

# THOSE WHO STUDY WATER

# IMALIRIJIIT



## Results Summary for Community Organizations and Contributors, March 2019

Geneviève Dubois, Gwyneth A. MacMillan, Xavier Dallaire, Megan Gavin, Hilda Snowball, the Kangiqsualujuaq Youth Committee, Esther Lévesque, Marc Amyot, Jean-Pierre Dedieu, Thora M. Herrmann, Jan Franssen, José Gérin-Lajoie



Presented to the Northern Village of Kangiqsualujuaq



## How did the project begin?

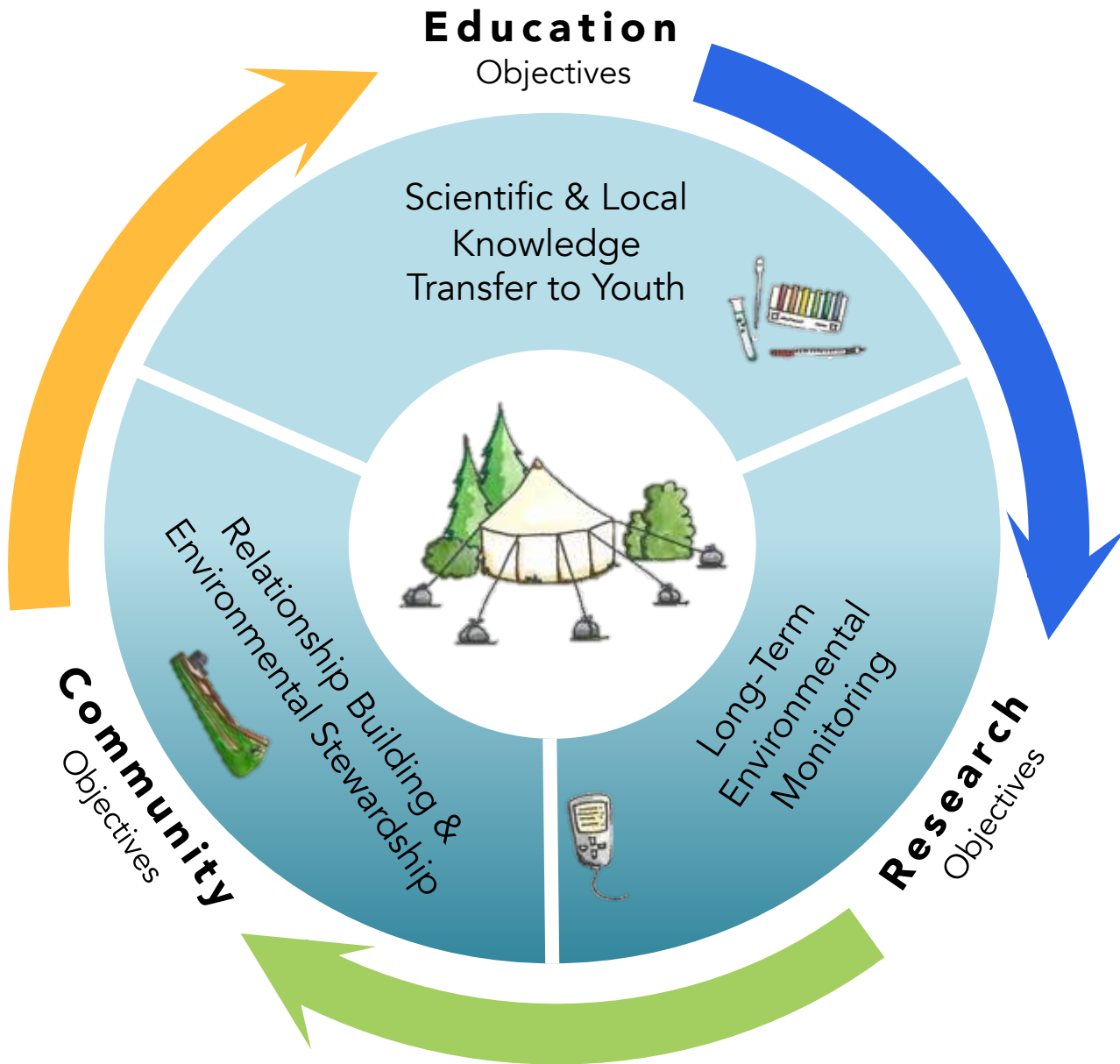
The Imalirijiit project began in 2016 following a partnership between local community organizations in Kangiqsualujjuaq (Nunavik), and a group of university-based researchers coordinated by José Gérin-Lajoie and Émilie Hébert-Houle (Université de Québec à Trois-Rivières). Kangiqsualujjamiut were concerned about the possibility of a rare earth element (REE) mining project starting its operations in the upper watershed of the George River. The river is essential to the traditional activities of fishing, hunting and gathering and the community wanted to start its own long-term community-based environmental monitoring program to collect baseline (or reference) data before any disturbance in the watershed.

This partnership between the community of Kangiqsualujjuaq and university-based researchers led to the creation of a science Land Camp program involving youth, Elders, local experts and researchers. Named IMALIRIJIIT (“those who study water”) by the youth participants in 2016, this Land Camp program uses a hands-on, land-based approach to share knowledge about water quality sampling and environmental stewardship and to encourage youth’s interest in the natural sciences.

## Update on the IMALIRIJIIT Project

The REE mining project at Strange Lake was started by Quest Rare Minerals in 2014 and was recently transferred to Torngat Metals after Quest filed for bankruptcy. The project is still active but there are currently no mining operations and it is uncertain when (or if) the mine will open. Regardless, researchers and community members are committed to pursuing this project and to monitoring the local environment of the George River watershed given the possible effects of rapid climate change. Building the resources to monitor and adapt to future change is a key goal of this collaborative project!

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This report presents the 2018-2019 activities of the Imalirijiit project. The figure shows the relationship between the education objectives (Page 4-12), research objectives (Page 13-19) and community objectives (Page 20-27). These objectives are connected and feed into each other in a complementary manner to create a successful and collaborative long-term environmental monitoring and science education project. At the centre of the project is the science Land Camp which takes place on the George River.



