Wollaston Lake/ Hatchet Lake 2012

Athabasca Working Group Environmental Monitoring Program

The Athabasca Working Group (AWG) environmental monitoring program began in the year 2000 and provides northern residents with the opportunity to test the environment around their communities for parameters that could come from active uranium mining and milling operations. These parameters can potentially be spread by water flowing from lakes near uranium operations, and small amounts may also be spread through the air. In order to address public concerns, lakes, rivers, plants, wildlife, and air quality are tested in the six northern Saskatchewan communities of Wollaston Lake/Hatchet Lake, Black Lake, Stony Rapids, Fond-du-Lac, Uranium City, and Camsell Portage.

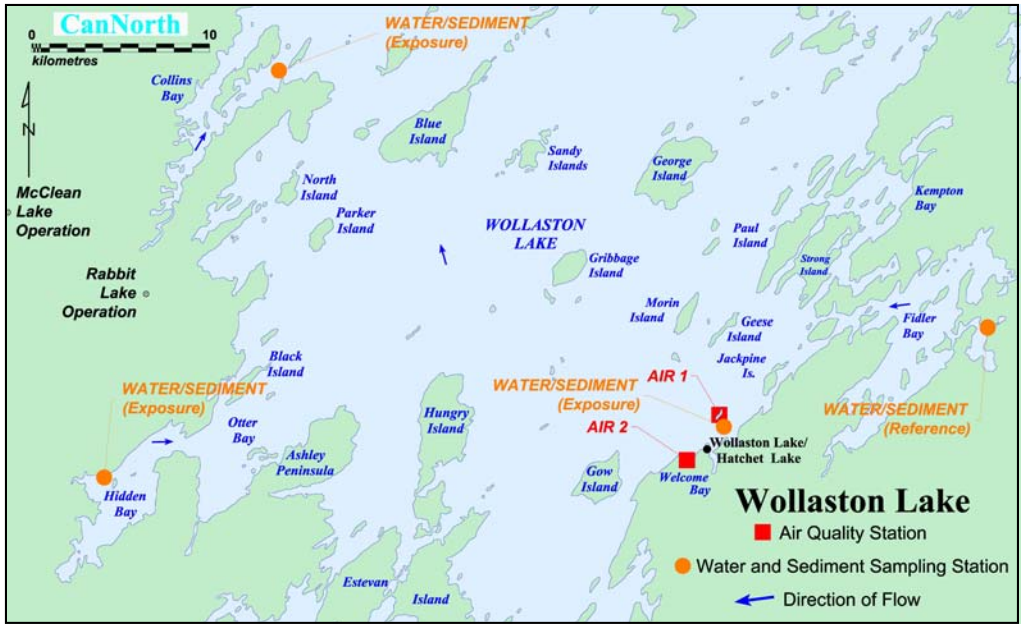
Selection of the types of plants, fish, and animals sampled, the locations sampled, and the sample collections were carried out by, or with the help of, Wollaston Lake/Hatchet Lake community members. The purpose of this brochure is to inform the public of the results of the 2012 environmental monitoring program that was completed near the Wollaston Lake and Hatchet Lake communities.

Ryan Froess, Program Manager

George St. Pierre

STUDY AREA

Water, sediment, and fish samples are collected from reference and potential exposure sites in Wollaston Lake. Fidler Bay is referred to as the reference site because it is upstream of uranium mine sites activity and therefore not influenced by uranium mining. Welcome Bay, Hidden Bay, and Collins Bay are referred to as the potential exposure sites because they could possibly receive parameters from uranium mining and milling operations near Wollaston Lake.



Air quality is monitored at two locations that are near the communities. Plant and wildlife samples are also collected from year-to-year near the communities when available.

KEY PARAMETERS

The focus is on certain parameters related to uranium operations that are of concern to human and environmental health, including: copper, lead, nickel, molybdenum, zinc, radium-226, uranium, selenium, and arsenic. All of these parameters occur naturally in the environment and in parts of northern Saskatchewan they can be found in amounts that are naturally elevated. To help establish whether key parameters found in samples are naturally occurring or whether they are from uranium operations, the amounts measured are compared: 1) between reference and potential exposure sites, 2) between years, and 3) to available guidelines.


