

PROJECT OVERVIEW

This collaborative project uses a holistic approach to address freshwater sustainability challenges in three remote Nunavut communities: Igloolik, Sanirajak and Coral Harbour. The project is led by Dr. Sonia Wesche, Dr. Eric Crighton (University of Ottawa), and Dr. Andrew Medeiros (Dalhousie University), in partnership with the Nunavut Research Institute. Dr. Sarah Newell is working as a Postdoctoral Fellow on the project.

Sustainable sources of clean freshwater are critical for northern community development and planning, as well as the health and well-being of Inuit. However, Arctic regions face water resource challenges due to population growth, development, and environmental change that puts pressure on existing water supplies. At the same time, many northern communities in Canada lack baseline knowledge of their own existing water supply, rates of current and future water use, and how quickly their reservoirs recharge.

This project combines Inuit community perspectives about water uses, values, preferences, and concerns with climatic, hydrologic, and water consumption data.

The objectives are to:

- Determine current and projected uses of freshwater, including both municipal and land-based components;
- Examine Inuit values and relationships with water, including how these are impacted by environmental change;
- Identify risks and vulnerabilities regarding water-related health and well-being issues.

Results will be shared with community, territorial, and Indigenous planning partners.

This project has three key phases:

PHASE 1: Community Engagement (June 2018/January 2020)

PHASE 2: Data Collection (Fall 2018/March 2020)

PHASE 3: Reporting Back (Spring 2021)



PHASE 1: COMMUNITY ENGAGEMENT

IGLOOLIK & SANIRAJAK

In June 2018, team members Dr. Sonia Wesche (Professor – University of Ottawa), Dr. Andrew Medeiros (Professor – Dalhousie University), Chantel Emiktaut (Student – Nunavut Arctic College), and Camille Des Rosiers Ste-Marie (Student – University of Ottawa) visited Sanirajak and Igloolik to meet with community members and talk about the project.



During our week-long visit to each community, we worked with local Research Assistants (L-J Gibbons and Luba Nangmalik in Sanirajak; Krista Uttak in Igloolik), who organized meetings and introduced us to many employees of the Hamlets, Hunter and Trapper Associations, schools, Nunavut Arctic College, Qikiqtani Inuit Association, Government of Nunavut, Co-op and Northern Stores, RCMP, as well as other community members. We presented our project at a public meeting in Sanirajak, as well as on the radio, to the HTA, to the Mayor and Council, and at a small public gathering in Igloolik. We also learned a lot by going out on the land with local residents to the floe edge and Hall Lake, and on a tour of Igloolik's new water treatment plant.

CORAL HARBOUR

In January 2020, team members Dr. Sarah Newell (Postdoctoral Fellow, University of Ottawa) and Allison Covert (Master's student, Dalhousie University) visited Coral Harbour to meet with community members and talk about the project.



During our 10-day visit to Coral Harbour we worked with a local Research Assistant (Bobbie Jo Saviakjuk) who organized meetings and introduced us to many community members, employees of the Hamlet, Hunters and Trappers Association, the Saku school, Nunavut Arctic College, Co-op and Northern Stores, RCMP as well as Elders and other community members. We presented our project at a public meeting and to the Mayor and Council. We also learned a lot by going out on the land to see where community members go collect ice, where the water reservoir is located, and where the water for the reservoir is sourced.

What we learned

We learned a lot about the water system in Igloolik, Sanirajak and Coral Harbour through our conversations with community members.

Important themes across all three communities (Igloolik, Sanirajak and Coral Harbour)

- Many households spend considerable resources (money, time, and energy) to get the water that they prefer to drink.
- Many people continue to go out on the land to collect ice, snow, and water to distribute to family members, especially Elders, in the communities.
- When thinking about the sustainability of the water systems in Igloolik, Sanirajak, and Coral Harbour, we must recognize the importance of the land-based water system and potential ongoing impacts of climate change.

