CONSULTATION ON ECOLOGICAL MONITORING IN THE NORTH BAFFIN REGION

POND INLET, NUNAVUT
January 22nd to February 9th, 2018

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EXECUTIVE SUMMARY

Following over 20 years of terrestrial ecological studies and monitoring on Bylot Island, researchers working at the Bylot Island Research Station (Goose Camp) wanted to hear the environmental concerns and priorities from the local population in the North Baffin region. They organized a broad consultation on this issue to brainstorm with participants, have open discussion, generate ideas and find ways to work more closely with the communities of Pond Inlet and Arctic Bay. This initiative included six pre-workshop consultations with local organizations and committees followed by a two-day workshop. Activities took place in Pond Inlet from January 23th to February 8th 2018 with 50 participants, the vast majority from northern communities. Organizations that participated to the consultation process included the Mittimatalik Hunters and Trappers Organization, the local Youth Group, the Pond Inlet Hamlet Municipal Council, Ikaarvik, Elders, Parks Canada and their Inuit Knowledge Group and Joint Park Management Committee, the Canadian Wildlife Service and their Area Co-Management Committee, the Qikiqtani Inuit Association and Environment and Climate Change Canada.

Participants involved in pre-workshop consultations could individually express their main environmental concerns, share them with the group, and collectively organize and synthesize their ideas in posters. Four main themes emerged from the pre-workshop consultations:

1) Natural processes and changes affecting the Land;
2) Human activities impacting the Land;
3) Freshwater fishes;
4) Wildlife on the Land.

During the workshop, participants worked in teams on each of these four themes to develop concrete projects that addressed issues raised during the pre-workshop consultations. Seven projects were developed on the following issues:

1) Changes affecting the Land, primarily permafrost thawing, mudslide and coastal erosion;
2) Impact of mining activities on water and air quality at Phillips Creek;
3) Surveillance of tourist activities (cruise ships, private yachts) with automated cameras;
4) Freshwater fish habitat and health;
5) Fish migration;
6) Health of North Baffin caribou;
7) Health of birds and eggs that Inuit consume.

At the end, each team presented their project to the whole group to seek their comments and a survey was conducted within the group to determine the feasibility and benefits for the community of each project. Potential partnership and funding sources for each project were also explored. This consultation should lead to an action plan to address environmental issues that matter to northerners in collaboration with them. The whole process was considered very successful by participants based on an evaluation conducted at the end of the workshop.

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INTRODUCTION

The Arctic is one of the most rapidly changing regions on the planet and this creates many challenges for Inuit communities. There is therefore an urgent need to monitor environmental changes occurring in this region, evaluate how communities will be impacted and ultimately develop adaptation strategies. However many have argued that monitoring programs designed exclusively by scientists, which largely ignore community stewards and exclude other ways of understanding the environment, are insufficient to address these growing challenges. Interest is rising for multiple knowledge systems and community-based participatory approaches to science, particularly for environmental monitoring.

Following over 20 years of terrestrial ecological monitoring on Bylot Island, researchers working at the Bylot Island Research Station (Goose Camp) wanted to hear the environmental concerns and priorities from the local population in the North Baffin region. They took the initiative of organizing a broad consultation on this issue to brainstorm with participants, have open discussion, generate ideas, and find ways to work more closely with nearby communities, Pond Inlet and Arctic Bay. Special attention was given on how to include Inuit Qaujimajatuqangit (IQ) and promote direct local implication.

Instead of asking questions such as "What is your perception of initiating a community-based biodiversity monitoring program" or "What species/indicators should be monitored in priority", researchers opted for an emergent, grassroots approach where a large number of people work together to generate new ideas. This approach first involves consultations in small groups to prepare a joint, final workshop with representatives from all groups consulted. The pre-workshop consultations encompass the following steps: 1) individual expression of environmental concerns in small groups with people belonging to the same organization; 2) discussion and classification of their ideas within the group; 3) in sessions with a large number of participants, exchange of ideas among concurrent sub-groups; and 4) preparation of a synthesis poster by each group to be presented at the workshop. Researchers then extracted the main recurrent themes or concerns from all posters and prepared synthesis thematic posters. During the first day of the workshop, people had to choose a theme and form families around these themes. Each family had to develop one or two projects with objectives, methodology and monitoring tools. The second day, families presented their projects, and the group had to vote on the project's benefits for the community and its feasibility. Finally, each project was developed further by identifying organizations or individuals already involved in this area and potential funding sources for the project.

With this kind of approach, the researchers embrace the community's global environmental concerns by trying to find common grounds with their research interests and expertise and to develop ways and tools to address them that benefit both the community and researchers. It is based on trustful relationships as people have a sense of being consulted and listened to in a co-construction perspective.

In this report, we present in details the methodology that we used, the results of the pre-workshop consultations and of the workshop itself, and we make recommendations for a follow-up. The ultimate goal of this consultation was to define a road map for future steps and an action plan to tackle, all together, environmental issues that matter to northerners in sustainable ways.

METHODOLOGY

Approach, participants and strategies

José Gérin-Lajoie was in charge of organizing and leading the whole process in collaboration with two long-time researchers from the Goose Camp, Gilles Gauthier from Université Laval and Joël Bêty from Université du Québec à Rimouski. The approach chosen for this consultation was inspired by Participatory Action Research (PAR) (Chevalier and Buckles 2013; Chevalier, Buckles and Bourassa 2013) and World Café (The World Café Community Foundation 2013) principles and methodology. Prior to this consultation, J. Gérin-Lajoie attended a PAR training session in Quebec City in December 2017 and consulted with Jacques Chevalier to discuss the methodology used for this activity. Parks Canada contributed to the success of this meeting by compensating the elders affiliated with their organization as well as providing material (maps, translation devices, room rental) and human resources (note takers, logistics).

A broad spectrum of northern organizations and groups were invited to the consultation to get a variety of perspectives (see appendix 1 for the list of invited groups). Invitations were sent in October 2017 with personal follow-up over the following weeks. Groups that participated were: Mittimatalik Hunters and Trappers Organization (MHTO), Hamlet Municipal Council, the Youth Group, Ikaarvik, Elders, Parks Canada, including the Inuit Knowledge Working Group and the Joint Park Management Committee from Pond Inlet and Arctic Bay, Canadian Wildlife Service, including the Area Co-management Committee, Environment and Climate Change Canada and Qikiqtani Inuit Association (QIA). These organizations selected representatives to attend the consultations.

This initiative took place in Pond Inlet, Nunavut. J. Gérin-Lajoie stayed in the community from January 23 to February 9 to lead the pre-workshop consultations and the two-day joint workshop and G. Gauthier and J. Bêty joined her from February 5 to 9. Three different strategies were used for these activities and participation is summarized in Table 1. Overall, 50 people were involved in this consultation process: 44 participants, 3 interpreters and 3 facilitators[1]. The ratio men/women was 33/17 and the age of participants varied between 16 and 80ish years old. All participants to the pre-workshop consultations had to sign consent forms to allow diffusion of their name and pictures taken during these activities and they all received honoraria for their participation.

[1] See appendix 2 for the list of participants

Table 1. Participation to the three strategies used for the consultation on ecological monitoring held in Pond Inlet, Nunavut.

	Small group pre-workshop consultations	Large group pre-workshop consultation	Joint workshop
Date	January 26th to February 2nd, 2018	February 5th, 2018	February 7th and 8th, 2018
Duration	2.5 hours	1 day	2 days
Consulted groups	MHTO, Hamlet, Youth, Ikaarvik, Elders	Parks Canada, Canadian Wildlife Service, Inuit Knowledge Group, Joint Park Management Committee and Area Co-management Committee	Representatives from all consulted groups plus QIA
Number of participants	24 (MHTO: 5, Hamlet: 7, Youth: 7, Ikaarvik: 2, Elders: 3)	14	26
Number of facilitators	1	3	3
Number of interpreters	1	2	2
Total number of participants	26	19	31

Strategy 1: Small group pre-workshop consultations

The pre-workshop consultations were a very important step in the process because it allowed participants to discuss in small groups with people they knew, a context that encouraged people to speak. Although groups had been contacted a long-time in advance to explain the project and its objectives, consultations were organized onsite. Brainstorming and classification techniques were used to encourage people to express their environmental concerns related to terrestrial ecosystems (land, freshwater, wildlife, human activities) at a local and regional scale. At all these meetings, an interpreter was available to ensure that each participants could speak in its preferred language and understand what had been said in the other language. Activities during these consultations were organized as follows:

1. Think about environmental concerns you have that could be addressed in collaboration with researchers.

2. Summarize each of your ideas on a card, using key words (WHAT) and write in a few words why it matters to you (WHY).

3. Each person takes turn to explain his/her concerns to the group and places his/her cards on a territory's map.

4. Participants all work together around the map to classify similar ideas and narrow them down to a maximum of four categories with the help of the facilitator and interpreter.

