IQALUIT, NUNAVUT

Results of a community survey on environmental forecasting uses and needs

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Full Inuktitut/English bilingual report will be available in February 2024 at:
https://straightupnorth.ca/community-wwic-uses-and-needs/
Thank you!


ArcticNet

Crown-Indigenous Relations and Northern Affairs Canada

Environment and Climate Change Canada

2C

Environment and Climate Change Canada
We wish to acknowledge the 66 iqalungmiut who participated in this survey between November 2019 and October 2020. Thanks to everyone for their time and sharing their experiences.

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ᑑᑎᖃᕐᓂᖅ ᓭᔭᖅᓴᖅ ᐱᔨᑦᓯᕋᖅᑎᓂᒃ ᓄᓇᓕᓐᓄᑦ. ᑎᑭᐅᑎᓂᐊᕈᑦᑎᒍ ᑐᕌᒐᕗᑦ, ᑲᑭᓯᓂᐊᕐᓂᖃᑦᑐᑦ ᓄᓇᓕᓐᓂᒃ ᓄᓇᓕᒫᒥ. ᑐᑭᓯᓂᐊᕐᓂᐅᔪᑦ ᐅᑐᐊᑕᐅᔪᑦ ᓄᓇᓕᓐᓂ ᖃᓄᖅᑑᕈᑎᑦᓴᓄᓪᓗ ᐃᖅᑲᓇᐃᔭᖅᓱᑎᒃ ᖃᓄᖅᑑᕆᐊᕈᑎᑕᔨᓂᒃ, ᐊᕙᑎᒨᖓᔪᓄᓪᓗ ᑲᑐᔾᔨᖃᑎᒌᑦᑯᑦ, ᐃᓄᐃᑦ ᑎᒥᖁᕕᑦ ᐃᖅᑲᓇᐃᔭᖃᑎᒌᑦᑐᓲᑕ ᐊᒻᒪᓗ ᓄᓇᕗᒻᒥ ᓄᓇᓕᓐᓄᑦ.
ABOUT THIS PROJECT

Our research team includes Inuit, northern, and southern researchers who have worked together for many years in Nunavut communities. Over the years we have heard from Nunavummiut (people of Nunavut) that services providing information on weather, water, and ice conditions are not easy to use, access, or understand. We have also heard that the information is not always accurate for local conditions. This, along with increasingly unpredictable weather, and changing sea ice conditions, has made it harder and riskier for Nunavummiut to hunt and travel safely. We developed this project to learn how Nunavummiut are using environmental information to make decisions about safe travel on the land (including water and ice).

Our goal is to help improve the information that is available, and how it is communicated in northern communities. To accomplish this goal, we created a survey to get feedback from communities across Nunavut. Survey questions were developed together with input from all team members, as well as from environmental service providers, Inuit organizations, and northern governments and research organizations.

We work together according to the Aajiiqatiginingniq research framework, outlined by the Aqqiumavvik Society working with Elders from across Nunavut. This framework guides how we make decisions, and build consensus on our research approach and results. Surveys were facilitated by Local Research Coordinators working in their home communities. We also worked together in two collaborative analysis workshops to interpret survey results and decide on key messages for service providers and for Nunavut communities.

Ultimately, we hope that the results of this project will help service providers and decision-makers make their information more relevant and accurate for Nunavummiut, in support of safe travel.

Collaborative analysis workshop in Arviat, Nunavut (October 2021, photo: Gita Ljubicic)
Training and collaborative analysis workshops with Local Research Coordinators, Elder mentors, and project partners between October 2019 and December 2022.

Photos: Natalie Carter and Gita Ljubicic
| 2018 - 2022 | 
| --- | --- |
| **2018** |  
| **2019** |  
| **2019 - 2020** |  
| **2020** |  
| **2021** |  
| **2021** |  
| **2022** |  
| **2022** |  

**Notes:**

- [Note 1](#)
- [Note 2](#)
## KEY PROJECT ACTIVITIES (2018 - 2022)

<table>
<thead>
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<th>Timeline</th>
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<tr>
<td>December 2018</td>
<td>• <strong>collaborative project planning</strong> meeting at ArcticNet conference in Ottawa, Ontario</td>
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</table>
| January - November 2019 | • **collaborative survey development** (involving our project proposal team, Local Research Coordinators, and a number of external reviewers)  
  ○ this led to survey questions, wording, and options that were much more clear, relevant, and accessible for Nunavummiut  
  ○ it also means results can be more meaningful and impactful to researchers, northerners, and policy-makers |
| October - November 2019 | • **training sessions with Local Research Coordinators** near Montreal, Quebec and in Iqaluit, Nunavut                                                                                                    |
| December 2019 – March 2020 | • **Local Research Coordinators facilitated surveys** in their home communities                                                                                                                           |
| March 2020         | • surveys put on hold due to the COVID-19 pandemic  
  (see page 4. for more details)  
  ○ we started working together on a plan for how to safely continue the project                                                                                                          |
| June 2021          | • **Local Research Coordinators restarted survey facilitation**  
  ○ this could only happen after public health and research license/ethics restrictions allowed it, and with local community organizations’ support  
  ○ Local Research Coordinators also followed up with some earlier participants to clarify answers                                                                                          |
| October 2021       | • **collaborative analysis workshop** in Arviat, Nunavut                                                                                                                                                  |
| November 2022      | • **Local Research Coordinators stopped facilitating surveys** in their home communities                                                                                                               |
| December 2022      | • **collaborative analysis workshop** in Paris, Ontario,  
  • presentations of refined results at ArcticNet conference in Toronto, Ontario                                                                                                                        |
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SURVEY TIMELINE DURING THE COVID-19 PANDEMIC

