

Research Bulletin

NWT Cumulative Impact Monitoring Program

Understanding challenges of community-driven monitoring of lakes and rivers in the Gwich'in Settlement Area

Summary

Water quality in lakes, rivers, and ponds in the Gwich'in Settlement Area (GSA) is important to local residents. It is being affected by climate change, permafrost thaw, and long-range pollutants. Wilfrid Laurier University and the Gwich'in Tribal Council worked together to pilot a community-based monitoring program for water quality. The project allowed for hands-on planning and training for local community monitors and complemented existing GNWT-led community-based water monitoring in the GSA. An evaluation of the successes and challenges of the pilot program and recommendations for future endeavours in the region were developed.



Wilfrid Laurier University student Vivian Gao demonstrating how to collect aquatic insects for water quality monitoring. (Credit: D. Gray)

Why is This Important?

Gwich'in Settlement Area community members are concerned about water quality in lakes, rivers, and ponds and want to be trained in all aspects of water sampling themselves. Community-led monitoring programs are likely to be successful over the long-term and help build local capacity.

What Did We Do?

We reviewed available water quality data and met with Gwich'in community members in Inuvik, Aklavik, and Fort McPherson to discuss concerns, priorities, and sampling locations. We developed training materials, such as videos and instructional pamphlets, and provided remote and in-person training to eight local community monitors. After, we assessed the successes and challenges of the program and developed recommendations for future community-based water quality monitoring programs.



What Did We Find?

- Interest from the recruited community members was initially high. The eight trained monitors completed 100% of their two-day allotted training time.
- Monitors collected data from eight different water bodies of local interest. This included standard measurements, such as pH, temperature, and conductivity, as well as surveys of aquatic insects that are sensitive to water quality.
- Monitors collectively completed 58% (or 5 of 9) of their independent monitoring opportunities over one summer season.
- The final dataset contained water quality data from a variety of lakes and rivers, but some water bodies were sampled only once.

What Does This Mean?

- Communities are interested in leading and conducting water quality monitoring.
- However, there are challenges to maintaining ongoing community engagement and the consistency of independent monitoring.
- Several possible reasons that this project did not reach its goal of consistent data collection include:
 - Not enough time spent by trainers in each community and in some cases trainers and community members being in different locations, due to pandemic travel restrictions.
 - Too many different water quality monitoring methods and tests. Methods could be simplified.
 - The short-term nature of funding and employment opportunities.

What's Next?

Various training materials, including videos and pamphlets describing how to use the sampling equipment, were developed and provided to each community for future use. The Gwich'in Tribal Council may consider regional collaboration when designing future monitoring efforts to address some of the shortcomings identified in this project.



A field site along the shore of the East Channel of the Mackenzie River in Inuvik where community members collected water quality data. (Credit: V. Gao)

For More Information

Derek Gray, Wilfrid Laurier University
dgray@wlu.ca

NWT Cumulative Impact Monitoring Program
(CIMP225)

Elevating community-based water quality monitoring in Canada. Gordon Foundation.
<https://gordonfoundation.ca/resource/elevating-community-based-water-monitoring-in-canada/>

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