Photo credit: Doug Chisholm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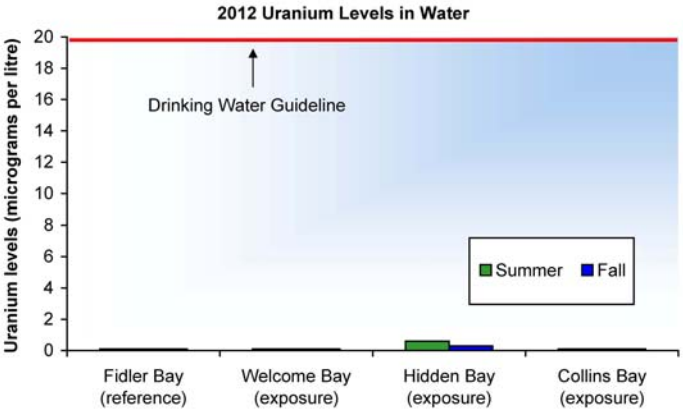
WATER

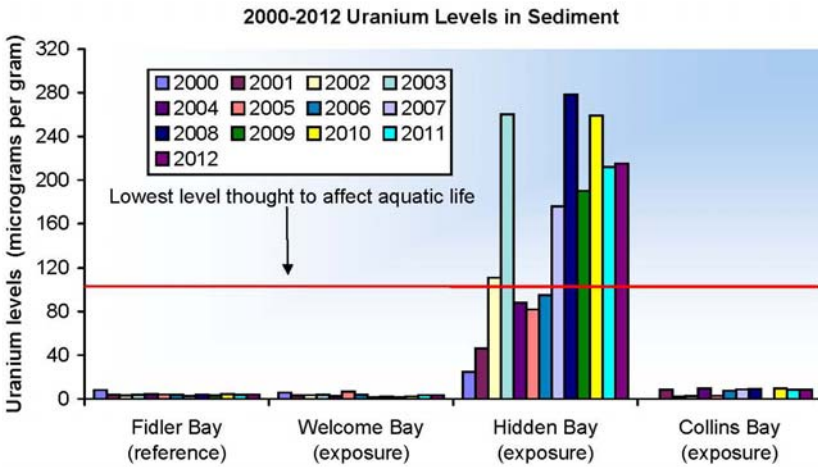


Key parameters in water from the Wollaston Lake/Hatchet Lake area in 2012 continued to be at low levels. Water was collected from the reference site, Fidler Bay, and the potential exposure sites, Welcome Bay, Hidden Bay, and Collins Bay in the summer and the fall of 2012. The results were below provincial and federal guidelines for the protection of aquatic life and provincial drinking water quality standards. The graph displays levels of uranium in the summer and fall samples from each sampling site in 2012.

SEDIMENT

Sediment is the mud deposited on the lake bottom. Parameters from mine sites may be carried by flowing water to lakes where they settle in the sediment. It is important to sample sediment, because small animals that live there are eaten by fish. Sediment samples were collected from the same locations used for water sampling.

Arsenic, copper, lead, and zinc were all below the federal "probable effects level" guidelines in all bays sampled in Wollaston Lake, which means that no harmful effects to aquatic life caused by these parameters are expected to occur. The 2012 levels of uranium, molybdenum, nickel, and selenium were higher in Hidden Bay compared to the other bays. In the years 2002 and 2003, and from 2007 to 2012, the uranium levels in Hidden Bay were above the lowest level thought to have an effect on aquatic life. Molybdenum in Hidden Bay was higher than the lowest level thought to have an effect on aquatic life in 2012. This has been the case for molybdenum in Hidden Bay since 2000. Nickel was also above the lowest level thought to have an effect on aquatic life in Hidden Bay in 2012, which occurred previously in 2002, 2008, 2010, and 2011. All key parameter levels will continue to be closely monitored in future years of AWG sampling in Wollaston Lake. The graph displays uranium levels from each of the bays from 2000 to 2012.



FISH

The 2012 results of northern pike and lake whitefish testing from the reference site (Fidler Bay) and the potential exposure sites (Welcome, Hidden, and Collins bays) in Wollaston Lake were similar to previous years of monitoring. Mercury is the only parameter in fish for which there is a consumption guideline. Mercury is widespread in the environment globally and can be found in soil, water, plants, and animals. It can be transported through the atmosphere and accumulates in predatory species (fish species such as northern pike, walleye, and lake trout) because they are higher up the food chain. Natural deposits in northern Saskatchewan are likely the cause of higher mercury levels in fish in some lakes (Saskatchewan Environment 2011). Mercury is not related to uranium mining and milling, but is an important parameter for human health. The fish from Wollaston Lake did not fall into any category requiring restricted consumption. It is recommended that residents consult the provincial document, Mercury in Saskatchewan Fish: Guidelines for Consumption for more information. It can be found at the following website: http://www.environment.gov.sk.ca/.