5. The group designs a poster showing their ideas under the emergent main categories.

◆ Note: a category related to how research is conducted up north arose spontaneously in several groups.

Strategy 2: Large group pre-workshop consultation

One large group consultation was organized prior to the workshop with all individuals linked with Parks Canada and the Canadian Wildlife Service. The brainstorming and classification techniques were used, followed by the carousel of ideas technique (moving from one table to another to exchange ideas)[1] due to the size of the group.

Steps 1 and 2 of Strategy 1 were repeated and followed by these activities:

3. Walk around with your cards showing the key words and create families by grouping cards with words expressing similar ideas. In the case of an orphan idea, one family may adopt this card.

4. Participants of each family sit around one table. They find a name that captures their main idea and develop a proposal involving community and researchers. Each family chooses one note taker and one presenter.

5. Participants of each family visit another family except the note taker and the presenter who remain at their table to explain the project to participants coming from other families. Visitors ask questions and give their feedback and comments, written down by the note taker.

6. Same as in point 5 to visit another table.

7. Participants come back to their original family table and revise their proposal based on feedback received and possible links with ideas heard at other tables. At this stage, each family has to prepare a poster to make a presentation to the group.

8. Families prepare their posters and presentations with these guidelines:
    a. Family name
    b. Idea/Proposition
    c. Why it matters?
    d. How can we work together?

The posters will be displayed at the two-day workshop and used to prepare a synthesis of pre-workshop consultations.

[1] Chevalier, Buckles and Bourassa 2013

Synthesis of pre-workshop consultations

The pre-workshop consultations resulted in the production of eight posters. Then, another exercise had to be done to synthesize all the ideas that had emerged. Four main themes were identified from these posters:

1) Land;
2) Fish;
3) Animals on the Land;
4) Human Activities.

All the ideas and proposals that had emerged were grouped in subcategories under one of these themes and four synthesis posters were prepared to summarize the results of these pre-workshop consultations to a larger audience at the workshop.

Strategy 3: Joint workshop

This two-day workshop aimed at going further in the thinking process to come out with concrete collaborative projects and to propose tools, a work plan and an agenda for each of these projects (HOW). The two-day workshop took place at the Sauniq hotel conference room. Special attention was put into setting up the conference room in order to provide a welcoming environment that favoured discussions and exchanges, as recommended in the World Café approach. Four tables with tablecloths and little led candles were placed in each room's corners to provide an open space in the middle where people could easily circulate and where the floor could be used as a central working space. Each table was provided with a printed map of Sirmilik Park and surrounding area with Inuktitut names and all the stationery required to take notes and prepare posters. Two interpreters were hired to provide simultaneous English-Inuktitut translations using wireless translations devices. During discussions in breakout groups, interpreters moved from one table to another, adjusting to the needs of participants, and local youth spontaneously acted as interpreter in some instances.

Day 1

All posters produced during the pre-workshop consultations were hang on the wall throughout the meeting and thus could be consulted by all participants. After greeting the participants, the meeting started by an opening prayer and all participants presented themselves. The meeting was chaired by researchers and a local person. The research group briefly presented its past work in the area and future direction and introduced the goals of the workshop. Researchers took some time to present themselves as human beings with passions, at professional and personal levels. A summary of the work achieved by participants in the pre-workshop consultations was presented to the group, as well as the four main themes that emerged from the researcher's synthesis of this work. Eight stickers were distributed to each participant, and people were asked to stick them beside the topics that concerned them the most on the four thematic posters.

The four thematic posters were then removed from the walls and placed on different tables. People then had to pick the theme they wanted to work on and to form groups around each table. Each group had to put their ideas together to develop one or two projects and a note taker had to keep track of the ideas and discussions. Together, members of each group had to design a poster for each project they worked on, using the provided maps as an additional support.

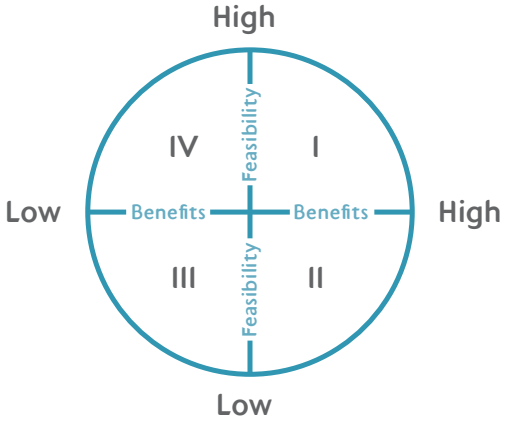
All participants shared a common lunch offered by the workshop organizers. The main course was a deer and moose stew cooked with meat hunted by one of the researcher and brought north with him. The lunch was highly appreciated by all participants.

At the beginning of the afternoon, we presented examples of community-based platforms and tools (e.g. SIKU, eBird, SmartIce, Northern Biodiversity), as well as collaborative projects already going on with Inuit communities and organizations (such as Imalirijiit Program at Kangiqsualujjuaq, Nunavik and Avativut with Kativik Ilisarniliriniq, formerly Kativik School Board) to help participants in preparing their projects. Individual groups then continued to work on their projects and their posters but participants were allowed to move freely from one table to another to give their comments on other projects and to get feedback on their own projects.

Day 2

After the opening words and prayer, each of the four teams designated two persons from the community to present their projects to the whole group. Using the posters they had prepared and maps, these persons presented the main concerns addressed by their project, their propositions and why it mattered to them. After each presentation, there was a discussion period followed by a survey on each project presented. For the surveys, all workshop's participants received an object (representation of arctic animals or colour block) to express their opinion. People had to position their object in one of four sections of a circle divided by two axes drawn on the floor with tape. One axis (Low to High) represented the benefits to the community and the other axis its feasibility (see below). There was thus four possible combinations, one in each part of the circle:

I) High Benefits/High Feasibility;
II) High Benefits/Low Feasibility;
III) Low benefits/Low Feasibility;
IV) Low Benefits/High Feasibility.



Before the lunch, evaluation cards were distributed to all participants to allow them to evaluate and comment the workshop and the whole approach adopted by the organizers during these consultations.

After lunch, the researchers initiated an open discussion regarding any concerns the community might have on research activities and researchers answered some questions from the participants. The whole group then examined each project presented in the morning with respect to the following questions: 1) Who is already working on these issues, both locally, regionally and nationally; 2) Who in the community is interested to participate in each of these projects; and 3) What are the funding sources and programs available to support such projects, and what are the deadlines if any.

A draw was made at the end with the stew leftovers, some remaining Inuit knowledge posters, and a snowy owl stuffed toy. Finally came the closing remarks and the end of the workshop.

