

Nunavut Research Institute Land and Water Research Application – PROJECT DESCRIPTION
Concept Advancement for Raw Water Supply from the Sylvia Grinnell River, Iqaluit, NU

PROJECT DESCRIPTION

With increased demand on the City of Iqaluit's drinking water supply, the City's Lake Geraldine drinking water reservoir needs more water. The initial plan to pump water from the Apex (Niaqunguk) River to the Lake Geraldine reservoir was cancelled due to a limited amount of water available. This required identification of a new water source, and water intake sites, to be chosen. Nunami completed a desktop study for the City of Iqaluit and identified that the Sylvia Grinnell River had enough water to meet the City's needs while still protecting important Arctic Char habitat in that river.

To move forward with preliminary engineering and design of a water intake at the Sylvia Grinnell River, Nunami needs to complete a field study to identify the best possible intake location. Nunami is planning to complete the field study in September 2018 to measure the depth to bedrock on the shoreline where pumping equipment might be located. Two sites along the Sylvia Grinnell River, but outside (north) of the Sylvia Grinnell Territorial Park are to be investigated. These are Site A and Site B on the attached map. At each site, depth to bedrock will be measured on-land, on the shore of the Sylvia Grinnell River, and water depth across the river will also be measured. The two sites will be accessed with a truck or ATVs using existing roads and trails. No structures will be built and very little land disturbance is expected.

METHODS

To identify the best intake site on the Sylvia Grinnell River, the following methods will be used:

1. Bathymetry Survey: Nunami will use a small remote-controlled boat to measure the depth of water across the two sites in the Sylvia Grinnell River. The boat is battery-powered and controlled by an operator on shore.
2. Geotechnical Survey: Nunami will measure the depth to bedrock without digging or disturbing the ground. This will be done on the land at each of the two sites along the Sylvia Grinnell River. Nunami will use sound and pressure waves to map the type of material below ground surface. The sound and pressure waves are generated by low-speed blast charges from special array cables laid out on the ground surface. Geophones are installed along the cables to receive the sound and pressure waves bounced-back from the material below ground surface. The data are interpreted by technicians and used to map the material types below ground surface. Depth to bedrock will be mapped over an area up to 100 square metres along the shore, and upgradient, of the Sylvia Grinnell River. No geotechnical survey work will occur within the river and these on-shore low-velocity blast charges are not expected to cause any serious harm to fish in the river.

DATA USE

In the short-term, Nunami will use the data to identify the best site for a water intake in the Sylvia Grinnell River for the City of Iqaluit. In the long-term, data will be stored on Nunami's servers and will be given to the City of Iqaluit.

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REPORTING

Nunami will communicate the results of the study to the City in a report. Results of the study will likely be communicated by the City of Iqaluit through a public meeting. The study will not result in a publication.