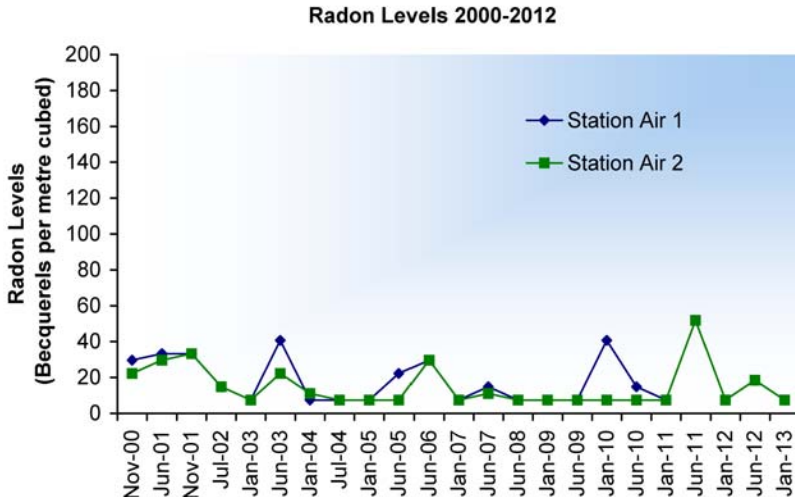
WILDLIFE

Moose and lynx flesh were not obtained from the Wollaston Lake/ Hatchet Lake area for 2012. Barren-ground caribou was sampled in 2012 and the results showed low levels of the key parameters. Moose captured from Fond-du-Lac, Stony Rapids, and Uranium City, and lynx captured from Fond-du-Lac and Camsell Portage contained expected levels of key parameters in 2012. There were no concerns raised by the levels of key parameters in any of the flesh samples from AWG communities in 2012.

PLANTS

Blueberry, bog cranberry, and Labrador tea samples were collected near the Wollaston Lake communities in 2012. The levels of the key parameters in all three plant types were in the expected range based on the results from previous years. The 2012 key parameter levels do not raise concerns for the residents of the Wollaston Lake communities.

AIR



Air quality was monitored at two locations near the Wollaston Lake communities by measuring radon levels. Radon is an odourless, tasteless gas that is produced naturally by the breakdown of uranium and radium-226 in the soil and water. As a result, radon levels are naturally higher in areas where uranium is found in the ground, especially in the summer months when the ground thaws and releases the gas into the air. The graph shows the natural seasonal changes in radon levels. Radon levels have remained low in the Wollaston Lake/Hatchet Lake area since AWG monitoring began in 2000.

CONCLUSION

The 2012 AWG sampling results from the Wollaston Lake/Hatchet Lake area did not change much from previous years. Uranium, molybdenum, nickel, and selenium levels in sediment from Hidden Bay continue to be elevated. Treated effluent from the Rabbit Lake Operation is released upstream of Hidden Bay. All aspects of the AWG monitoring program will continue at Hidden Bay and other Wollaston Lake locations in the future. The water, fish, wildlife, plant, and air quality results showed similar key parameter levels as previous years and were often too low to be measured by the laboratory. In general, results of the 2012 Wollaston Lake/Hatchet Lake AWG environmental monitoring program were similar to previous years of monitoring.

ACKNOWLEDGEMENTS

The AWG program is made possible thanks to northern residents' involvement and input of traditional knowledge. Special thanks to George St. Pierre who continues to do a great job collecting AWG samples from the Wollaston Lake/ Hatchet Lake area. Thank you to the AWG members, who include representatives from the seven northern communities and the industrial partners, Cameco Corporation and AREVA Resources Canada Inc. Thank you to Doug Chisholm for photo permissions.

This project was managed by CanNorth, an aboriginal environmental services company owned by Kitsaki Management. If you have any questions or comments please contact Peter Vanriel at (306) 652-4432 or awg@cannorth.com.