RESULTS

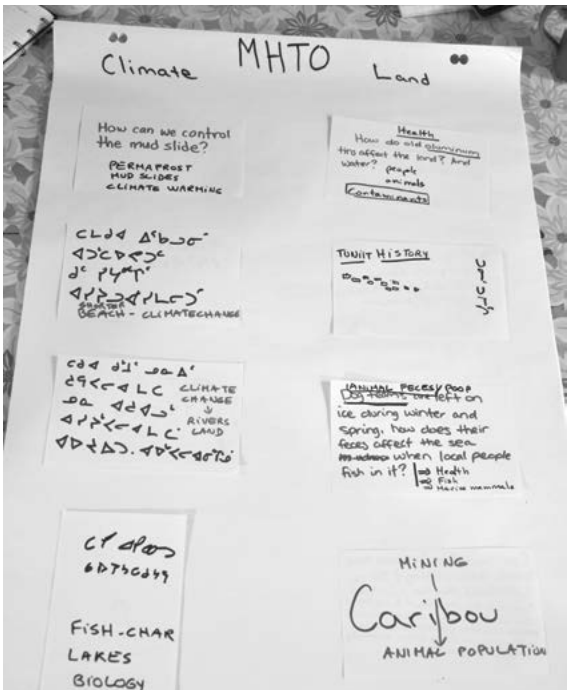
Pre-workshop consultations

1. MITTIMATALIK HUNTERS AND TRAPPERS ORGANIZATION (MHTO)

The consultation with the Mittimatalik Hunters and Trappers Organization took place on January 26th 2018 at the MHTO office. It included five participants (Nina Kautuq, Daisy Koonoo, Tina Enookolo, Jaykolossie Killiktee and Panoeley Enooagak), plus the facilitator (J. Gérin-Lajoie) and an interpreter (Silas Takawgak).

After the brainstorming, we ended up with five issues: 1) Health concerns vs contaminants/ pollution; 2) Mudslide/Permafrost thawing; 3) Protection of Inuit cultural sites (Tuniit); 4) Climate change affecting the rivers and the coastline; and 5) Caribou populations affected by mining operations. We classified these issues under two main themes: Climate and

Land. However, we decided that protection of cultural sites on Inuit Lands was under the responsibility of other organizations (QIA, Inuit Heritage Trust) and beyond the scope of our consultation, which was mainly focused on ecological issues.



After further discussion with representatives of the MHTO the next Monday, we ended up with the following issues organized under three final themes:

1. Impacts of Human Activities on people and animal health
   - Presence of aluminium/plastic left over on the land;
   - Feces from dog teams on the ice;
   - Effect of mining activities on caribou populations.

2. Impacts of Climate Change
   - Occurrence of mud slides;
   - Beach erosion;
   - Melting of glaciers affecting the land and rivers.

3. Fish
   - The chars we catch in river's mouths on Bylot Island: from what lake do they come from?

2. THE POND INLET YOUTH GROUP

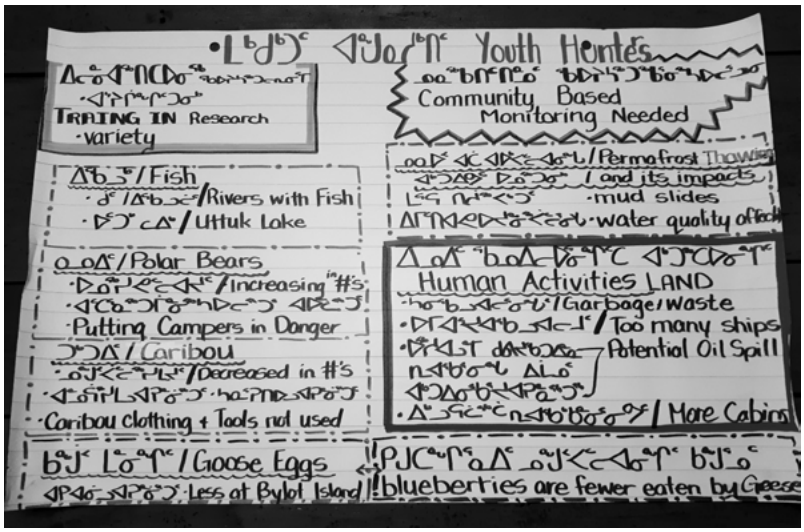
The consultation with the Pond Inlet Youth Group took place on January 31st 2018 at the Hamlet Conference Room. It included seven youth, many of them being active hunters (Emanuel Maktar, Jassie Simonie, James Simonee, Moses Amagoalik, Avery Arreak, Leeno Kublu Jr. and Eleonore Pitseolak), plus the facilitator (J. Gérin-Lajoie).

Many ideas and concerns were expressed by the group and at the end they were organized under three main themes:

1. Animals and Plants (Wildlife)
   - Fish: Monitor rivers with fish and Uttuk Lake;
   - Mammals: Increasing polar bear populations putting campers in danger; decreasing caribou populations means less use of caribou for clothing and tools;
   - Birds: Fewer goose eggs on Bylot Island, more around community;
   - Plants: Fewer blueberries because geese are eating them.

2. Land
   - Permafrost thawing is causing mudslides and affecting water quality.

3. Human Activities
   - Garbage and waste management;
   - Shipping: too many ships with potential oil spills;
   - Cabins: need for more cabins on the territory (security reasons).



- The group also expressed a need for community-based monitoring of environmental issues and for proper training in research.

3. POND INLET HAMLET MUNICIPAL COUNCIL

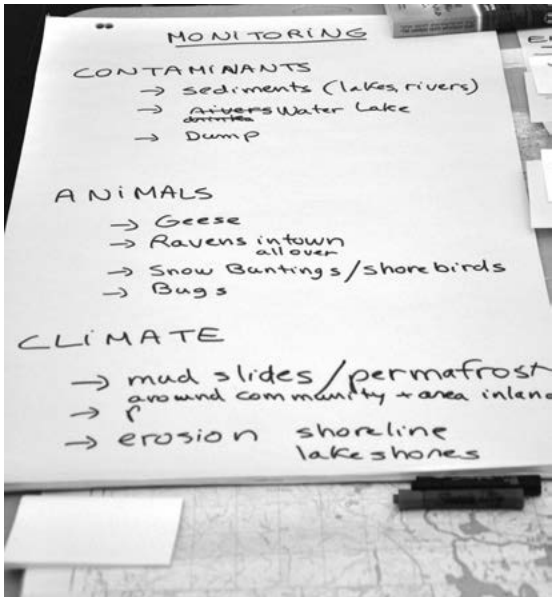
The consultation with the Pond Inlet Hamlet Municipal Council took place on February 1st 2018 at the Hamlet Conference Room. It included seven participants (Abraham Kublu, Isaac Akpaleapik, Joshua Katsak, Danny Maktar, Jerold Koonark, Molleeen Anaviapik, and Tim Anaviapik Soucie) plus the facilitator (J. Gérin-Lajoie) and an interpreter (S. Tekawgak).

The many concerns that were expressed were grouped under three main themes:

1) Contaminants
- Increase sediment loads in lakes and rivers;
- Water quality in Water Lake (Utuuk Lake);
- Impact of the dumpsite.

2) Animals
- Change in abundance and distribution of geese;
- Increase of ravens and their impact;
- Decrease of small birds and shorebirds (eggs being washed out because of increasing waves and erosion);
- New bug species.

3) Climate
- More rain causing permafrost thawing and mudslides;
- More wind causing erosion of coastal shoreline and lakeshores.



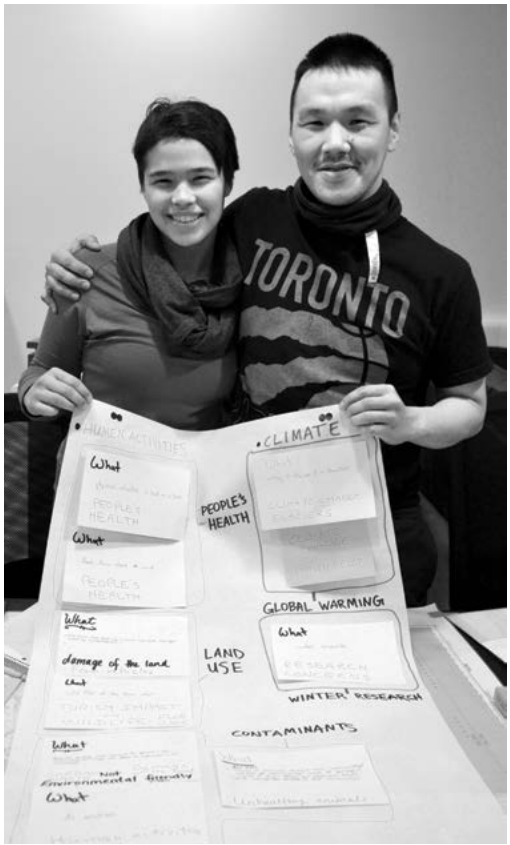
4. Ikaarvik

The consultation with Ikaarvik took place on February 1st at Environment and Climate Change Canada's building. It included two participants (Andrew Arreak and Sylvia Pewatoalook), plus the facilitator (J. Gérin-Lajoie).