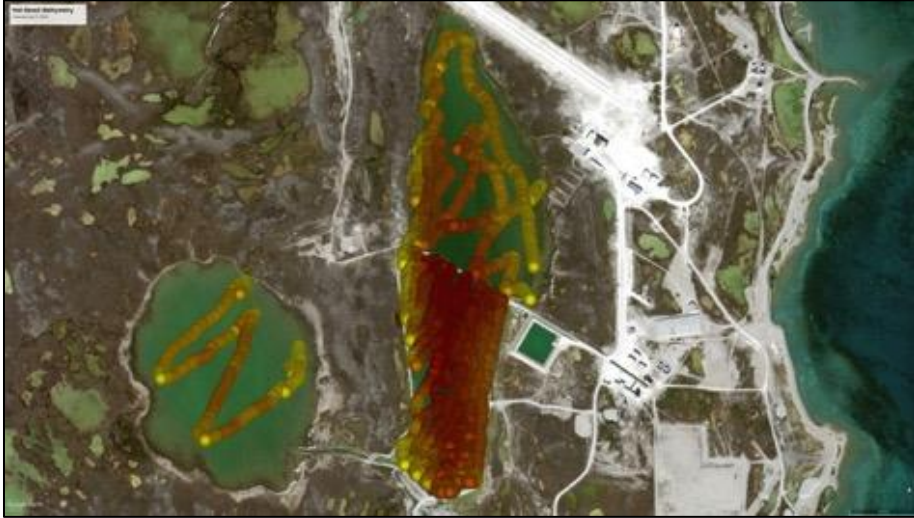


Phase 2.1: DATA COLLECTION – Water Quality sampling

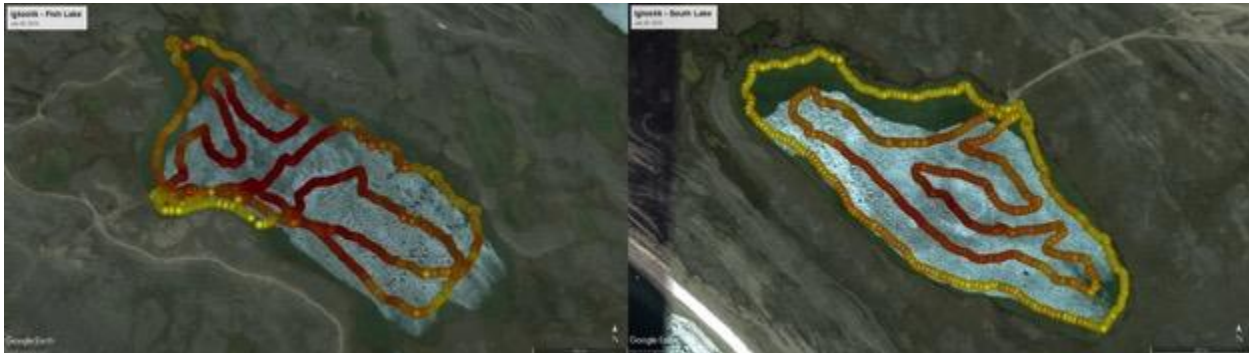
On July 12th, 2018, team members Andrew Williams (Student- Trent University), and Sherry Wu (Student- University of Ottawa) arrived in Igloolik to begin collecting water and benthic invertebrate samples from lakes near the hamlet. They were later joined by Dr. Andrew Medeiros and Paige Cincio (Student- Trent University) on July 15th, to collect water, benthic, and sediment core samples from lakes located further on the island, with the help of Simon Qamanirq. Lakes that were sampled include Small Fish Lake, Reservoir Lake and South Lake. The water samples were collected with small plastic bottles for analysis of isotopes, major ions, nutrients and trace metals. Benthic samples were collected to get an idea of current ecosystem health and water quality. Sediment cores were taken from Small Fish Lake and South Lake by inflatable boat, and will be used to reconstruct long-term historical data of the lakes to compare with current samples.



During July and August, team members Andrew Williams and Michael Bakaic (Graduate- York University) travelled to Sanirajak and Igloolik to collect measurements of water quantity in lakes around the community. Measuring the volume of water available in the lakes around the communities is important to conduct water resource assessments for the municipalities and to understand if there will be sufficient quantities of water for household use in the future. The process used a Garmin chart plotting tool which measured water depth while recording latitude and longitude. This device was placed on an inflatable boat. Andrew and Michael navigated the lakes around the communities and collected data for five lakes. The process was designed so that community members can be provided with the tools and instruction to continue the data collection work on their own accord in the future.



Google Earth map showing the field data collected in July 2018 in Sanirajak. This is preliminary data. Each coloured circle represents a recording of water depth, latitude, and longitude while in the inflatable boat. The circles are coloured by water depth with yellow being shallow and red being deep.



Google Earth map showing the field data collected in July 2018 in Igloodik. This is preliminary data. Each coloured circle represents a recording of water depth, latitude, and longitude while in the inflatable boat. The circles are coloured by water depth with yellow being shallow and red being deep.



Image on left shows the inflatable boat with Garmin chart plotting device. Image on right shows Michael Bakaic in the boat on one of the lakes in Sanirajak. DEW Line antennae visible on horizon.

Phase 2.2: DATA COLLECTION – Household Survey

Based on what we learned during our Community Engagement visits in June 2018, we developed questions about drinking water issues that are important for the communities. The survey included questions about: household characteristics, drinking water sources and use, preferences and barriers to access, water-related health concerns, direct and indirect costs associated with accessing drinking water, and demographic characteristics for each household. We worked with local Research Assistants who reviewed, finalized and translated the questionnaire into Inuktitut. The Research Assistants helped conduct house-to-house surveys in both Igloolik and Sanirajak in October/November 2018, and in Coral Harbour in March 2020. We also held two small discussion groups with interested community members in Igloolik.



****Please Note: COVID has interrupted our plans for community discussion of results. Finalized results will be shared more broadly once this process is completed.***



THANK YOU!!

The team would like to extend a special thank you to the following people for their help, support, and hospitality:

- In Coral Harbour: Bobbie Jo Saviakjuk, Michelle Anguttitauruq, Geoffrey Jones Jr, Melinda (Arnaujaq) Natakok, Tommy Paliak, Leonie Pameolik, Mayor and Council
- In Igloodik: Krista Uttak, Frances Arnatsiaq, Angela Amarualik, Theo Ikummaq, Rachel Qitsualik, Paul Hedges, Greg Morash, Mayor and Council
- In Sanirajak: L-J and Sam Gibbons, Luba Ngangmalik, Connie Arvaluk, Brenda Manning, Israel Williams, Jim Langille, Louis Primeau, Mayor and Council

