



Legacy Arsenic Monitoring in the Yellowknife Area

Updated July 25, 2017

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Arsenic is found at naturally low levels in the water of many NWT rivers and lakes. However, past gold mining activities have resulted in additional quantities of arsenic being released in the immediate environment surrounding the City of Yellowknife.

The GNWT, in collaboration with universities, is conducting monitoring on arsenic in water, sediments, soils and fish in the Yellowknife region.

Preliminary results of these projects will be shared with the Department of Health and Social Services and other interested Departments. Final reports will be publicly available.

Elevated arsenic in Kam Lake prompted a public health advisory for residents of Yellowknife by the Department of Health and Social Services on April 10, 2017.

<http://www.hss.gov.nt.ca/en/newsroom/arsenic-lake-water-around-yellowknife>

Fish Monitoring

ENR is collaborating with the University of Alberta to study metals in large-bodied fish, including arsenic, from several high use and potentially impacted lakes in the Yellowknife area.

The study is being conducted to establish spatial trends in metals in fish. Lakes sampled include Kam Lake, Grace Lake, Long Lake, Upper Martin Lake, Walsh Lake and Banting Lake.

This study was funded by the NWT Cumulative Impact Monitoring Program (NWT CIMP) and POLAR Knowledge Canada and was initiated in March 2016 in collaboration with the Water Resources Division.



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Northern Pike and Lake Whitefish were the target species based on species distribution and density. The results of this regional study will give us a better understanding of mercury and other metals in tissue of large-bodies fish.

Fish samples were sent to the University of Alberta and the University of Ottawa for metals analysis.

Sampling is also planned for Chitty Lake and Alexie Lake in Spring 2018. A report will be released publically in 2019.

Water Monitoring

ENR conducted under ice water quality monitoring on April 18, 2017 at Kam Lake and Grace Lake.

Total and dissolved arsenic in water was similar to measurements from 2014 by the University of Ottawa and less than half what was found in 1989-1991.

Average arsenic in Kam Lake and Grace Lake in April 2017 were 240 and 15 ppb respectively. Results are consistent with recent Surveillance Network Program sampling done by Miramar Northern Mining Limited under its existing water licence.

Guidelines for the protection of aquatic life are set at 5 ppb and Health Canada drinking water guidelines are 10 ppb.

Water sampling was also conducted on Kam Lake and Grace Lake in late May 2017. Results are being reviewed and will be released publicly in the near future. Additional sampling is planned for late August/early September 2017.



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Another study, funded through the NWT Cumulative Impact Monitoring Program (NWT CIMP) in collaboration with Carleton University will develop a better understanding of contaminant mobility, particularly arsenic, in Yellowknife area watersheds.

Soil Monitoring

ENR, in partnership with Queen's University, is conducting monitoring to study contaminants in soils near Yellowknife. The study is intended to understand the regional variability in soil geochemistry in an area impacted by legacy industrial activity.

Giant Mine Remediation Project – Health Effects Monitoring Program

The Health Effects Monitoring Program is intended to establish baseline levels of contaminant exposure and examine possible health effects among Ndilo, Dettah and Yellowknife residents before remediation work begins at the Giant Mine site. During remediation, new monitoring results will be compared to the baseline to ensure participants' levels of arsenic and other metals are not increasing because of the remediation work.

The University of Ottawa is leading the design and implementation of the Program. Community information sessions have been held to present the program and talk about how residents can be involved. The Program is a requirement that came out of the environmental assessment of the remediation plan for Giant Mine.

Sampling of Ndilo, Dettah and Yellowknife residents is expected to begin in Fall 2017.

For more information, visit:

<https://www.aadnc-aandc.gc.ca/eng/1374777790923/1374777851043>

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