## Imalirijiit Land Camp 2018

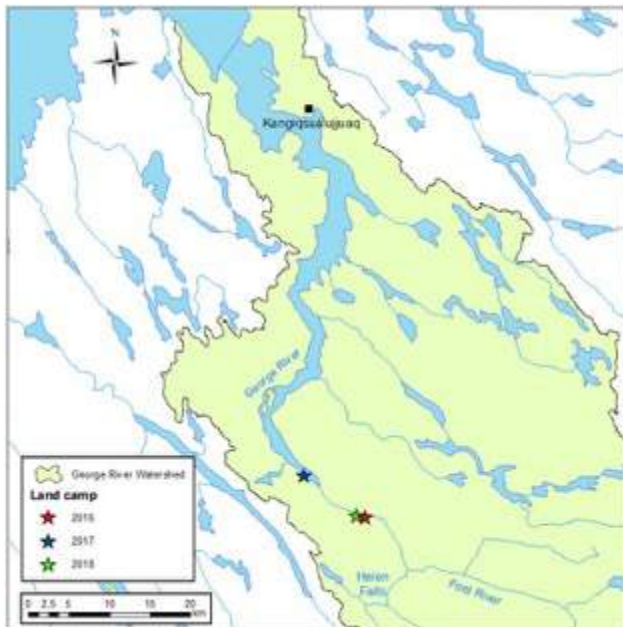
In 2018, the science Land Camp was planned from June 18<sup>th</sup> to 24<sup>th</sup>. It was, however, an especially late spring and the river wasn't ice free and safe to travel on until June 29<sup>th</sup>. The local guides commented on the unusual weather and late spring. The Land Camp was postponed until July 2<sup>nd</sup> to 8<sup>th</sup>.

To access our camp, we had to cut a path through the shore ice with a chainsaw and axes



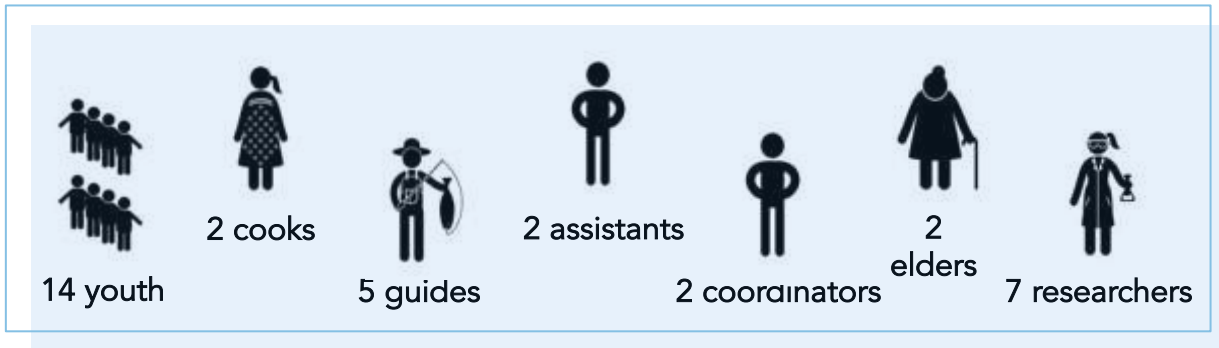
### Camp Location

The 2018 campsite was in the same location as the 2016 camp, in a high clearing in the forest blanketed in lichen. The 2017 site on the rocky shoreline could not be used as it was partially covered with water and ice.



Here is a map of the different campsites from 2016 to 2018

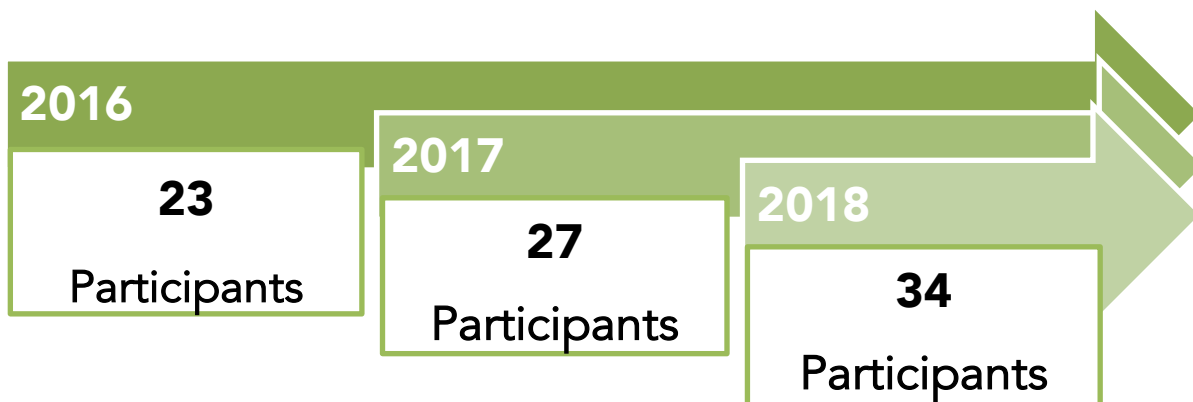
## 2018 Land Camp Team (34 people)



## 2018 Camp Themes

Our goal for the 2018 Land Camp was to provide more opportunities for the youth to connect with both scientific and Inuit knowledge. The Elders prepared two activities focused on traditional knowledge during the camp and participated actively in the scientific activities. The science program focused on water (quality, hydrology, benthic invertebrates), remote sensing (satellites images), plant and tree ecology, and ichthyology (fish biology). Geneviève Dubois, a biologist, helped create fun and educational activities for the youth in her role as education coordinator.

## Evolution of the Camp from 2016 to 2018



# 2018 Land Camp Activities

## Travelling & Camp Set Up

Thanks to lots of help from the Youth Committee, parents, guides and other community members, we left with all our food and equipment to set up camp on the George River!



## Welcome by Joshua

Joshua Annanack welcomed everyone to camp and reminded us to work together and to respect each other and the environment.



Day 1

## Plant Ecology

We had a wonderful morning on the land, learning how to measure tree age and height, how to take lichen samples, and how to study plants with satellite images.



## Fish Sampling

The youth and guides were very interested and skilled in dissecting fish. A good occasion to practice fishing cleaning skills!

## Traditional Uses of Plants

Suzy Morgan and Sarah Annanack collected lots of plants on the land and taught us about their traditional names and uses.



