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Mr. Richard Dwyer
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Dear Mr. Dwyer,

Enclosed is my request for approval for the use of water or deposit of waste without a licence corresponding to the collection of water samples near 5 Nunavut communities for research purposes.

The following request includes a brief description of the undertaking in both English and Inuktitut, and a project area map.

Please advise if there are any questions regarding my request for approval, or further actions to take on my part.

Qujannamiik,

Michelle Blade



Project title:

Assessing changing cryohydrogeologic conditions with locally-relevant landscape indicators in Nunavut, Canada

Project description:

This research project pairs Inuit *Qaujimaqatuqangit* with permafrost and groundwater science to identify and assess locally-relevant landscape indicators of winter groundwater movement along overland travel routes. Winter overland travel by Nunavut community members primarily consists of snowmobiling and dog sledding. Encountering overflow water is a locally-relevant winter overland travel hazard. Known overflow areas, as identified by local community members, have been selected to collect field measurements during the Winter of 2025/2026 and if need be the Winter of 2026/2027. Water samples (less than 4L) are collected from the overflow water and nearby lake(s) twice a year in the Fall and Spring and analyzed for dissolved minerals. Trail cameras are set up on 4ft wooden stakes to take daily photos of the overflow water area and resulting icing formation. Small sensors (8.5x1 inch or smaller) are installed in the overflow water and nearby lake(s) to record daily water temperature, electrical conductivity, and water level. Environmental impacts are negligible. Research personnel stay in accommodations in each community and do day trips to the field data collection locations in the Fall and Spring traveling by snowmobile, ATV, or truck utilizing the community's overland travel routes. No fuel drums/containers nor supply caches will be established on the land at anytime. No waste will be deposited. All trail cameras, wooden stakes, and sensors will be removed at the end of the research project. Combined, these results improve understanding of why these winter overflow areas are already occurring where they are - and enhance predictions for local decision makers of where additional winter overflow areas may begin occurring and become future hazards along winter overland travel routes as a result of climate change. Currently, Arctic climate change prediction models rarely account for near-surface groundwater processes nor its effects on locally-relevant landscape processes such as winter overland travel hazards.

Research Project Area Map



Figure 1: Research project area map of water sampling near 5 Nunavut communities. Five communities include Arviat, Whale Cove, Rankin Inlet, Coral Harbour, and Iqaluit. Water sampling areas are outlined in red.



Figure 2: Two water sampling areas within the municipal boundary of Arviat, Nunavut outlined in red.



Figure 3: One water sampling area near Whale Cove and two water sampling areas near Rankin Inlet, Nunavut outlined in red.

