

BACKGROUND INFORMATION

Lower Churchill Project and Methyl Mercury Levels in the Lower Churchill River System

Throughout the environmental assessment of the Lower Churchill Hydroelectric Generation Project, Nalcor extensively studied the potential effects of all aspects of the Project on human and natural environments.

As part of that process, Nalcor conducted methylmercury modeling in the project area as a tool to predict the geographical extent of increased methylmercury levels in the Lower Churchill River system as a result of the Lower Churchill Project. Nalcor consulted with key stakeholders and Aboriginal groups throughout the process and is committed to continuing consultation efforts in development of monitoring programs for the Project, including Lake Melville. Baseline augmentation and monitoring programs will be described in the Fish Habitat Compensation Plan and Effects Monitoring Plan required in application for authorization under the Fisheries Act. These documents were developed in consultation with the Department of Fisheries and Oceans and will be made available for public comment before finalized. Nalcor is also in the process of finalizing a Human Health Risk Assessment implementation plan, including establishment of baseline mercury levels in the Upper Lake Melville area as well as a monitoring program.

Mercury levels in fish may increase for a period of time after the reservoirs are flooded. As a result, Health Canada may recommend that people limit their consumption of fish from the reservoirs. Nalcor will monitor mercury levels in fish, and consumption advisories will be set in consultation with Health Canada as required. Current research across North America, including Newfoundland and Labrador Hydro (Hydro), has shown that over time —20-30 years— mercury levels in fish from hydro reservoirs decline, reaching levels similar to those found in natural lakes.

KEY MESSAGES

- Nalcor is committed to sustainability and environmental protection, and has designed and planned the development of Muskrat Falls to maximize benefits and minimize potentially harmful effects on the surrounding environment.
- Nalcor takes methylmercury concerns very seriously. That is why we have consulted with Aboriginal groups, key stakeholders, and the general public in Upper Lake Melville to gain insight into the concerns of community members. Feedback from these consultations has been considered throughout the environmental assessment process.
- Nalcor has committed to monitoring fish and seal health in Goose Bay, Lake Melville and throughout the Lower Churchill system. Nalcor also committed to implement adaptive management measures if effects are experienced. This process is regulated by Fisheries and Oceans Canada (DFO) and approved through a Fisheries Act Authorization.
- Nalcor's modeling shows methylmercury is not likely to extend beyond the mouth of the Churchill River.

- Increased methylmercury concentrations occur with flooding. It is a known impact of hydroelectric developments which utilities such as NL Hydro, Hydro Quebec and Manitoba Hydro have been assessing and mitigating for decades.
- Consumption advisories are a key mitigation measure for increases in methylmercury concentration. These advisories, which are established by Health Canada, educate residents on the amount of fish which can be safely consumed. These advisories are currently in place in reservoirs in the province and country today, including, for example, Cat Arm on the island.
- During periods of elevated and peak methylmercury concentrations, consumption advisories established by Health Canada will inform residents about the amount of fish which can be safely consumed.
- Area to be flooded and fluctuation in reservoir storage levels are two critical factors in levels of methylmercury. For the lower Churchill development, flood area is optimized relative to power output and the reservoir operating levels will remain constant. This means the predicted increase in fish methylmercury levels is low to moderate compared to similar hydroelectric developments, including the Upper Churchill development.
- Peak methylmercury concentrations in fish are expected within 5-15 years after flooding, declining thereafter to levels associated with natural lakes. Predictions indicate methylmercury concentrations will return to baseline levels 25-35 years after impoundment.
- Modeling suggests that reservoirs in the same system do not have an additive effect on methylmercury levels. Furthermore, for many species of fish impacted by Upper Churchill, methylmercury concentrations would be back to, or almost back to, baseline levels.
- Nalcor completed an interim Human Health Risk Assessment (HHRA) that outlines its approach to determining baseline levels, as well as its approach to monitoring. The HHRA will include a consultation plan and be finalized and implemented prior to impoundment.
- Nalcor continues to develop the implementation plan for the Human Health Risk Assessment. In addition, consistent with previous years, Nalcor has invested in downstream aquatic baseline augmentation in 2012 - including sampling of seal and fish in the river and downstream to Lake Melville. These baseline efforts will continue until the reservoir is created and data related to these studies will be provided to the public when available via our website.