GEM-GeoNorth: 2024-2026 laboratory research – 2025 update

PROCESSES CONTROLLING MERCURY ACCUMULATION IN NORTHERN LAKES

LEAD: JENNIFER GALLOWAY

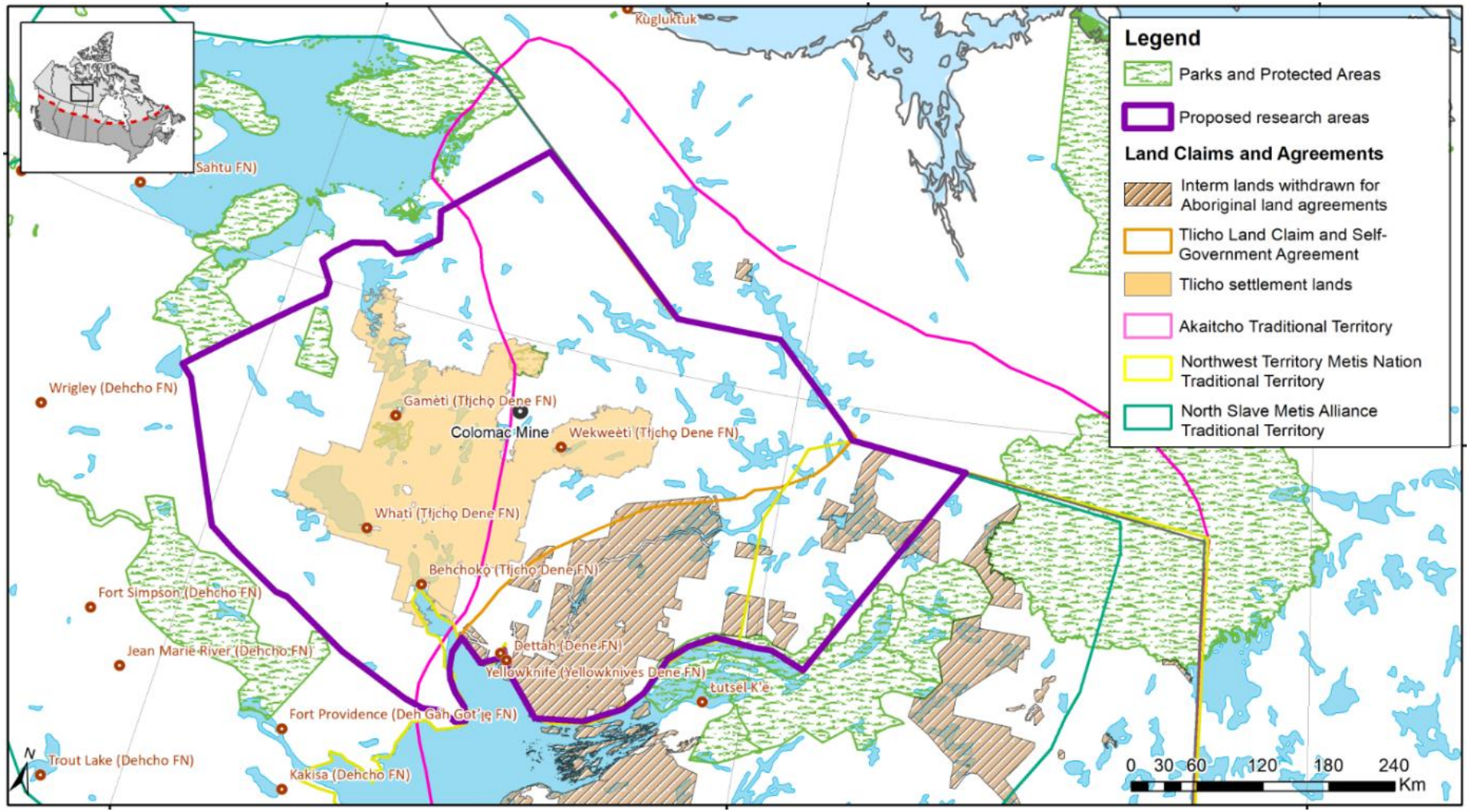
This proposed research study builds on over fifteen (15) years of collaborative research and sampling in the central Northwest Territories. Past research focused on arsenic levels and contributed to the Government of Northwest Territories health advisory for arsenic in surface waters of lakes around Yellowknife. Building on this, researchers aim to answer a critical, unresolved 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, the research will develop a better understanding of the processes controlling mercury in northern lake sediments (e.g., climate change, fires, and permafrost thaw).

We seek to collaborate with interested Indigenous organizations and communities in the region to identify lakes of concern on which to focus for this research. Concerns could range from, but are not limited to, lakes important for harvesting / traditional pursuits, or where climate change has been observed (e.g., changes in ice coverage on a lake).

Beginning in 2024, the research team started analyzing previously collected samples to provide new data on the concentration and source of mercury and other elements. In 2025-26, new sampling of lake sediments and peat by STLLR Gold Inc. is planned near the STLLR Gold camp (south of the former Colomac Mine). No on-the-ground fieldwork will be completed by the GSC research team in the Northwest Territories, as previously planned and communicated last year.

If you have any questions or concerns, please contact researcher Jennifer Galloway at jennifer.galloway@nrcan-rncan.gc.ca or (403) 619-7216.

Image above: Researchers showing the collection of lake sediments with a gravity core from a site



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