Day 3

Day 2

## GPS Scavenger Hunt

We organized a GPS scavenger hunt for the youth to find hidden prizes that were part of a youth's science kit. They learned how to use a GPS while having fun!



## Foldscopes

Each youth participant was given a pocket microscope to assemble in order to look at tiny structures (hair, insects, microorganisms). It was a fun origami experience!



## Notebook Workshop

Because a scientist's work is based on data collection, it is important to take good notes during sampling. Megan Gavin gave the youth a workshop on taking scientific notes.



## Water Quality Sampling

The youth used two different methods to test for water quality in the river (YSI probe and manual kits), while taking excellent notes!





### Benthos Sampling and Sorting

The youth collected tiny organisms that live in the riverbed (called benthos) using nets and brushes. They sorted and identified the benthos using guidebooks, a useful skill because these organisms are good indicators of water quality.

### Plant Collection

The youth gathered plants following a protocol and saved them to create a local plant collection (called a herbarium).



### Traditional Games with the Elders

Suzy Morgan and Sarah Annanack prepared a special evening activity where we learned to play different Inuit traditional games. James Annanack won the *Napartuk* game



### Packing & Travelling

Day 5

Day 7

Day 4



### Boat Expedition

We enjoyed a day off to play outside. We boated, fished, had a picnic and went swimming at Sarvakalak Rapids.



### Science Bingo

Outdoor bingo game with science bingo cards: why not? But be careful with the wind...



### Mid-Camp Ceremony

To recognize their participation and engagement, the youth received a temporary tattoo drawn by Mary and Uttuqi, and a certificate!

Day 6



### Water Quality Sampling

The youth practiced their water quality sampling skills learned earlier in the week.

### Herbarium (or plant collection)

Plants harvested on Day 4 were pressed and prepared for drying by the youth. Once dried, the plants can be kept for decades. The plant collection will be given to the community.



### Closing Ceremony & Bonfire

We celebrated the youths' accomplishments with all of the camp team. Each youth received a medallion, a personalized certificate and a tiny spider specimen.

## An Inuk Science Mentor at the Land Camp

"I am Megan Gavin, originally from Arviat, NU, currently living in the Capital of Nunavut, Iqaluit. I'm studying a two year program, Environmental Technology with the Nunavut Arctic College, enrolled in my second year.

During the Imalirijiit Camp in 2018, I was the Inuk Mentor and activities I did with the youth, were doing field note taking, doing water quality, fish sampling, and tree sampling with other mentors. During this experience I learned to be more patient when working with younger youth, although some youth were really engaged in the activities, I learned leadership skills from other mentors, developed my knowledge and skills and learning new perspectives.

My personal highlights during the camp where when we went up through the rapids of the river, when the youth were having a great time, getting stories from the elders, swimming in very cold water! And the closing ceremony."



**Megan Gavin**  
Environmental Technology Student  
Nunavut Arctic College

Arviat,  
Nunavut

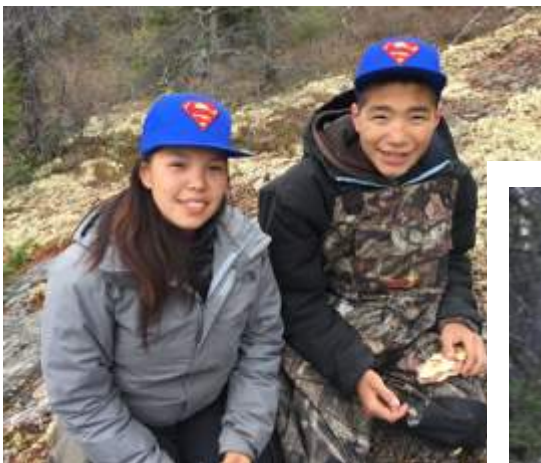


## Land Camps Help Spark Youth's Interest in Science

Each year during the Land Camp, we notice that youth gain confidence in their leadership abilities and in their capacity to participate in scientific activities.

During the 2018 camp, the researchers and local coordinators (Mary and Uttuqi) chose two different “Scientists of the Day” each morning to recognize noteworthy youth participation during the activities. Selected participants wore a blue superman baseball cap for the entire day as a reward. Many youth were extremely interested, engaged and involved during the camp, which made selection of the “Scientists of the Day” challenging!

Special ceremonies were organized during the camp to recognize the youth’s active participation during camp activities. At the closing ceremony, the youth were asked to become “Guardians of the River” and were given a wood medallion (carved by the guides), a tiny spider specimen and a personalized certificate to congratulate them. These activities were important for encouraging active participation in sciences activities and camp life.



Karen and Allan  
as Scientists of the Day



Victor and José  
at the Closing Ceremony

## Local Knowledge Holders are Excellent Teachers

Seven days on the land helped create opportunities for local knowledge holders to share Inuit culture, land skills and traditional land uses with all participants. Inuit knowledge was proudly shared and acknowledged both one-on-one and during group activities. Camp participants learned about traditional uses of plants and the local history. They practiced camp installation skills and played traditional games led by the Elders, who had learned them while living in outpost camps.

Emily cooking bannock



Elijah carrying a tree to install a *tupik*



Joshua driving Suzy and Sarah along the river to gather plants.

## Being Together on the Land

During the 2018 camp, the camp staff (guides, Elders, cooks, coordinators) were more actively involved and interested in the scientific activities. We spent more time travelling together on the river and eating lunch as a group. No black flies or mosquitoes were out yet, which helped bring us all together outside!

We celebrated José's birthday during the camp by throwing her a surprise party with a pinata and chocolate cake. José said that it was one of her favourite birthday parties ever! Being together on the land contributed to the well-being of the participants and helped us build understanding, trust and friendship. We all wore our camp t-shirts with pride during the camp!