Theirs concerns were grouped in two main themes:

1. Human Activities
   - People's Health: physical activities on the land vs in town; food from store vs the land;
   - Land Use: damage of the land from vehicles; tourism impact on wildlife at floe edge;
   - Contaminants: garbage and waste having potential impacts on the environment; vehicles causing air pollution; sickness of animals impacting our people.

2. Climate
   - Environmental impacts of global warming: melting of glaciers and thawing of permafrost;
   - Need for more winter research.



5. ELDERS

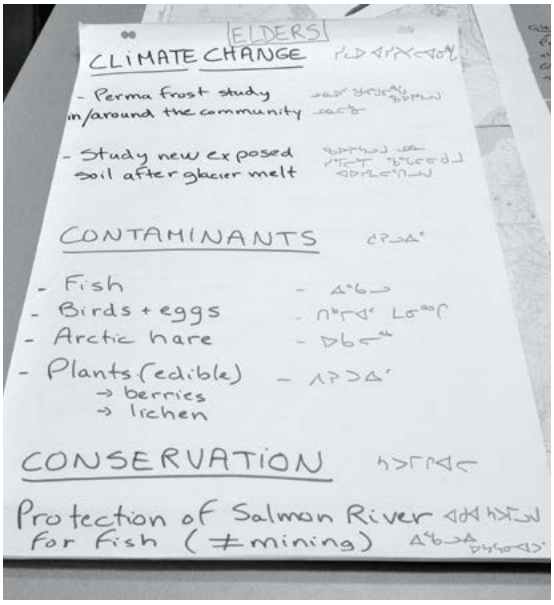
A first meeting with the Elders took place on January 31st 2018 to present the project and recruit participants. The actual consultation took place on February 2nd at Nattinnak Centre. Five Elders gave their names but only three showed up (Jayko Alooloo, Mary Krimmerdjuak, and Mary Amagoalik). The group also included an interpreter (S. Tekawgak) and the facilitator (J. Gérin-Lajoie).

The main ideas expressed by the group were organized under three main themes:

1) Climate Change
- Permafrost thawing causing damage to buildings, land slides and mudslides;
- Glacier melting exposing new ground similar to quick sands;
- Earth quake between Pond Inlet and Clyde River;
- Stronger winds.

2) Contaminants in country food
- Fish;
- Birds and their eggs;
- Marine mammals;
- Terrestrial mammals (Arctic Hare);
- Edible plants (berries, lichen).

3) Conservation
- Protection of Salmon River and Uttuk Lake to preserve Arctic char (old coal mine);
- Tourists going on Bylot Island (Bird Sanctuary).



6. PARKS CANADA AND CANADIAN WILDLIFE SERVICE

The consultation with Parks Canada and the Canadian Wildlife Service took place on February 5th at Nattinnak Centre. It included 14 participants plus 3 facilitators and 2 interpreters. Three members of the Arctic Bay Inuit Knowledge Working Group (IKWG) could not attend this consultation because weather conditions preventing their arrival on time.

Parks Canada staff (Pond Inlet)	Carey Elverum, Brian Koonoo, Terry Kalluk
Parks Canada staff (Iqaluit)	Maryse Mahy, Colleeen Murchison, Rosie Smith
Inuit Knowledge Working Group of Pond Inlet	Elizabeth Quassa*, Paniloo Sangoya*, Elijah Panipakoocho*
Joint Park Management Committee of Pond Inlet	Abraham Kublu
Joint Park Management Committee of Arctic Bay	Tommy Tattatuapik
Canadian Wildlife Service	Karla Abbott
Canadian Wildlife Service Area Co-Management Committee	Jimmy (Adrian) Pitseolak, Elizabeth Quassa*, Paniloo Sangoya*, Elijah Panipakoocho*
Environment and Climate Change Canada	Steve Allan

*These persons are members of the Inuit Knowledge Working Group of Pond Inlet and the Canadian Wildlife Service Area Co-Management Committee.

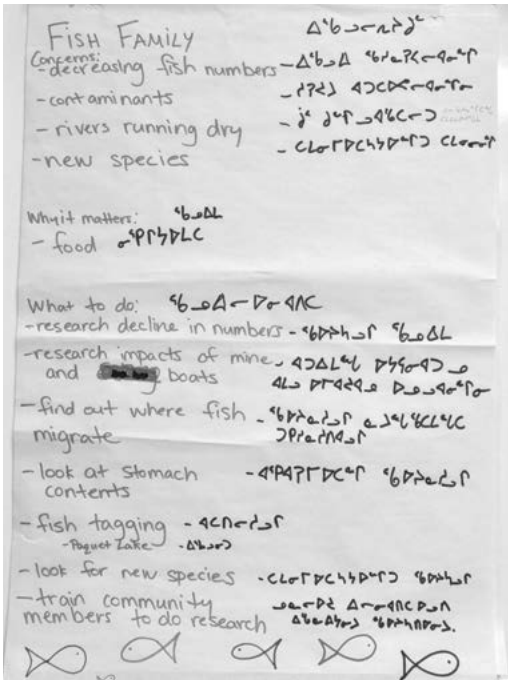
Many ideas were formulated during this large consultation and at the end, three themes emerged:

1. Fish
   - Study populations, movements and migrations with tagging;
   - Investigate contaminants' content;
   - Study rivers running dry (hydrology);
   - Track apparition of new species;
   - Evaluate impacts of boats and mining;
   - Determine spawning grounds;
   - Study feeding habits (stomach contents).

2. Permafrost
   - Monitoring of permafrost thawing and erosion;
   - Comparison between past and actual satellite images;
   - Identification of risk zones;
   - Impacts on water bodies;
   - Vegetation damage;
   - Impacts on travel routes and safety concerns;
   - Infrastructure damages.

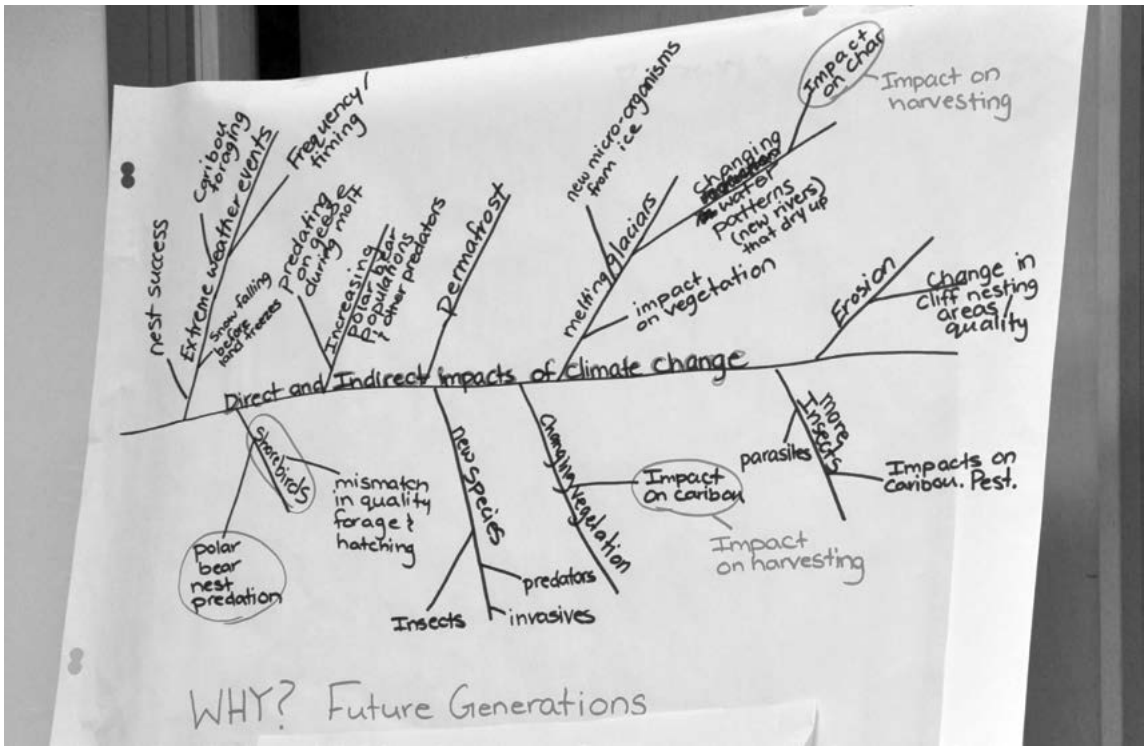
3. Direct and Indirect impacts of Climate Change
   - Extreme weather events: frequency and timing of those events, impact on bird's nest success and caribou foraging, snow falling before land freezes;
   - Increasing populations of polar bear and other predators: predation on geese during molt;
   - Change in permafrost;
   - Melting glaciers: release of new microorganisms from ice, changing water patterns (new rivers drying up), impact on char and harvesting, impact on vegetation;
   - Erosion: change quality of nesting areas for cliff-nesting birds;
   - Shorebirds: nest predation by polar bear, mismatch between timing of insect emergence (food) and hatching;
   - New species: predators, invasive species;
   - Changing vegetation: impacts on caribou and on harvesting;
   - More insects: parasites, impacts on caribou pests.

