WOLLASTON LAKE

Athabasca Working Group Environmental Monitoring Program 2003

CanNorth

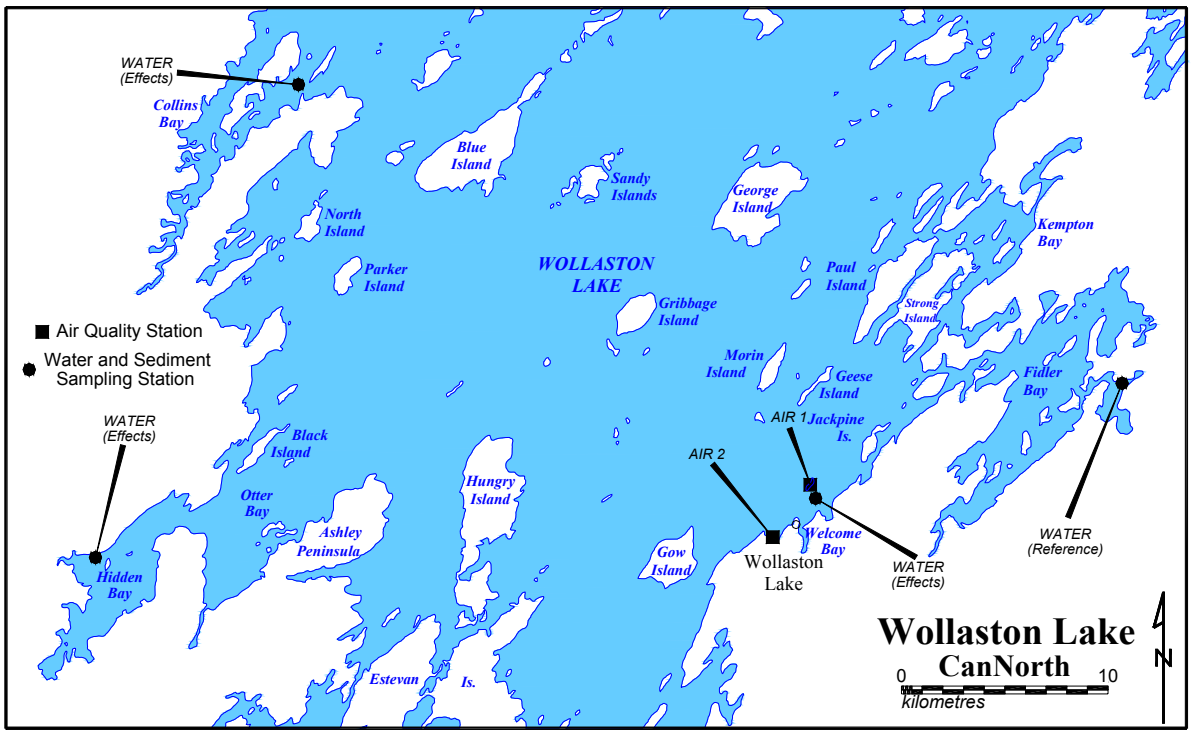
The AWG program tests the environment near each community in the Athabasca region of northern Saskatchewan for contaminants that could come from active uranium mining and milling operations. The goal of this community-based program is for community members to decide what and where to sample in the environment and to assist in all sample collections. The AWG program began in 2000 and this pamphlet presents the results of the 2003 environmental testing completed near the community of Wollaston Lake.

George St. Pierre

Contaminants from uranium mines would mainly enter the water, but small amounts may also be spread through the air. Therefore, the AWG program samples lakes and rivers, as well as plants, wildlife, and air quality near each community. This is the same type of sampling that is done near each mine site to test the environment close to the mines.

STUDY AREA

Four stations on Wollaston Lake are used for the collection of water, sediment, and fish samples. The "reference" station in Fidler Bay should not contain contaminants associated with the uranium mining operations. This is because no mines are located on the lake's east side and water flows out of this bay into the main body of Wollaston Lake. Three "effects" stations including, Hidden Bay, Collins Bay, and Welcome Bay, have more potential to receive contaminants from the mining operations located on the west side of Wollaston Lake. Air quality is sampled at two stations near the community of Wollaston Lake. Plant samples (Labrador tea, bog cranberries, and blueberries) and wildlife flesh samples (lynx, caribou, and moose) are also collected near the community. There are no "effects" and "reference" stations for air, plants, and wildlife sampling as the contaminants that may affect them are spread by wind.