José's birthday party



Picnic at Sarvakallak



Kitty and Henry taking a well-deserved break





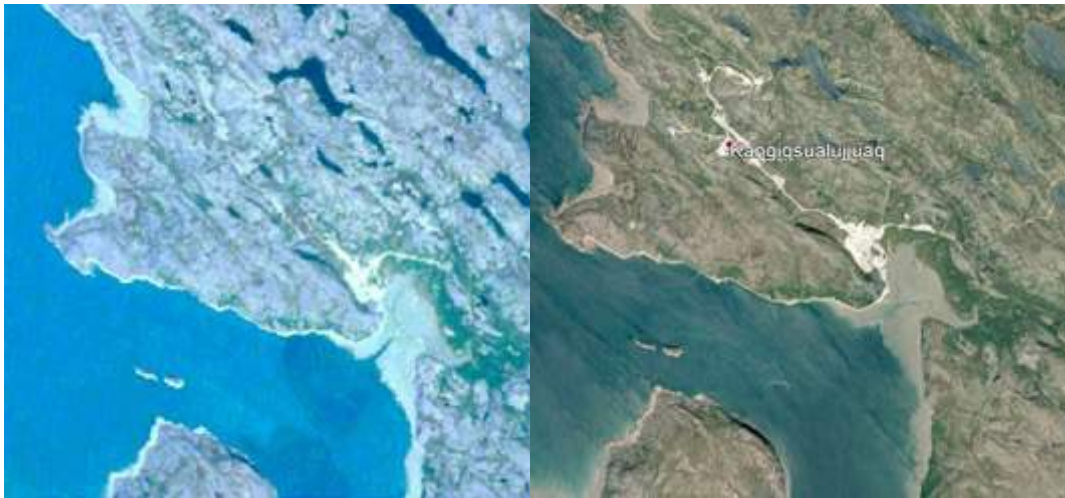
## **What will we do next?**

We are currently planning our 4th Land Camp in late June or early July 2019 and we hope to recruit many youth participants, as well as an excellent group of researchers, guides, Elders, cooks and coordinators for another wonderful week of learning on the land!

During the 2018 camp, we noticed lots of interest in learning about insects. We used a bug magnifier and the week turned into a real spider hunt, with fear shifting to curiosity for many youth participants! In 2019, we plan to focus on studying insects, as well on the possible impacts of climate change and how we can have a more positive impact on our planet. The Land Camp adventure is a work in progress, adapting to youth's interest and environmental challenges identified by researchers and community members.

## Global Change Observation using Remote Sensing

Remote sensing is a method that uses images taken by satellites orbiting in space to study changes in the environment over time and across landscapes. The images are provided through freely-available satellite archives: Landsat-5, 7, 8 (NASA) since 1984 and Sentinel-2 (European Space Agency) since 2015. From 2 to 6 times per month, these satellites take pictures of the George River from space.



Satellite pictures of Kangiqsualujuaq taken in August 1985 (left) and August 2002 (right)

## Hydrology and Water Quality

We are using remote-sensing to monitor environmental changes across the George River watershed - including ice onset, ice breakup and snowmelt - in collaboration with the laboratory of Jean-Pierre Dedieu (Université de Grenoble-Alpes). These measurements are important because they help us understand the hydrology (or the movement and distribution of water) and the water quality of the George River. We can monitor changes for three important water quality variables using remote sensing: chlorophyll-a (found in plants and algae), salinity (salt concentration) and turbidity (water cloudiness). In 2018, we took water quality samples during the Land Camp to validate the remote sensing method.

## Vegetation Changes over the Last 30 Years

In 2018, the laboratory of Esther Lévesque (Université de Québec à Trois-Rivières) and Jean-Pierre Dedieu (Grenoble) used remote sensing to study changes in vegetation due to climate change in the George River watershed. By comparing recent data with the first images taken 30 years ago, we can detect changing plant growth along the George River. Satellite images and field observations help us detect difference between trees, bushes and berry plants. This research is important to help us better understand major changes in the distribution and abundance of vegetation, which are important for wildlife and snow distribution.

During the 2018 Land Camp, Johann Housset, a plant ecologist, compared the different vegetation types detected from satellite images to his own observations in the field. This validation step is necessary to ensure that the satellite method is accurate.



Xavier and Johann observing vegetation in the field



Kimberly and Winnie searching for differences in the satellite images, at the Land Camp



## Water Quality Monitoring

One of the main goal of the Imalirijiit project is to ensure long-term monitoring of key water quality variables in the George River. Local knowledge and satellite images have helped us select sampling sites along the river.

In 2016-2017, 10 sites were sampled for pH, temperature, dissolved oxygen, chlorophyll *a*, water colour, trace metals, mercury, and rare earth elements. In 2018, Gwyneth MacMillan, an aquatic ecologist, sampled four of the same sites with help from the youth. Six new sites were also sampled by helicopter between the “Lac de la Hutte Sauvage” and Helen Falls, as well as in Lake Brisson (Strange Lake) and the neighbouring Korok River.

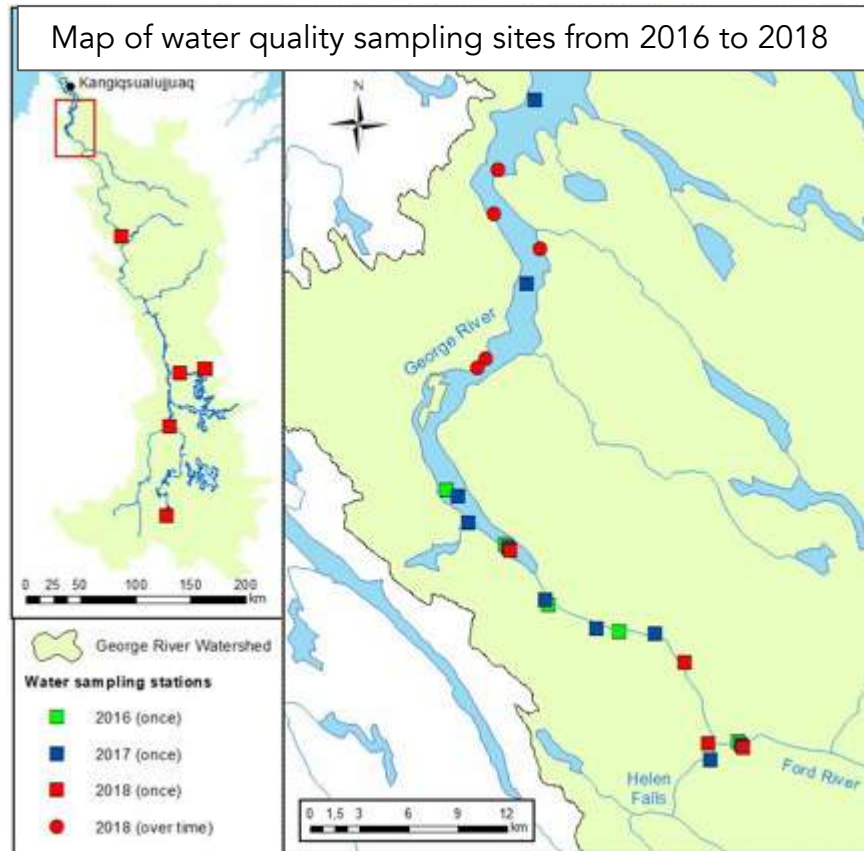
In 2018, five buoys with sensors were placed in the river by Mathieu Monfette, a hydrologist, to record water quality variables continuously from July to September. This data will be compiled and analyzed in 2019 in the laboratory of Jan Franssen (Université de Montréal).