FISH THEME



PERMAFROST THEME


Direct and Indirect Impacts of Climate Change
WHY? Future Generations


Direct and Indirect Impacts of Climate Change
nest success
Extreme weather events
Caribou foraging
Frequency/ timing
Snow falling before land freezes
predating on geese during molt
Increasing Polar bear Populations & other predators
Permafrost
new micro-organisms from ice
melting glaciers
changing water patterns (new rivers) that dry up
impact on vegetation
Impact on harvesting
Erosion
change in cliff nesting areas/ quality
Shorebirds
mismatch in quality forage & hatching
Polar bear nest predation
New species
Insects
predators
invasives
Changing Vegetation
Impact on caribou
Impact on harvesting
parasites
more insects
Impacts on Caribou. Pest.
WHY? Future Generations

Synthesis of pre-workshop consultations

RESEARCHER'S SYNTHESIS

Based on the themes and ideas that emerged during the six pre-workshop consultations described above, the researchers made a synthesis of all this material. They organized these ideas under four major themes and created a thematic poster for each of them to orient the workshop. These themes were:

THEME 1: LAND	
PROCESS/CHANGE	IMPACT
Permafrost thawing	Safety
	Water quality
Land/mud slides	Infrastructures
	New pathogens
Glacier melting	Rivers/creeks
	Vegetation
Shoreline erosion	Cliff nesting/denning

THEME 3: FRESHWATER FISHES
Changes in distribution
Identification of key sites
Changes in abundance
Arrival of new species
Changes in diet
Tracking movements/migration
Change in habitat quality (river flow, water quality)

THEME 2: HUMAN ACTIVITIES IMPACTING THE LAND	
ACTIVITY	IMPACT
Mining	Contaminants in country food
	Water quality for humans and fish
Tourism	Noise
Land transportation	Air quality
Waste management (garbage)	Oil spills
Research	Wildlife disturbance

THEME 4: WILDLIFE ON THE LAND		
GROUPS		ISSUES
BIRDS	Shorebirds	Changes in distribution
	Geese	Changes in abundance
	Birds of prey	Arrival of new wildlife species
	Songbirds	
	Raven	Arrival of new diseases/parasites
MAMMALS	Caribou	
	Lemmings	Animal health
	Predators (fox, weasel)	Changes in habitat
PLANTS	Berries	Impacts of polar bears on wildlife

WHY IT MATTERS FOR LOCAL PEOPLE?

When we asked people to express their environmental concerns during the brainstorming exercise, they had to write down their ideas on one side of a card using a few simple key words (the WHAT question). At the same occasion, we asked them to answer the question WHY is it important for you on the other side of the card. We made a synthesis of all participants' answers to this question in themes and we present it below.

LAND AND WILDLIFE

- To protect our ecosystems and to keep hearing the birds singing;
- For our water resources, lakes and rivers;
- Because of glacier melting and permafrost thawing;
- Because of shoreline erosion and mudslides;
- To keep the integrity and beauty of our land;
- To protect our land from mining and oil exploitation;
- To protect and monitor animal populations;
- Because of new species' arrival;
- Because of new diseases and parasites;
- To better monitor animal migrations;
- To improve wildlife management.

ANIMAL AND HUMAN HEALTH

- To preserve the quality of our food, air and drinking water;
- For human and animal health concerns.

FOOD AND PEOPLE SECURITY

- Because most people in community depend on animals as source of meat;
- For our food security;
- For our safety.

INFRASTRUCTURES

- Because of infrastructure damages.

HUMAN ACTIVITIES

- Because of changes to travel routes;
- For the protection of cultural sites;
- Because we need more training;
- For monitoring global changes;
- To develop partnerships with researchers for getting funding;
- Because Inuit Knowledge can contribute a lot to science;
- Because Northwest Passage is opening up and more ships are coming;
- To improve how research is done;
- For our knowledge, because we are curious.

FUTURE

- For future generations.

Joint Workshop

During the workshop, participants worked on the four themes that emerged from the pre-workshop consultation and summarized in the previous section. We present below the projects that were developed and proposed by the different teams for each of these themes, the comments that were formulated on those projects and the result of the survey on their feasibility and benefits to the community.

THEME 1: LAND

Priorities

Mudslides, permafrost thawing and coastline erosion; all related to rivers, plants and safety.

Proposal

Monitoring of plants in key areas.

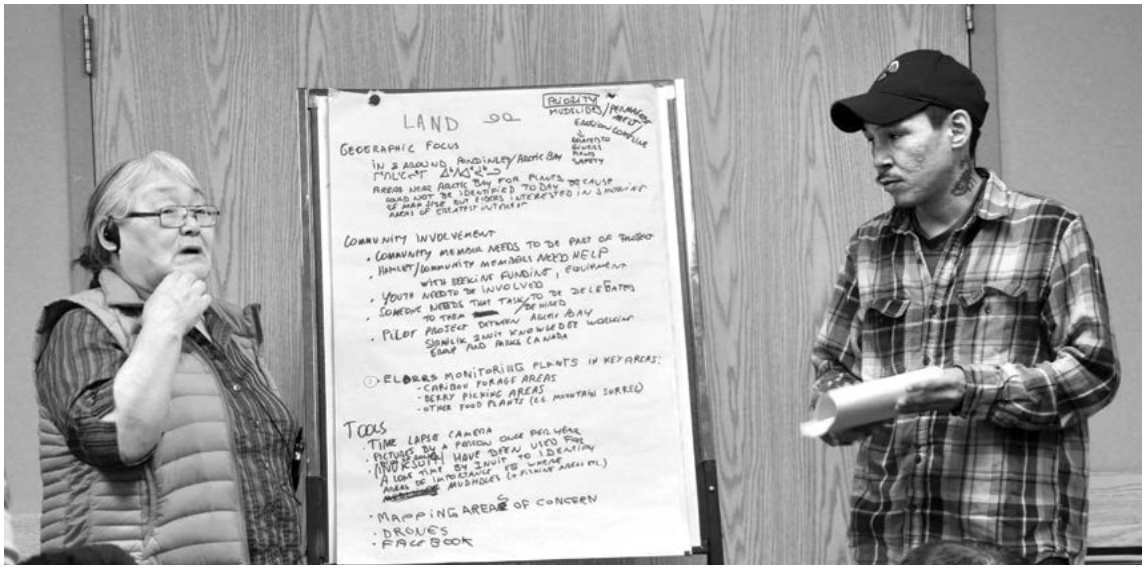
- Caribou foraging areas;
- Berry picking areas;
- Other edible plants (e.g. mountain sorrel).

Geographic focus

In and around Pond Inlet and Arctic Bay. This team noted that areas of interest for plants near Arctic Bay had not been identified during the workshop because of map size, but Elders are interested in showing areas of greatest interest.

