



Processes Controlling Mercury Accumulation in Northern Lakes 2024-2026 Laboratory based research.

This proposed research study would build on over fifteen years of collaborative research and sampling in the central Northwest Territories. Past research focused on studying arsenic levels in lake sediments (Image 1) and contributed to the Government of Northwest Territories health advisory for arsenic in surface waters of lakes around Yellowknife.

Geological Survey of Canada (GSC) researchers aim to answer a question left by earlier studies – “Why is mercury rising in some northern lakes and not others?” By sampling lakes and peats of concern identified by communities, industry and government, this research would help us develop a better understanding of the processes and variables that affect mercury accumulation in northern lake sediments (e.g., possibly due to climate change, fires, and permafrost thaw).



Image: Researchers showing the collection of lake sediments with a gravity core from a site near Yellowknife.

Although the primary focus of this study is within a region of NWT, the team is also interested in investigating mercury levels at and near Rankin Inlet and the Meliadine Mine (map below). Through an agreement between Agnico-Eagle Ltd. and the GSC, the team would analyze peat samples collected by Agnico-Eagle to determine the levels of mercury found within the mine property, and study how the naturally occurring levels of mercury may be moving within the landscape.

We are also interested in discussing the possibility of expanding this research project to add possible 2026 field work, to include specific lakes of interest to the community in the area around Rankin Inlet that are accessible for sampling.