Water quality variables (temperature, pH, chlorophyll-*a*, turbidity, colour and more) were measured at each site using an electronic sonde (YSI Pro Plus). Manual kits (LaMotte) were also used by the youth during the camp to help learn about water quality through hands-on tests. Trace metals, mercury and rare earth elements analysis will be analyzed for each site in 2019 in the laboratory of Marc Amyot (Université de Montréal).



Mathieu in the field, testing an experimental buoy close to the village.

## Water Quality Monitoring

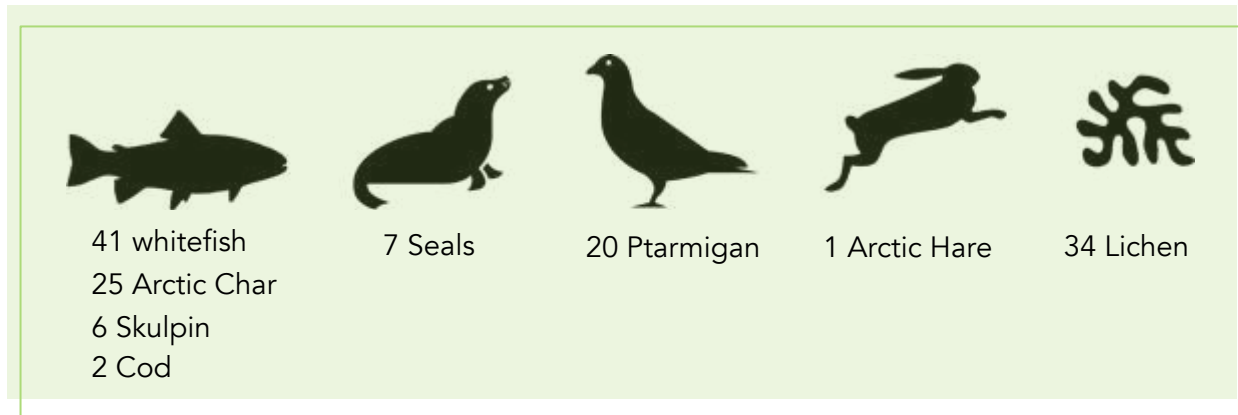


Samples from 2016 and 2017 show very low levels of chlorophyll-a and turbidity indicating that there is little algae growth or suspended particles in the river. Algae are tiny organisms that live in the water column and use sunlight to grow (like land plants). Trace metal concentrations are low and measurements are well under federal and provincial water quality guidelines. There are currently no guidelines for rare earth elements. Our results indicate that water in the George river is cold and of good quality (neutral pH, low suspended particles, low metal concentrations).

This three-year water quality data is very important because it allows us to take several different snapshots of key physical and chemical water variables. This dataset will help us monitor any future changes in the watershed.

## Country Food Biomonitoring

From 2017 to 2018, community hunters with the Hunter's Support Program collected wildlife samples for the project.



We were not able to collect any caribou samples as they were too far from the community. During the Land Camps, we also collected 34 lichen samples (caribou food) from along the river. Lichen will be used to measure metal concentrations and monitor the air quality. Plants and animals were frozen and sent to the *Université de Montréal* where they were freeze-dried and ground-up into powder before analysis. These samples are important because they will provide a reference to monitor long-term changes to country food quality.



Gwyneth, Valerie and Louisa collecting lichen (caribou food)



## Arctic Char Biomonitoring

Xavier Dallaire, a fish ecologist, participated in the 2018 Land Camp to help us monitor Arctic char. He is a member of the BriGHT project (Bridging Global changes, Inuit Health and the Transforming Ocean), from the laboratory of Jean-Sébastien Moore (Université Laval). This project is monitoring Arctic char populations across Nunavik.

Arctic char were no longer upriver during the 2018 Land Camp, but luckily we were able to catch some on our return to the village. We caught 40 fish in the bay near the dock, as well as 11 in the Korok River and 17 in the Akilasaaluk. We collected fin samples on all fish for DNA testing, which can tell us how char from different rivers are related to each other and if there is migration between rivers. This information is important to help us understand if harvesting char in one river may impact fish elsewhere. We also took samples on skin, gills and guts of the Arctic char to measure the microbes living on and inside the fish. Meat samples were also taken to check for nutritional value. Our plan for 2019 is to compare fish samples taken from around Kangiqsualujjaq to fish from across Nunavik (all the way up to Inukjuak).



Xavier dissecting fish with help from skilled Land Camp participants



## **Congratulations Eleonora and Jeannie !**

The Sukuijarvik Research Station was built by the CEN (Centre for Northern Studies, Centre d'études nordiques) in 2018 as a place to host researchers and promote collaborations with community members. The station has a conference room, laboratory, kitchen, and beds for 6 guests. We are always in good hands at the Sukuijarvik Station, with the new managers Eleonora Townley and Jeannie Stewart Annanack! Congratulations!



The CEN Building



Jeannie and Eleonora

## **What will we do next?**

In April 2019, we will hold a community consultation during Parnasimautik to continue to co-construct the project and to share the 2018-19 results. We will also buy scientific equipment to leave in the community for conducting environmental monitoring. In 2019, we plan to establish a small weather station to record climate data along the George River and set up four time-lapse cameras in two different locations to monitor snow distribution, snowmelt, hydrology, and plant cycles during the growing season and winter months. This new equipment is important to help support the Land Camp sampling and extend our monitoring of the George River year-round.