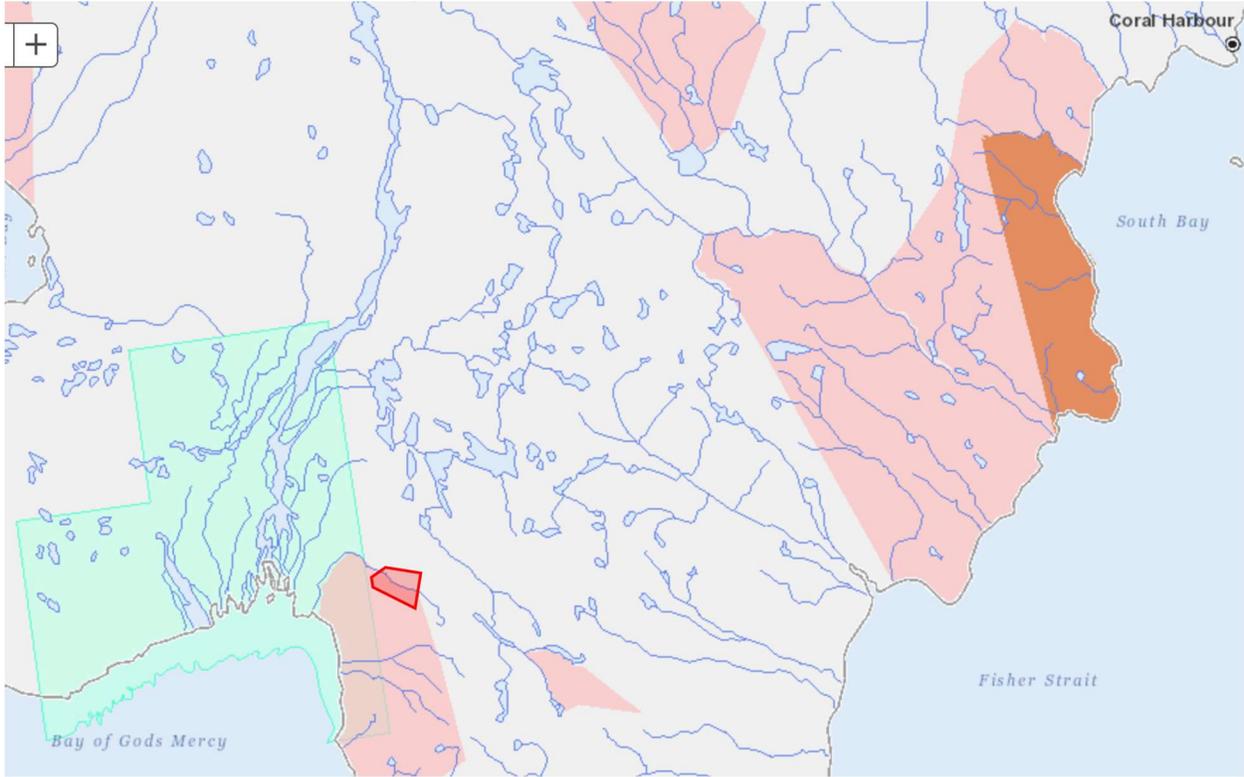


Figure 4: One water sampling area near Coral Harbour, Nunavut, outlined in red.

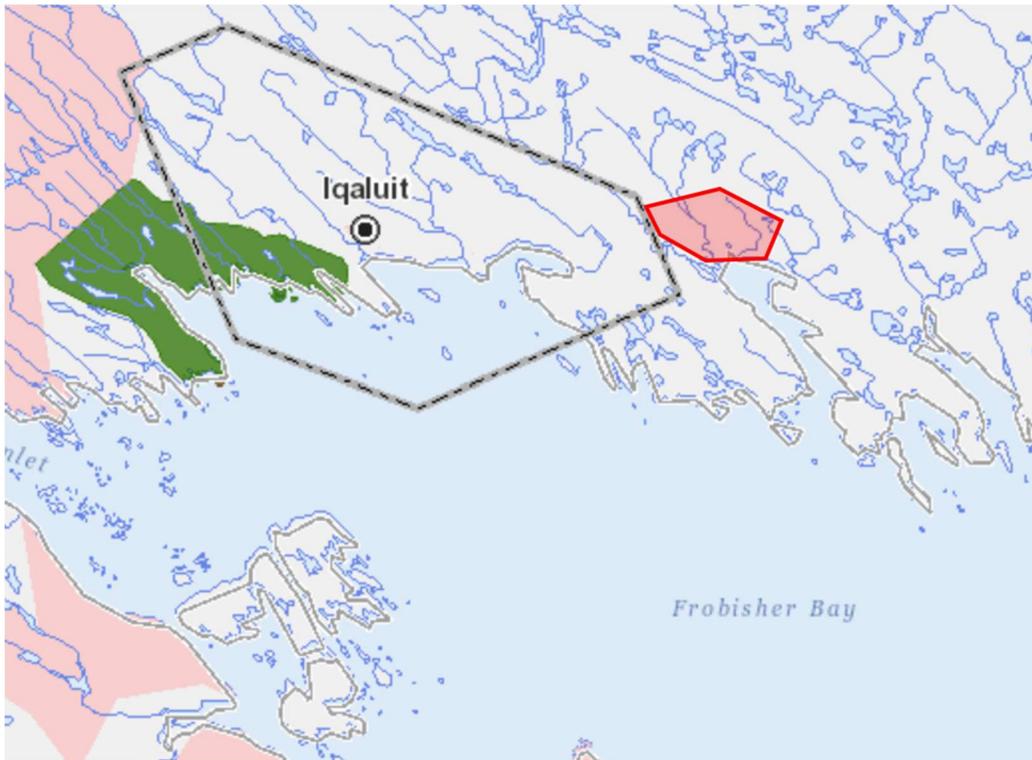


Figure 5: One water sampling area near Iqaluit, Nunavut, outlined in red.