

# Muskrat Falls Project

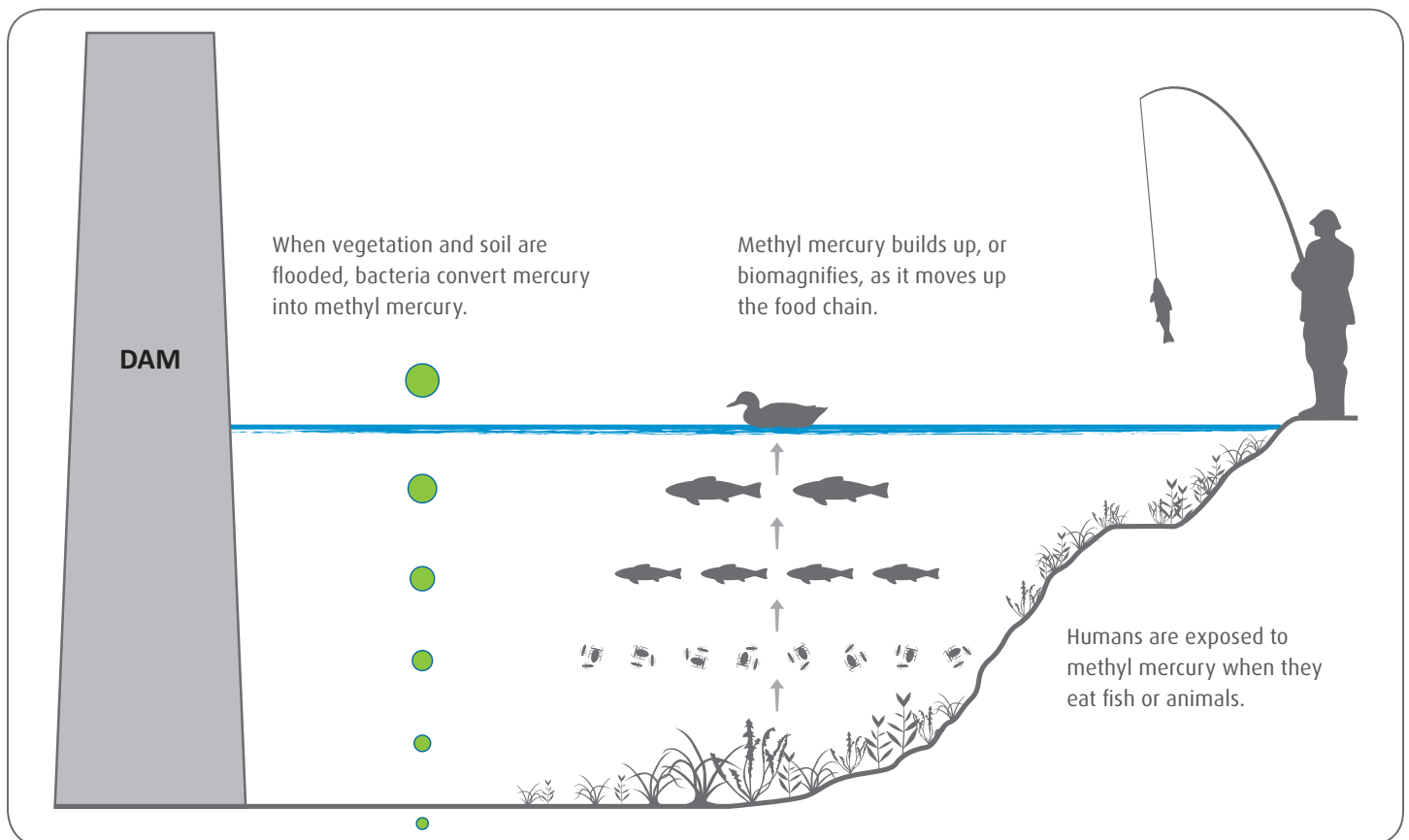
## Information Sheet: Methyl Mercury

### WHAT IS METHYL MERCURY?

Mercury is naturally present in soil, rocks, plants and animals, and in many of the foods we eat every day. Mercury exists in different forms. When a reservoir is created, mercury naturally present in the flooded soil is released into the water. The flooded vegetation decays and provides food for bacteria. Certain types of bacteria in water can convert mercury into a different form known as methyl mercury. These conditions allow the bacteria to convert more methyl mercury because of the increase in available mercury and food.

