POPs generally come from other countries and North America through air currents. There are also a small number of contaminated sites in the Northwest Territories that contain PCBs.

Overall, levels of all POPs are lower in fish from the Northwest Territories than in the same types of fish from rivers and lakes in the southern parts of most provinces, and the Great Lakes in Ontario.

In lakes, a heavy metal called mercury is a contaminant that can build up in fish.

Mercury (see heavy metals fact sheet) occurs at naturally high levels in some parts of the Northwest Territories. Distant human activities can also add to the natural levels in lakes.

It is important to remember that mercury concentrations vary among lakes, and among species of fish. For example, fish that eat other fish tend to have higher levels of mercury. Concentrations of mercury also tend to be higher in larger older fish because they have a longer time to build it up.

Good News...

Fish is a safe healthy and nutritious food to eat!

All living things including fish contain some contaminants, but they are one of the healthiest foods available!

- Fish is high in protein.
- Fish is an excellent source of vitamin B.
- Soup made from fish heads and bones is a great source of calcium.
- Fish is low in the kinds of saturated fats that cause heart disease, and high in omega-3 fatty acids.

Fish is a delicious and affordable food that is good for you in many ways. Eating it helps keep people connected with the land and their cultures. Fishing helps keep people fit and healthy too.

Some health effects from mercury have been studied.

Unborn and young children are most sensitive to effects of mercury as their nervous and immune system is most vulnerable at the development stage. Therefore, special advice based on mercury research in fish has been issued for women of child bearing age and children in different parts of North America.

Exposure to contaminants when eating fish varies.

The levels of contaminants people are exposed to when eating fish depends on many things. To reduce exposure to contaminants in fish, any health advisories should be followed (see box), and these steps can be taken:

- Eat smaller fish (these are usually younger too).
- Eat more fish that are lower on the food chain, like whitefish and grayling, instead of only fish that eat other fish, like jackfish.
- Eat more fish low in contaminants, like sea-run char, rather than land-locked char.

Did you know...

- Polychlorinated biphenyls are PCBs
- Dicloro-diphenyl-trichloroethane is DDT

Health advisories for mercury have been issued in certain species of predatory fish from the following lakes:

- Giauque Lake
- Lac Ste Therese
- Lac Tache
- Little Doctor Lake
- Lac a Jacques
- Thistlewaite Lake
- Keller Lake
- Cli Lake
- Turton Lake
- Manuel Lake

It is believed that some of these lakes are naturally high in mercury.

The Government of the Northwest Territories Health and Social Services has information on this the above.

For more information please contact:

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