Community involvement

- Community members need to be part of project;
- Hamlet/Community members need help to seek funding and equipment;
- Youth need to be involved;
- Tasks need to be assigned to some local people who would be hired;
- Pilot project between Arctic Bay and Pond Inlet and involvement of the two Inuit Knowledge Working Groups and Parks Canada.



Tools

- Time-lapse cameras;
- Pictures taken by people once a year;
- Inuksuit (piles of rocks) have been used for a long time by Inuit to identify areas of importance e.g. mud holes, fishing areas, etc.;
- Mapping areas of concerns;
- Drones;
- Facebook.

Survey (n = 21)

I: High benefits/High feasibility: 19
II: High benefits/Low feasibility: 0
III: Low benefits/Low feasibility: 0
IV: Low benefits/High feasibility: 2
Don't know: 0

Organizations already involved or that could be involved

- Arctic Bay Inuit Knowledge Group; Pilot project with photos on the land just beginning;
- Government of Nunavut, Department of environment (Iqaluit);
- Parks Canada: Long term studies at Bylot Island and Mala River;
- Glacier monitoring at Aktineq Glacier by Brian Moorman, University of Calgary;
- Hamlet and Government of Nunavut: Graveyards and Permafrost.

People interested

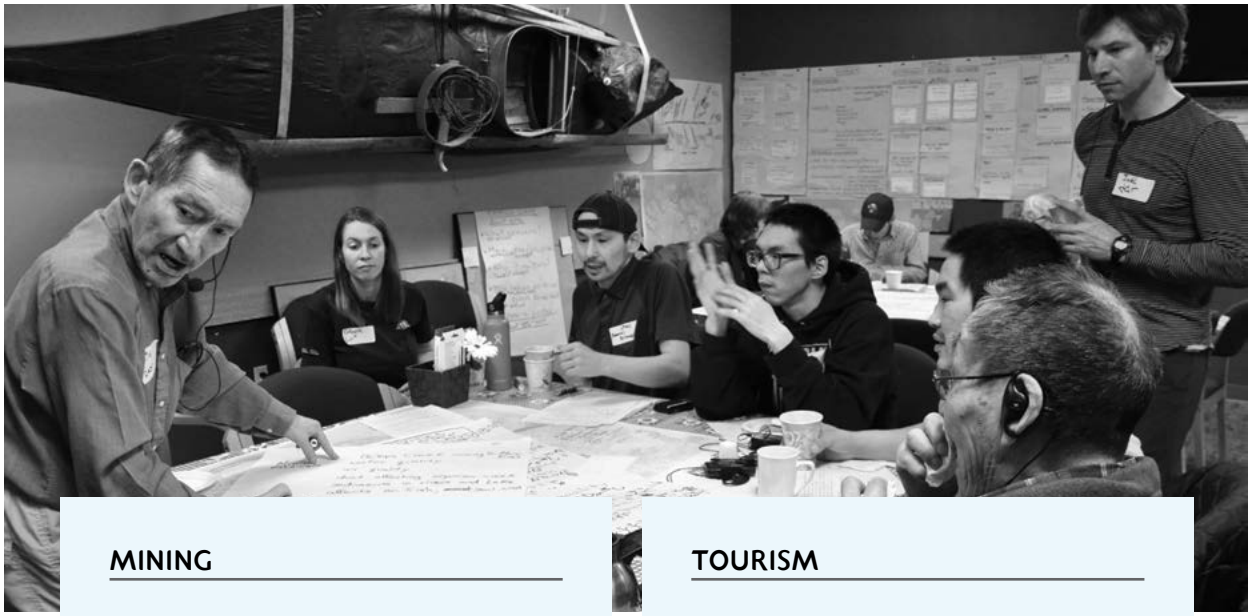
- Emanuel Maktar;
- Elizabeth Quassa;
- Samuel Arreak.

Funding programs (timing)

- Geological Survey of Canada (2020);
- Indigenous Community-Based Monitoring of Climate Change (Indigenous and Northern Affairs Canada) (2019);
- Polar Knowledge Community-Based Program.

THEME 2: HUMAN ACTIVITIES IMPACT

This team focused on two main activities: mining and tourism.



MINING

Project 1:
Water and air quality at Phillips Creek

Geographic focus
Phillips Creek coming from Mary River

Indicators
- Water quality;
- Air quality;
- Dust affecting organisms in creeks;
- Sediments in rivers and lakes;
- Effects on fish, seals and birds.

Tools
Community-based monitoring at Phillips Creek (similar to Imalirijiit Project in Kangiqsualujjuaq, Nunavik)

Survey (n = 22)
I: High Benefits/High Feasibility: 14
II: High Benefits/Low Feasibility: 0
III: Low benefits/Low Feasibility: 0
IV: Low Benefits/High Feasibility: 5
Don't know: 1
On the line between I and IV: 2

TOURISM

Project 2:
Installation of surveillance cameras

Indicators and tools
- Monitoring of cruise ship routes at several points;
- Record disturbance;
- Surveillance of yacht routes and fishing and hunting without licence;
- Cameras monitoring an area using time lapse and/or motion sensors;
- Record seashore erosion, disturbance to shorebirds eggs.

Survey (n = 21)
I: High Benefits/High Feasibility: 7
II: High Benefits/Low Feasibility: 0
III: Low benefits/Low Feasibility: 1
IV: Low Benefits/High Feasibility: 10
Don't know: 0
On the line between I and IV: 3

MINING

Organizations already involved or that could be involved

- HTO;
- Fisheries and Oceans Canada;
- Baffin Fisheries Cie;
- Baffinland;
- Environment and Climate Change Canada (invasive species, ballast waters).

People interested

- Morgan Arnakallak;
- Arctic Bay HTO;
- Samuel Arreak.

Funding programs

- Baffinland;
- Environment and Climate Change Canada;
- Northern Contaminants Program.

TOURISM

Organizations already involved or that could be involved

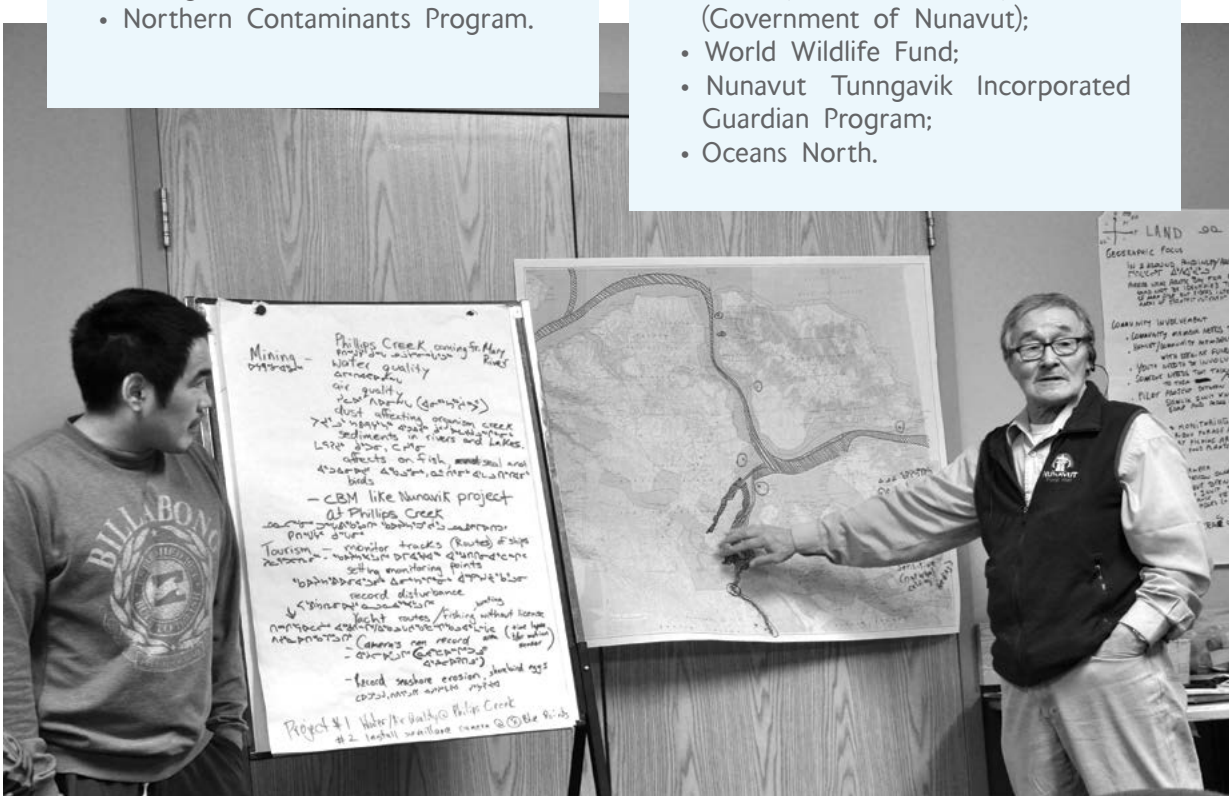
- Nunavut Tunngavik Incorporated;
- Transport Canada;
- Qiqiqtani Inuit Association;
- Parks Canada;
- World Wildlife Fund.