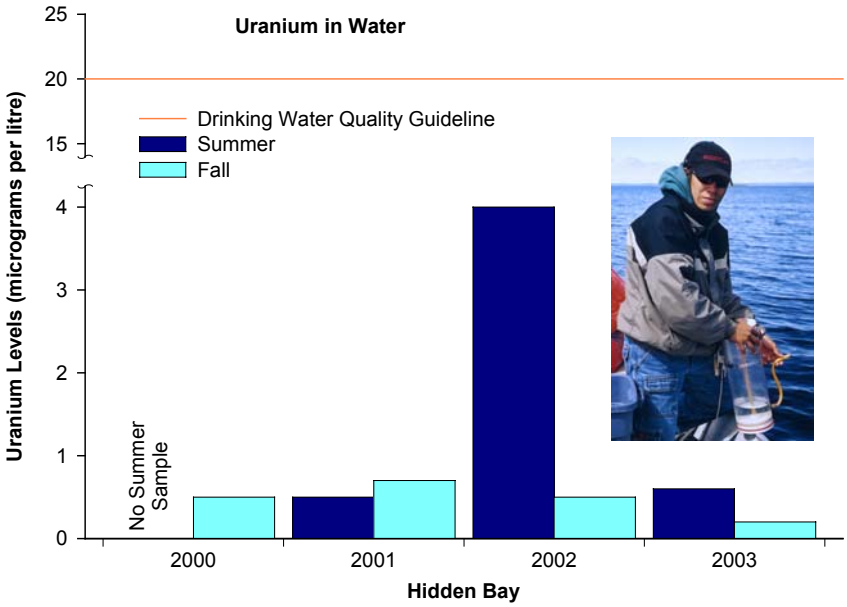
KEY PARAMETERS

This pamphlet focuses on the contaminants related to uranium mining that are of greatest concern to human and environmental health. These seven contaminants are referred to as “key parameters” and include **arsenic, copper, lead, nickel, zinc, radium-226, and uranium**. Since these parameters may be found at naturally elevated levels in northern Saskatchewan, measured parameter levels are compared 1) between effects and reference stations, 2) between years, and 3) to provincial guidelines for water and federal guidelines for sediment.

RESULTS

WATER

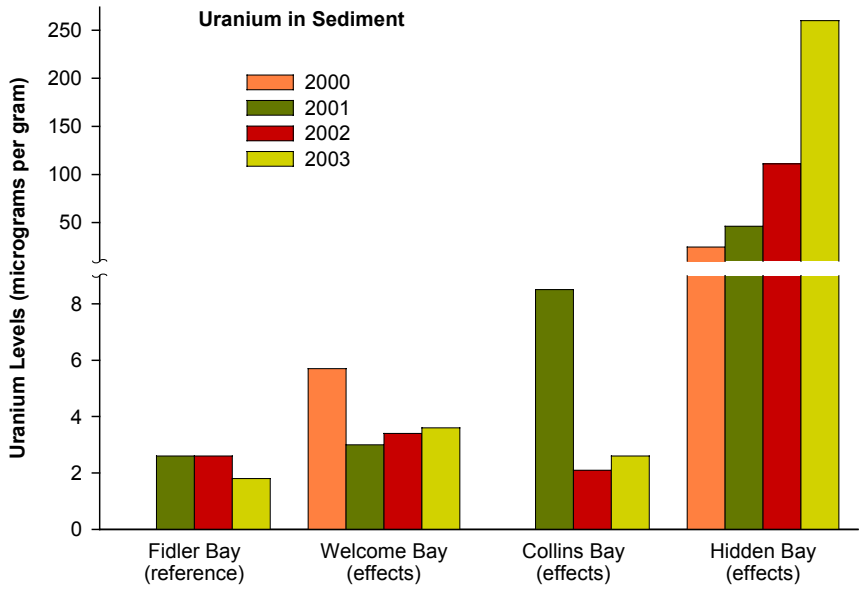
Collection of water samples from the reference station in Fidler Bay and the effects stations in Collins Bay, Hidden Bay, and Welcome Bay took place in June and September 2003. In both months, most of the key parameters were at levels less than the laboratory could detect at all the stations. In Hidden Bay, uranium levels were slightly higher in June than in September, however, the levels were much lower than in the sample from the summer of 2002. Overall, the majority of the parameters have remained at or below laboratory detection limit throughout the AWG program. In all years, key parameter levels were below the provincial guidelines for protection of aquatic life and the drinking water quality guidelines.