## Interactive Mapping

Interactive mapping allows us to add place names, local knowledge, stories and land-use information to virtual maps. The information can include text, pictures, videos and audio. In 2018 and 2019, we organized two interactive mapping workshops to train community members in map creation. This is important because it allows for the archiving of local ecological and traditional knowledge and observations within a “living map”, in a manner that is accessible to community members, local organizations and schools.

In 2019, the second 3-day workshop took place from March 5<sup>th</sup> to 7<sup>th</sup> 2019 at l'Institut national de la recherche scientifique (INRS) (Québec). There were five participants from the Naskapi Nation and an Inuk from Kuujjuaq. Trainees learned how to build an interactive map using the uMap platform and QGIS (open-source mapping software). Participants learned about map features and how to integrate pictures, GPS coordinates, audio and video. They organized data and layers on the maps, discussed ownership of data and map sharing, and created new maps. This workshop was the first step towards a potential collaboration between the Northern Village of Kangiqsualujjuaq and the Naskapi Nation of Kawawachikamach using interactive mapping techniques.





## Place Name Workshop in Kangiqsualujuaq

The George River watershed is a rich cultural site with traditional land uses, names and ecological knowledge. A workshop on traditional place names was organized in Kangiqsualujuaq on February 18 to 20, 2019 and facilitated by José Gérin-Lajoie (Université du Québec à Trois-Rivières), Jessie Baron, Cecilia Emudluk, Élise Rioux-Paquette and Clara Boileau Morrissette (Nunavik Parks). Elders, including Bobby Baron, Johnny Sam Annanack, Kenny Agnatuk, Minnie Mae Annanack and Susie Morgan, attended the workshop and a total of 105 Inuit place names were mapped and filmed.

The goal of these workshops is to build local capacity for the collection, archiving and preservation of local and traditional knowledge. We hope these mapping tools, in the hands of local knowledge holders, can help make knowledge accessible for future generations.



## **Place Name Workshop In Kawawachikamach**

A second workshop was organized in Kawawachikamach (Naskapi Nation) on February 26 to 29, 2019, facilitated by José Gérin-Lajoie (Université du Québec à Trois-Rivières), Thora Herrmann and Cloé Fortin (Université de Montréal), Clara Morrissette-Boileau (Nunavik Parks) and Kabimbetas Mokoush, George Guanish and William Shecanapish (Naskapi Nation). Eleven Elders (see Page 31) attended the workshop and a total of 36 Naskapi Place Names were mapped (and some filmed).

All Inuit and Naskapi place names will be integrated in an interactive map of the George River and we plan to include Innu place names as well.

## What have we learned together?

### The Youth Committee's Perspective

The Kangiqsualujuaq Youth Committee have been involved in the Imalirijiit project since the beginning and have been essential to the success of this project! Here are some thoughts from the team:

#### What impact does this project have on the youth and community?

It provides opportunities in science for the community  
It provides temporary job opportunity for the community  
It allows the community to know how the river is changing

#### How does this project affects your relationships with researchers?

It clears the misconceptions from both sides and creates a great relationship between the community and researchers.

#### What impact does this project have on youth's attitude towards science?

The attitude towards science is getting better as they are getting more familiar with it.



Qaajui, Jeannie, Eleonora, Francine and Hika working on the project





## **What have we learned together?**

### **Hilda Snowball's Perspective**

We have learned that if there is good community engagement with the researchers and if the project is brought up by the community, the project can be successful and the relationship between the researchers and the community can have a positive outcome. As the project went along, we have learnt that the project will have an impact on the decisions that might be made in the future by the community.

### **What impact does this project have on the youth and community?**

The project has a positive impact on the community as a whole. It creates interest in scientific research especially in youth and elders. It also build a relationship between youth and elders.

### **How does this project affects your relationships with researchers?**

The project has made a positive effect on relationship building with the community members and researchers. During the science and Land Camp, it has been good to see exchanges about their knowledge. Kangiqsualujuamiut sharing their cultural knowledge during the camps also researchers and scientists share their scientific knowledge.

### **What impact does this project have on youth's attitude towards science?**

It has increased interest in scientific research and it also has give opportunity to those who may not have the means to go out on the land and learn their culture as well as learning science.

## What have we learned together?

### The Science Team's Perspective

This project has provided many wonderful learning opportunities for the field team researchers. We feel very privileged for the close contact that we have had with Inuit culture when on the land together. This project has taught us the importance of sharing perspectives and ways of knowing, communication skills, and adapting research projects to local priorities. We have also learned the importance of developing meaningful human relationships within collaborations, both with community members and among researchers. Overall, the Imalirijit project has shown us how community-collaborative research can lead to meaningful outcomes for everyone involved.

### Sharing Perspectives Makes Us Successful

Imalirijit is built on trust, respect and collaboration between community members and the researchers. Its success is based on working side-by-side with great energy and commitment on grants applications, budgets, planning and camp logistics. Together, we have organized three science Land Camps, long-term environmental monitoring and new educational projects, like the *Nunami Sukuijainiq* project. Our collaboration makes this project unique, strong and fruitful.



Megan, Geneviève, Gwyneth, Hilda and José at a community presentation, after the 2018 Land Camp



## Nunami Sukuijainiq wins at the Arctic Inspiration Prize Ceremony in Whitehorse!

The Youth Committee of Kangiqsualujjuaq, José-Gerin Lajoie, and the Imalirijiit field team submitted a new project called *Nunami Sukuijainiq* to the Arctic Inspiration Prize. Some of the team members travelled to Whitehorse (Yukon) to attend the award ceremony, and the project won \$466,000 !