### HOW DOES METHYL MERCURY GET INTO THE FOOD CHAIN?

Methyl mercury builds up, or biomagnifies, as it moves up the food chain. When people eat fish or other animals, they can be exposed to increased levels of methyl mercury.



### WHY MONITOR METHYL MERCURY?

Health effects have been observed in people exposed to certain levels of methyl mercury. Government health agencies around the world establish target levels to identify individuals that may have an increased potential for experiencing mercury-related effects. When people have mercury levels below the target levels, these agencies suggest there are no known health effects, and that individuals may continue to consume locally-caught fish and enjoy the positive health benefits of including fish within their diet.

Methyl mercury has been studied extensively at many hydroelectric projects around the world and is well understood.

After the reservoir is created at the Muskrat Falls hydroelectric generating facility in 2016, increases in methyl mercury levels are predicted downstream, peaking in fish approximately 5-15 years later and then returning to current levels over time. Based on modelling and analyses conducted, it is predicted that increases in methyl mercury attributed to the project will occur within the

reservoir and immediately downstream of the Muskrat Falls hydroelectric generating facility within the Churchill River. The modelling also predicted that when the Churchill River flows into Goose Bay, a rapid decrease in the concentration would occur as a result of dilution, with concentrations reaching background levels within Lake Meville.

The Lower Churchill Project is committed to carrying out regular monitoring of the water, sediment, fish and other animals within the lower Churchill River, Goose Bay and Lake Melville before and after the reservoir is created. Monitoring will continue each year until mercury levels return to current, or baseline, levels. Results of monitoring combined with baseline levels of mercury in people who live adjacent to the Churchill River will determine if consumption advisories for certain foods are needed based on Health Canada's guidance.



## HOW MERCURY LEVELS ARE MONITORED FOR THE PROJECT

As part of the Muskrat Falls Project, the project team has developed a comprehensive plan to measure mercury levels in the environment, including the water, sediment, fish and other animals, as well as people living in communities adjacent to the lower Churchill River.

To date, the project has conducted various studies and monitoring programs to help inform predictions about methyl mercury increases downstream of the Muskrat Falls reservoir, such as:

- Modelling to predict how far downstream increased levels of mercury may be experienced after the reservoir is created;
- Aquatic environmental effects monitoring programs to measure current mercury levels in the lower Churchill River, Goose Bay and Lake Melville water, sediment, fish and seal populations;
- Dietary survey and hair sampling program with approximately 300 residents from communities adjacent to the Churchill River, to measure current levels of mercury among people in the area and learn about dietary habits, such as which locally harvested foods residents regularly consume;
- An ecological risk assessment to determine baseline levels of mercury in osprey, otter and amphibians, as well as water and sediment at sampling locations.

By monitoring the levels of mercury that already exist in the local environment, the project team will be better able to measure what changes occur after the reservoir is created and identify any actions needed to address the changes. Monitoring will continue until mercury levels return to their current level.

Results of monitoring programs and information about current mercury levels in the project area are available on our website at [www.muskratfalls.nalcorenergy.com](http://www.muskratfalls.nalcorenergy.com). Additional information about mercury and your health is also available from Health Canada at [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca).

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## CONTACT US

For more information or to speak to a member of our team, contact us:

1-888-576-5454

[lowerchurchill@nalcorenergy.com](mailto:lowerchurchill@nalcorenergy.com)

 Twitter: @nalcorenergy

 Facebook: [facebook.com/nalcorenergy](https://www.facebook.com/nalcorenergy)