SEDIMENT

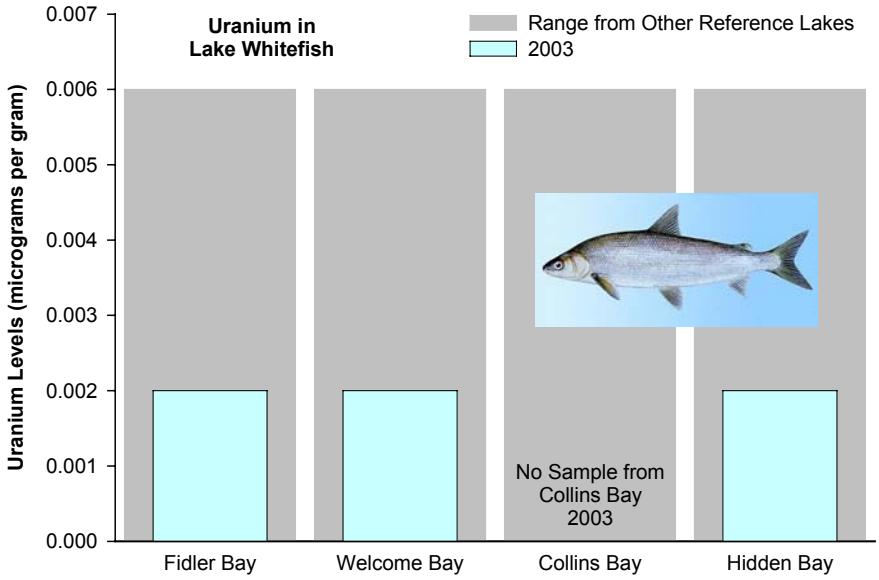
Sediment is the term that refers to mud on the lake bottom. Sediment is important to collect because it can act as a long-term storage area for contaminants and houses bugs that are an important food source to fish. Sediment sampling is completed at the same stations as the water sampling.

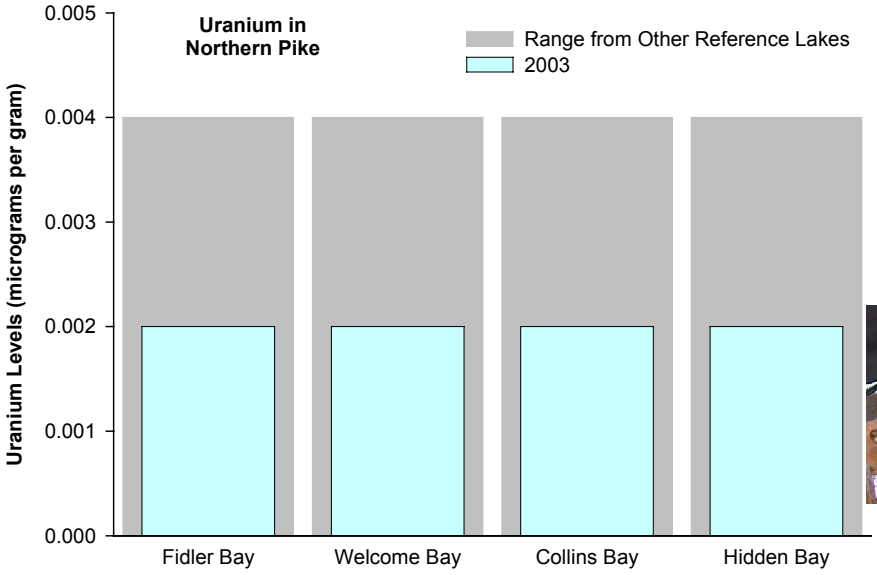
Comparison of the key parameters in the sediment samples from Fidler Bay, Welcome Bay, and Collins Bay showed no major differences between the stations. The levels at Collins Bay were slightly lower than at any of the other stations. Although the sediment levels of nickel and arsenic were higher at Hidden Bay than at any of the other stations, the levels have generally remained unchanged over the years. However, uranium levels in the sample from Hidden Bay were higher than at the other stations and have increased since 2000. This has been recognized by the company and they are looking into ways of reducing uranium in the effluent. At each of the other three stations, levels of the majority of key parameters are similar between years. Levels of arsenic, copper, lead, and zinc were below the federal “probable effects level” guideline at each of the stations during 2003. This is the level above which harmful effects to aquatic life are expected to occur. Currently, there are no guidelines for nickel, radium-226, and uranium.



FISH

An attempt was made to collect one lake whitefish and one northern pike at each of the 4 stations on Wollaston Lake, however, a whitefish could not be captured at the Collins Bay station. At all the stations, both fish species contained levels of nickel and radium-226 that were less than could be detected by the laboratory in every year. Uranium levels in the fish samples were similarly low at all of the stations in 2003 and were well below the range from other reference lakes in northern Saskatchewan. In general, all other key parameter levels were consistently low from year to year.