This new project will use the Imalirijiit Land Camp model and gives us the opportunity to:

- Offer summer and winter Land Camps
- Include youth from other Nunavik communities
- Nurture interest in Arctic ecology and develop youth’s leadership skills
- Create short documentary films
- Provide local job opportunities
- Develop a mentorship program with Nunavut Arctic College





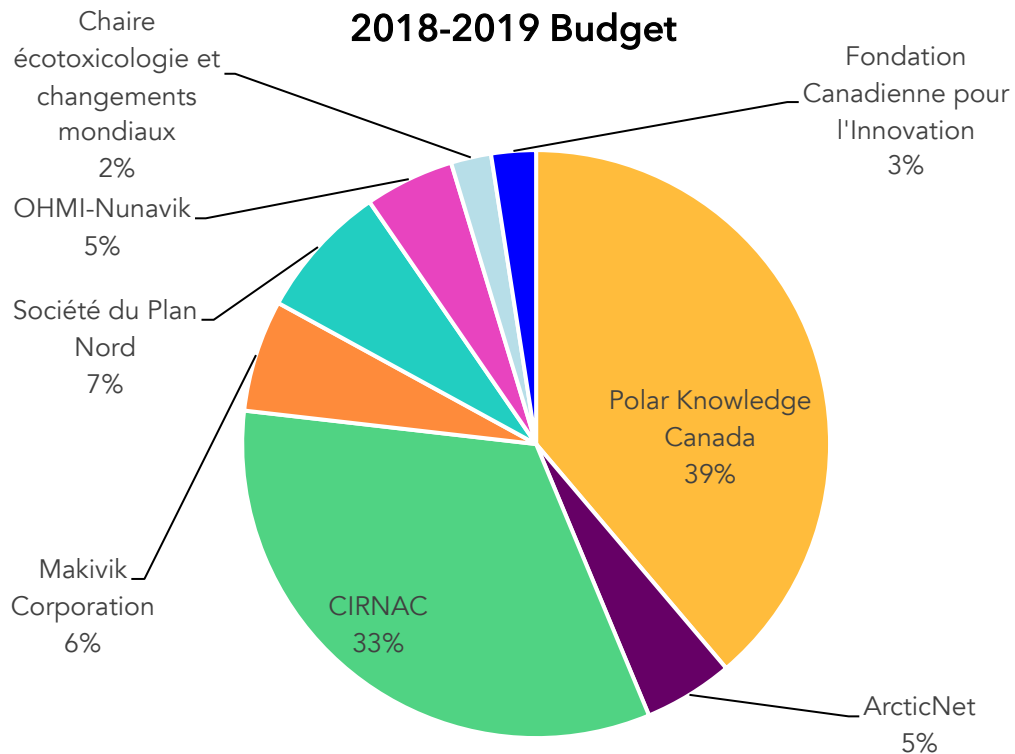


## What will we do next?

After more than 3 years of hard work, the Imalirijiit program is spreading its wings with new projects and collaborations. We will continue to nurture the environmental monitoring and youth training programs using science Land Camps and we hope to continue building trust, respect and openness between researchers and community members. We believe that this project can serve as a model for other projects that wish to place collaboration and community needs at the core of environmental monitoring. We are honored to have received the Arctic Inspiration Prize and we hope to inspire other researchers, communities, and environment leaders across Nunavik.

## Financial and In-kind Support

We received financial and in-kind support from many partners since the start of the project in 2016, including local and regional organizations, provincial and federal agencies. The bottom figure presents the yearly funding (without in-kind) we received for 2018-2019 inclusively. The total budget for 2018-2019 is \$406,573. Funding confirmed for 2019-2022 are provided by *la Société du Plan Nord*, *Makivik Corporation*, *Arctic Inspiration Prize*, *Polar Knowledge Canada*, *ArcticNet* and the *Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)*. Other sources may be added in the future.



We would like to thank *Polar Knowledge Canada*, the *Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)* - *Indigenous Community-based Climate Monitoring Program*, *la Société Plan Nord*, *l'OHM Nunavik* (*LabEx DRIIHM* and *CNRS, France*), the *Northern Contaminants Program (NCP)*, *ArcticNet*, *la Fondation Canadienne pour l'Innovation*, *la Chaire de Recherche du Canada en Écotoxicologie et Changements Mondiaux*, *Kativik Regional Government*, *Arctic inspiration Prize*, *Makivik Corporation*, *Nunavik Parks*, *W. Garfield Weston Foundation*, *Environment and Climate Change Canada*, the *Kangiqlualjuuaq Youth Committee*, *le Centre d'Études Nordiques*, the *Northern Scientific Training Program*, *FONCER-Mine de Savoir (NSERC)*, *Oceans North* and *Air Inuit* for providing essential financial and in-kind support.

## 2018 Land Camp Participants



### Youth

Allan Morgan  
Eeneasie Chevrier  
James Annanack  
Karen Annanack  
Kimberly Karpik

Louisa Etok  
Lucy Baron  
Nicodemus Jararuse Jr.  
Tania Morgan  
Thomas Sandy-Baron

Tyler Ittulaq  
Valerie Baron  
Victor Emudluk  
Winnie Annanack

### Elders

Sarah Pasha Annanack  
Susie Morgan

### Cooks

Emily Emudluk  
Kitty Annanack Ittulak

### Local Coordinators

Mary Emudluk  
Uttuqi Hubloo

### Guides

Elijah Snowball  
Henry Ittulak  
Jaiku Arnatuk  
Joshua Annanack  
Neekalak Annanack

### Assistant Guides

Don Willie Annanack  
Gordie Annanack

### Boat Drivers and Assistants

Aleva Annanack  
Brendan Annanack  
Félix St-Aubin  
Johnny Sam Annanack  
Kenny Arnatuk  
Sammy Unatweenak  
Stanley Sam Annanack





### 2017 Land Camp Participants (Left)

**Youth:** Alan Emudluk, Alvarez Chevrier, Annie Annanack, Ikenia Annanack, Jack Etok, Jane Annanack, Justin Assevaq, Marc Annanack, Matthew Etok, Nicodemus Jararuse, Ronnie Tuglavina, Tania Morgan, Turiisia Emudluk, Tyler Ittulak

**Local Coordinator:** Mary Emudluk

**Elders:** Mary Elisapee Nakulak Annanack, Minnie Mae Annanack

**Guides:** Henry Ittulak, Jaiku Arnatuk, Jason Etok, Paul Jararuse, Victoria Cooper

**Cooks:** Eva Morgan, Kitty Annanack

### 2016 Land Camp Participants (Right)

**Youth:** Clara Unatweenuk, Eli Annanack, Lise Morgan, Morgan Annanack, Rupert Annanack, Sarah Unatweenuk, Vanessa Snowball, Vanita Weetaltuk

**Elders:** Mary Elisapee Annanack, Minnie Mae Annanack

**Guides:** Alex Noah Morgan, Joe Etok, Joshua Annanack, Paul Jararuse

**Cooks:** Julianne Imbeault, Louisa Minnie Etok with Qipita, Mary Annanack

**Other boat drivers and assistants:** Don Annanack, Jean-Jacques Seignuin, Joas Emak, Johnny Etok, Joshua Annanack, Mark R Annanack, Nicodemus Jararuse Sr., Sammy Unatweenak

## Place Names Workshop Participants

### 2019 – Kangiqsualjuuaq

Bobby Baron, Cecilia Emudluk, Clara Boileau Morrissette, Élise Rioux-Paquette, Jessie Baron, Johnny Sam Annanack, Kenny Agnatuk, Minnie Mae Annanack, Susie Morgan.