People interested

- Sylvia Pewatoalook;
- Danny Maktar;
- Billy Merkosak;
- Arctic Bay HTO.

Funding programs

- Polar Knowledge Canada;
- Nunavut Tourism;
- Department of Economic Development and Transportation (Government of Nunavut);
- World Wildlife Fund;
- Nunavut Tunngavik Incorporated Guardian Program;
- Oceans North.



THEME 3: FISH

PROJECT 1: EVALUATE FRESHWATER FISH HABITAT AND HEALTH

Indicators and tools

- Temperature loggers in water;
- Analysis of water samples;
- Analysis of samples from the fish (provide sample kits to HTO):
  - Length and weight;
  - Age of fish;
  - Contaminants;
  - Lumps and parasites;
- Pilot project at Uttuk lake (drinking water source):
  - Train community members for such a project;
  - Expand to other lakes that are of interest to the community.

Survey (n = 22)

I: High Benefits/High Feasibility: 22
II: High Benefits/Low Feasibility: 0
III: Low benefits/Low Feasibility: 0
IV: Low Benefits/High Feasibility: 0
Don't know: 0

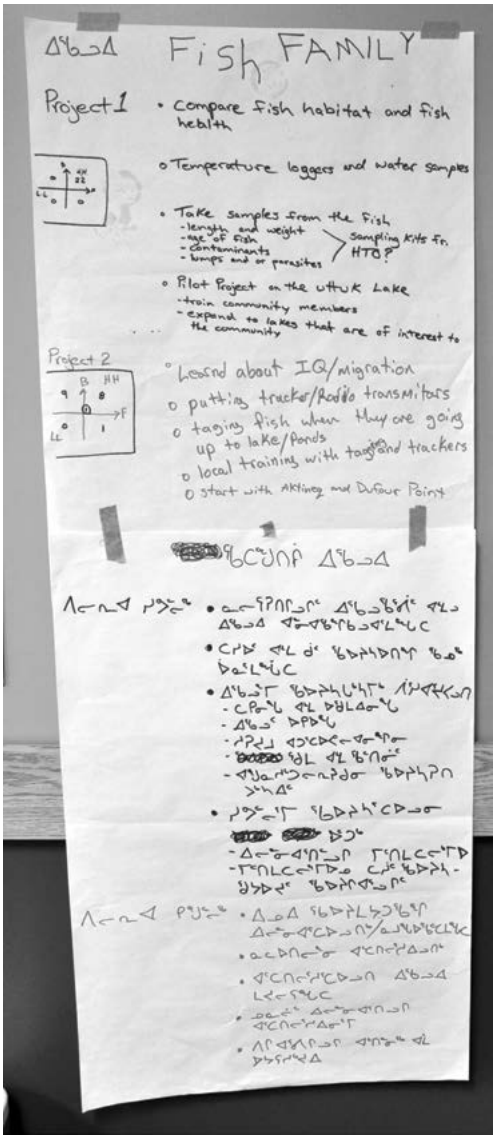
PROJECT 2: LEARN ABOUT FISH MIGRATION

Indicators and tools

- Putting trackers/radio transmitters on fishes;
- Tagging fish when they are going up to lakes and ponds;
- Provide local training with tagging and trackers;
- Start at Aktineq and Dufour Point;
- Rely on Inuit Qaujimajatuqangit.

Survey (n=19)

I: High Benefits/High Feasibility: 8
II: High Benefits/Low Feasibility: 1
III: Low benefits/Low Feasibility: 0
IV: Low Benefits/High Feasibility: 9
Don't know: 1



Organizations/Individuals already involved or that could be involved

- Mittimatalik and Arctic Bay HTO;
- Fisheries and Oceans Canada;
- Government of Nunavut - Department of Environment;
- Parks Canada;
- Nunavut Tunngavik Incorporated Community-based Monitoring Program;
- James Simonee;
- Charlie Enuarak;
- Tim A. Soucie (Water quality).

People interested

- Andrew Arreak.

Funding programs (timing)

- Fisheries and Oceans Canada: Coastal Restoration Funds, invasive species in Milne Inlet (training program);
- Indigenous Community-Based Climate Monitoring (Indian and Northern Affairs Canada) (2019);
- Baffin Fishery Coalition (saltwater, commercial);
- Mittimatalik HTO; Turbot population tagging;
- Nunavut Wildlife Management Board: Funding for Community-Based Monitoring (30 000$, no deadline, start in April each year);
- Polar Knowledge Canada, Community-Based Program (150 000$ for 3 years);
- Northern contaminants program (Community-Based Monitoring) (deadline in January, 50 000$).

THEME 4: WILDLIFE

CARIBOU

Research question: How healthy are North Baffin caribou?

Things to look at
- Amount of fat in animal;
- Behavior;
- Condition of hides/fur;
- Presence of parasites;
- Stress level in fur/urine based on hormone (cortisol) level.

How will we collect this information?
- Provide sample kits to local hunters;
- Monitor disturbances;
- Record behavioural observations;
- Combine IQ + Science (= Inuit Science!).

Survey (n = 22)

I: High Benefits/High Feasibility: 13
II: High Benefits/Low Feasibility: 0
III: Low benefits/Low Feasibility: 0
IV: Low Benefits/High Feasibility: 5
Don't know: 0
On the line between I and IV: 4

BIRDS

Research Question: What is the state of health of birds and eggs that Inuit consume?

Members would prefer to focus on species that Inuit eat: snow geese, Canada geese, ptarmigans, murres and eggs of all species.

Things to look at
- Population;
- Distribution;
- Bird Health;
- Number of eggs;
- Contaminants in birds and eggs;
- Impacts of predators (i.e. polar bears, etc.) on nests, fledglings.

How do we do this?
- Observations from hunters, egg pickers;
- Collect samples (meat, feathers, eggs);
- Combine Inuit Qaujimajatuqangit + Science.

Organizations/Individuals already involved or that could be involved

- Government of Nunavut;
- Hunters and Trappers Organizations;
- Nunavut Wildlife Management Board;
- Baffinland;
- Qikiqtaaluk Wildlife Board ;
- Environment and Climate Change Canada.

People interested

- Arctic Bay: HTO could designate people;
- Pond Inlet: Leo Mucktar, Samuel Arreak, Jerold Koonark, Sirmilik National Park's staff.

Funding programs (timing)

- Nunavut Wildlife Management Board;
- Baffinland;
- Indigenous and Northern Affairs Canada (Indigenous Community-Based Climate Monitoring Program);
- Polar Knowledge Canada.

Survey (n=22)

I: High Benefits/High Feasibility: 14
II: High Benefits/Low Feasibility: 0
III: Low benefits/Low Feasibility: 0
IV: Low Benefits/High Feasibility: 4
Don't know: 0
On the line between I and IV: 4

Organizations/Individuals already involved or that could be involved

- Environment and Climate Change Canada (migratory birds);
- Government of Nunavut (resident birds, birds of prey, ptarmigans);
- Hunters and Trappers Organizations;
- Nunavut Wildlife Management Board;
- Baffinland.

People interested

- Sylvia Pewatoalook.