Mercury is the only parameter for which there is a guideline recommended by Saskatchewan Environment. In 2003, the mercury levels in the northern pike and lake whitefish from all the stations on Wollaston Lake were well below this guideline. This means that there are no restrictions, with respect to mercury, on the amount of fish that may be consumed.

PLANTS

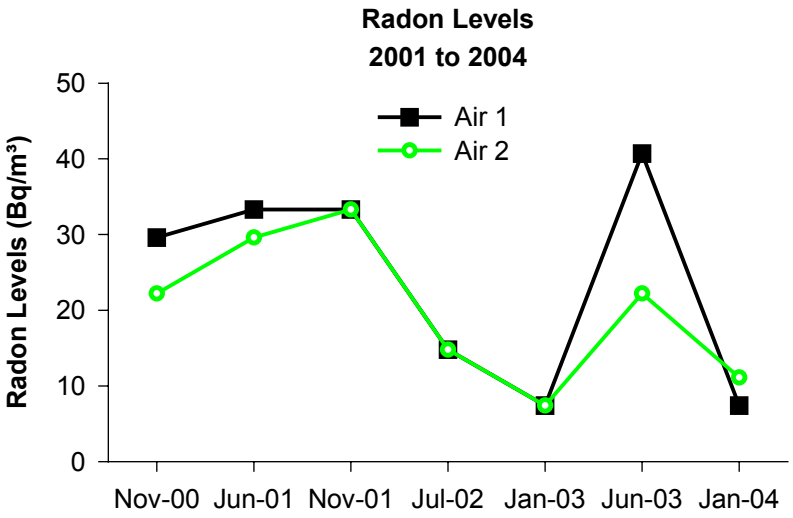
In 2003, Labrador tea and bog cranberry were collected from in and around the community of Wollaston Lake. In the Labrador tea samples, key parameter levels in 2003 were similar to values measured in previous years, and were similar to those measured at the majority of other northern communities. In the bog cranberry samples, uranium and arsenic levels in 2003 were slightly higher than in past years, but the 2003 levels were equal to or below those seen at other northern areas. Blueberry samples were not collected during 2003, however, in neighbouring communities, little difference was found between the results of 2003 and previous years.

WILDLIFE

Flesh samples were collected from caribou, moose, and lynx in the Wollaston Lake area during 2003. Of the seven parameters measured, lead, nickel, radium-226, and uranium were at levels below which the laboratory could detect in the majority of flesh samples in all years. In the caribou samples, arsenic levels were slightly higher in 2003, however this trend was evident in the samples from all the communities. Overall, very few parameter differences were found in the wildlife flesh when comparing between years.

RADON

Air quality was sampled at two stations close to the community of Wollaston Lake in order to monitor radon levels. Radon is an odourless and tasteless gas formed during the natural breakdown of uranium in soil, water, and rock. Therefore, radon levels are naturally high in areas where radon is found in the ground. As radon is produced, it moves into the atmosphere and is spread by the wind. The overall radon levels measured during 2003 were higher in the summer months than in the winter. This seasonal radon pattern is expected because radon levels are affected by temperature and precipitation. Nevertheless, the summer radon level at Air1 was higher than at the Air2 station. However, the June 2003 radon level at Air1 is similar to those measured at the Wollaston Lake stations during 2000 and 2001.



CONCLUSIONS

Treated effluent from the Rabbit Lake mine is released into Hidden Bay and, therefore, it is not surprising that the water and sediment samples from Hidden Bay contained a higher level of uranium than samples from the other stations in Wollaston Lake. All key parameter levels in fish, plants, and wildlife were low and gave no indication that they would not be safe to eat with respect to these parameters. Radon levels at one of the air monitoring stations measured higher during the summer months, but overall the radon levels followed a recognized seasonal pattern. The information collected in 2003 does not highlight any major environmental concerns near the community of Wollaston Lake caused by operational uranium mining and milling projects.

THANK YOU

Community member involvement is extremely important in planning and conducting the AWG program. Great appreciation for this work is extended to the AWG members, which include representatives from seven northern communities and the industrial partners, Cameco Corporation and AREVA (Cogema Resources Inc.). The AWG program would also like to thank all northerners who participated in the sample collections. A special thanks goes to George St. Pierre who did a tremendous job collecting the samples from the Wollaston Lake area. Finally, we wish to thank our spirited northern co-ordinator, Bill Layman, who continues to keep the AWG program running smoothly.

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.