### 2019- Kawawachikamach

Alma Chemaganish, George Chemaganish, George Guanish, George Shecanapish, Jacob Mamenskum, Kabimbetas Mokoush, Maggie Paschene, Matthew Mamianskum, Philip Einish Sr., Philip Einish Jr., Samson Chescappio, Stephen Nabiwacabo, Susan Mameaniskum, William Shecanapish.

## 2016-2017 Interview Participants

Jaiku Arnatuk, Joshua Annanack, Mary Elisapee Annanack, Minnie Mae Annanack, Paulosie Jararuse, Tooma Etok.

## Interactive Mapping Workshop Participants

### 2019

Claudia Guanish, Claudia McKenzie, Cloé Fortin, George Guanish, Gilbert McKenzie, Hadrien Bois Von Kursk, José Gérin-Lajoie, Thora M. Herrmann, Tshiueten Vachon, Victoria Cooper

### 2018

Clara Morrissette Boileau, Émilie Hébert-Houle, Hadrien Bois Van Kursk, José Gérin-Lajoie, Kabimbetas Noah Mokoush, Thora M. Herrmann, Victoria Cooper

## Country Food Biomonitoring Participants

### 2016-2017 Kangiqsualjuuaq Hunters

Adamie P. Etok, Bobby Annanack Jr., David Annanack Sr., David Emudluk, Elijah Snowball, Eva Snowball, Jack Annanack, Johnny Emataluk, Johnny Thomas Annanack, Kenny Angnatuk, Leevan Etok, Norman Snowball, Paul Jararuse, Paul Toomas, Tommy Snowball, Tooma Etok

### 2016-2018 Laboratory Analyses

Derek Muir, Dominic Bélanger, Eliane Grant, Gwyneth Anne MacMillan, Reinhard Pienitz, Xiaowa Wang

**If we have missed anyone or misspelled someone's name, please contact us!**

## Professors



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Jean-Sebastien Moore  
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Marc Amyot  
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Université de Montréal

## Field Team 2018



Eleonora Townley  
Youth Committee of  
Kangiqsualujuaq



Hilda Snowball  
Vice-Chairperson,  
Kativik Regional Government



Josee Gerin-Lajoie  
Université du Québec à  
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## Field Team 2018



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Gwyneth A. MacMillan  
Aquatic Ecologist



Johann Housset  
Forest Ecologist



Mary Emudluk  
Local Coordinator



Mathieu Monfette  
Hydrologist



Megan Gavin  
Environment Student



Xavier Dallaire  
Fish Ecologist



Uttuqi Hubloo  
Local Coordinator



**Youth Committee 2018:** Anita Annanack, Eleonora Townley, Francine Emudluk, Hika Emudluk, Jeannie Annanack, Jessica Emudluk, Qaajui Baron

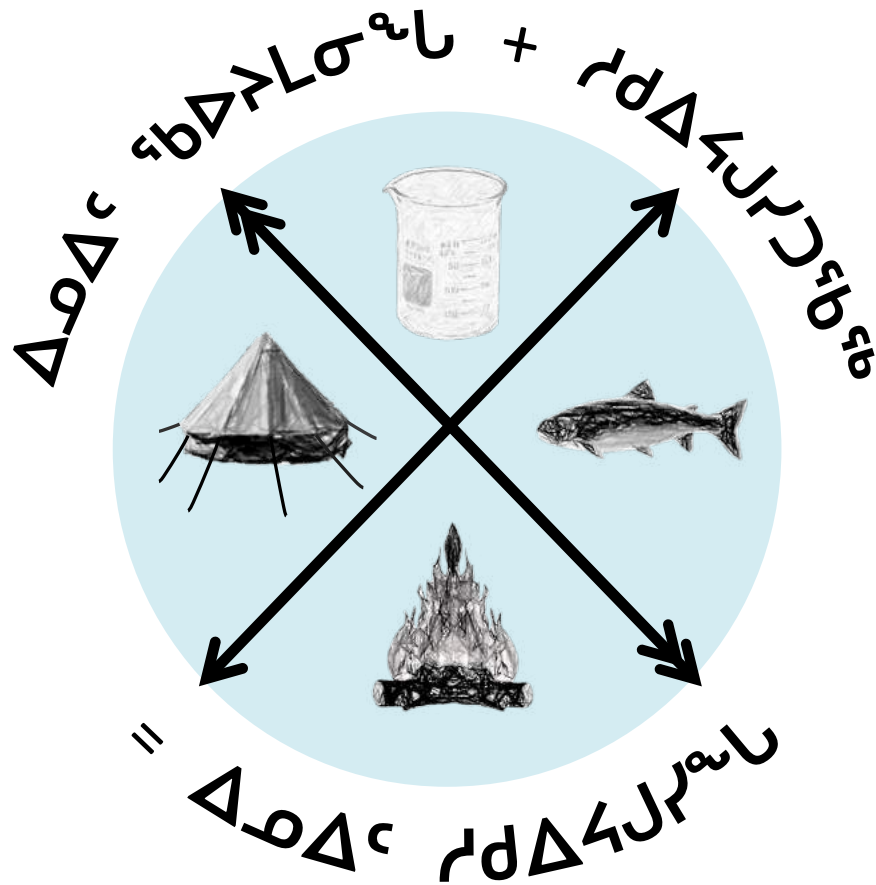
**Special mention to previous collaborators:** Émilie Hébert-Houle, Élise Rioux-Paquette, Justine-Anne Rowell, Tim Anaviapik Soucie

# NAKURMIIMARIALU K

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## Contact

If you have any comment or questions about this report, or the Imalirijiit project, please contact Eleonora, Jeannie or José so that we can follow up with you.

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