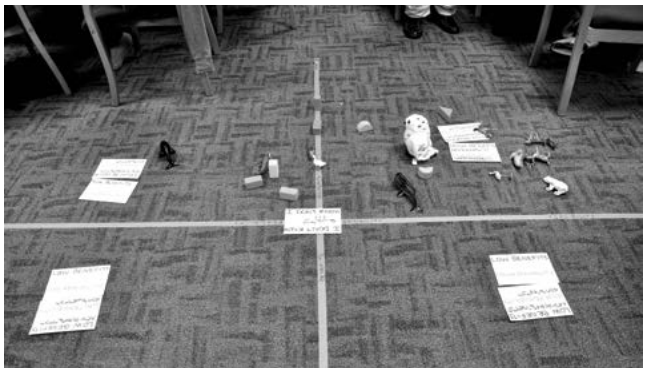
Funding programs (timing)

- Environment and Climate Change Canada;
- Northern Contaminants Program;
- Nunavut Wildlife Management Board
- Baffinland;
- Indigenous and Northern Affairs Canada (Indigenous Community-Based Climate Monitoring Program).

CONCLUSION

Even though people were not familiar with the interactive and participatory approach used in this consultation process and were sometimes hesitant at the beginning, at the end it worked very well and it was very much appreciated by participants. This method facilitated discussion, co-construction and helped people to realize that communities, organizations and researchers can work together and develop concrete projects in a trustful relationship.

This grassroots approach encourages participants to express their ideas during brainstorming activities and promotes creative thinking by the whole group. Instead of researchers asking the community to participate in "their project", it is the other way around. Researchers have to jump in the community's life and agenda and find common grounds to address both science and community's needs. If the scientific objectives embrace local concerns and research interests, the community will tend to engage much more in the project, which will contribute to its success and sustainability for the benefits of all parties.



An important point that came up during several discussions is the need for the community to have a local infrastructure (e.g. a building with a laboratory and meeting rooms) to conduct their own research in collaboration with scientists and for local training. One suggestion to address this need was to have in the future a Centre d'Études Nordiques research station with a community centre based in Pond Inlet.

In conclusion, researchers wanted to listen to local environmental concerns and to find ways to tackle and monitor ecological issues together in the future. This consultation was designed as a Participatory Action Research and it helped participants understand that communities and researchers can put their strengths in common, allowing them to achieve things they could not realize separately. In a nutshell, we consider that this initiative was a great success!

ACKNOWLEDGMENTS

This workshop was funded by Polar Knowledge Canada and Université Laval. Parks Canada played an important role by compensating all members from Inuit Knowledge Working Groups and Joint Park Management Committees from Pond Inlet and Arctic Bay, by paying the travel expenses of Arctic Bay participants and by providing maps and assistance in workshop's logistics. Thank you also to Canadian Wildlife Service who compensated members of the Area Co-Management Committee of Pond Inlet. We are grateful to all people who participated in this consultation process. It was a success because of your openness and generosity. Thank you for sharing your ideas, your knowledge and for trusting us. We are truly committed to contribute implementing some of the projects and suggestions that emerged from this workshop. Thank you also to Sauniq hotel's staff who warmly welcomed us and prepared a tasty deer and moose stew. Finally, Qujannamiimarialuk to Mittimatalimmiut for welcoming us.

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APPENDIX 1

LIST OF INVITED GROUPS

Groups that were invited to this consultation:

- Hamlet of Pond Inlet;
- Mittimatalik Hunters and Trappers Organization;
- Pond Inlet Youth Committee;
- Ikaarvik;
- Expanded leadership to study water quality in Pond Inlet Group;
- Parks Canada;
- Sirmilik Joint Park Management Committee;
- Sirmilik Inuit Knowledge Working Groups;
- Government of Nunavut – Department of Environment;
- Government of Nunavut – Department of Education;
- Nunavut Wildlife Management Board;
- Nunavut General Monitoring Plan;
- Qikiqtani Inuit Association;
- Environment and Climate Change Canada/Canadian Wildlife Service;
- Baffinland.

APPENDIX 2

LIST OF PARTICIPANTS

Organization	Name
Centre d'études nordiques	Joël Bêty Gilles Gauthier José Gérin-Lajoie
Parks Canada staff in Pond Inlet	Carey Elverum Terry Kalluk Brian Koonoo
Parks Canada staff in Iqaluit	Maryse Mahy Colleen Murchison Rosie Smith
Parks Canada-Inuit Knowledge Working Group in Pond Inlet	Elijah Panipakoocho* Elizabeth Quassa* Paniloo Sangoya*
Parks Canada-Inuit Knowledge Working Group in Arctic Bay	Tootalik (Hannah) Ejangiaq Kigutikarjuk Shappa Peter Tattatuapik
Joint Park Management Committee in Pond Inlet	Samuel Arreak Abraham Kublu*
Joint Park Management Committee in Arctic Bay	Tommy Tattatuapik
Canadian Wildlife Service-Area Co-management Committee in Pond Inlet	Karla Abbott Elijah Panipakoocho* Jimmy (Adrian) Pitseolak Elizabeth Quassa* Paniloo Sangoya*
Ikaarvik	Andrew Arreak Shelly Elverum Sylvia Pewatoalook
Hamlet of Pond Inlet	Isaac Akpaleapik Molleen Anaviapik Tim Anaviapik Soucie Joshua Katsak Jerold Koonark Abraham Kublu* Danny Maktar
Mittimatalik Hunters and Trappers Organization	Panoeley Enooagak Tina Enookolo Nina Kautuq Jaykolossie Killiktee Daisy Koonoo Billy Merkosak
Elders	Jayko Alooloo Mary Amagoalik Mary Krimmerdjuak
Pond Inlet Youth Group	Moses Amagoalik Avery Arreak Leeno Kublu Jr. Emanuel Maktar Eleonore Pitseolak James Simonee Jassie Simonie
Environment and Climate Change Canada-Wildlife Enforcement Division	Steve Allan
Qikiqtani Inuit Association	Ross Elgin
Interpreters	Morgan Arnakallak Titus Arnakallak Silas Takawgak

*These people attended more than one consultation.

APPENDIX 3

EVALUATION

HERE ARE SOME COMMENTS THAT WERE WRITTEN ON THE EVALUATION FORMS DISTRIBUTED AT THE END OF THE WORKSHOP.

"This workshop opened up my eyes to better understand what is important to the community of Pond Inlet and Arctic Bay. I hope this workshop will direct to the right research and help understand the rest of Canada and Government that our Arctic is healthy but affected by the rest of the world. I hope this workshop will show that Inuit Knowledge is important to go with research."

"I think this workshop went well and having different people involved from the community and Arctic Bay, also having Parks Canada staff. I liked the different age groups that was part of it too, brainstorming together for research questions. It was good that José had meetings before the workshop to have different opinions for the workshop and to have open ideas."

"I thought it was a good experience and it taught us ways we can deal with issues regardless of regulatory organisms."

"This is really helpful to both researchers and Inuit that are interested to become researchers and I enjoyed it; I've learn new stuff too, thank you for your knowledge."

"Very inclusive with representatives from HTO, Hamlet, Youth, elders, committees, etc. Pre-workshop consultations were a great idea. True consultation! Well organized."

"I think that this project meeting really made a difference and made more movement about Pond Inlet's environment and bond between researchers and the community. This really changed my perspective and I learned a lot. I also think these meetings should happen more often. Thank you for the opportunity."

"Best part: People from the community got to express their views on what is important to them regarding monitoring and ecological issues."

"The tools and equipment that Inuit don't have will have a great benefit to Inuit Knowledge and learning about the changes that are going on in our land, sea and ice. Inuit Knowledge is based on the place they have set their lives. Inuit Knowledge is main key to know about the livelihood in certain areas where Inuit live. Listen to them and gain their knowledge."

"The workshop is really fun and great. Everything we worked on should be used and kept going for next future generations. Different subjects would make few different jobs and it would be great if Inuit start their own "Save the Land" company."

"The meetings we've had we really appreciated, it's very helpful to work on things together, we've all understood a lot of things together and we're really grateful to you all." (Translated from Inuktitut)