- **March 2020**: PAUSED SURVEY FACILITATION due to universities prohibiting travel and in-person research
- **April - October 2020**: REVISED UNIVERSITY AND NUNAVUT ETHICS to follow public health protocols and resume survey
- **November 2020**: RESUMED ONLINE SURVEY FACILITATION then PAUSED SURVEY FACILITATION due to territory-wide shutdown
- **June 2021**: RESUMED ONLINE AND IN-PERSON SURVEY FACILITATION and followed all public health protocols
- **January 2022**: PAUSED SURVEY FACILITATION due to territory-wide shutdown
- **March 2022**: RESUMED ONLINE AND IN-PERSON SURVEY FACILITATION and followed all public health protocols
- **November 2022**: ENDED SURVEY
Inukpaujáq, 19 ᖃᓄᒃᑎᑐᑦ ᖃᐅᔨᓴᕐᓂᒃᑕᖅᓯᔩᑦ 100% ᐊᐅᓚᑦᓯᓂᖓᑦ 66 ᖃᐅᔨᓴᕐᓂᒻᒪᕆᐅᔭᒃᑯᑦ = 100%

ainunavviq, ᐅᑭᐅᖅᑕᖅᓯᔪᑦ ᐅᑯᐊ ᐅᓂᒃᑳᑦ ᖃᐅᔨᓴᕐᓂᒡᒐᑦ ᐱᔭᖅᑐᑦ: 204-218-0866, inukpaujaq@gmail.com

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https://straightupnorth.ca/community-wwic-uses_and-needs/
SURVEY FACILITATION BY LOCAL RESEARCH COORDINATORS

In total, 19 Local Research Coordinators were involved in the project, and they completed 360 surveys across 8 communities in Nunavut.

Local Research Coordinators invited community members to participate based on certain criteria. Specifically, we wanted to learn about uses and needs of weather, water, ice, and climate information and services from community members who were actively travelling on the land (including water and ice) in the last three years (since 2017). This included men and women of all ages and experience levels, and they could be experienced hunters, seasonal travellers, or people who just like to get out on the land.

Local Research Coordinators facilitated the surveys in English or Inuktut based on participant preference. They used Qualtrics survey software to enter responses on iPads. They facilitated the survey in a community office or in participants’ homes, based on individual comfort level. Some participants did the survey on their own using an online survey link, when COVID-19 pandemic public health restrictions prevented in-person surveys. Participants were compensated for their time. We obtained research ethics and license approvals before we started the survey.

For this report, we present the results based on survey answers from a total of 66 Iqalungmiut = 100%.

For more information about this report and the larger study please contact:

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Gita Ljubicic, McMaster University, gita.ljubicic@mcmaster.ca

To access a Nunavut-wide report, and other community reports, please visit: https://straightupnorth.ca/community-wwic-uses-and-needs/
2021-2022

2021-2022

2021-2022

2021-2022
Create forecast products that are easy to interpret and use (colour coded visuals)

Need more real time weather information (update more often)

Reduce number of pages and sites to go to when accessing online environmental products

Need more weather stations in key hunting areas

Expand support for community programs and leadership

Faster and more affordable Internet (address cost and subsidize northern InReach/SPOT subscriptions)

In the 2021 and 2022 collaborative analysis workshops, Local Research Coordinators developed twelve key messages for service providers:

1. Provide more tide information that is specific to communities
2. Create colour-coded visuals for each of interpretation
3. Make ice charts and satellite images simpler to use (add links)
4. Increase the number of VHF Repeaters and cell towers
5. Improve long term forecasts and more detailed wind information
6. Continue to work on accuracy (short term forecast)
7. Create forecast products that are easy to interpret and use (colour coded visuals)
8. Provide more real time weather information (update more often)
9. Increase number of VHF Repeaters
10. Expand support for community programs and leadership
11. Need more weather stations in key hunting areas
12. Create forecast products that are easy to interpret and use (colour coded visuals)
2022-ൽ 600-ൽ വരെ പ്രവൃത്തിയുള്ള കാലാവധിയുടെ പരാമർ‌ശിക്കലാണ് ഇത്. ഇത് പ്രകാരം സ്ഥാനങ്ങളിലെ 7-ാം മുതൽ 8-ാം വരെ പ്രവൃത്തി നിർദ്ദേശിക്കുന്നു.
At the 2022 collaborative analysis workshop, Local Research Coordinators developed seven key messages for community organizations:

- Develop training programs to meet community needs (e.g., land skills, traditional forecasting, apps, devices, mapping)
- Raise awareness about available training programs (for all community members, hunters and non-hunters)
- Develop a list of useable/reliable sites and apps to help make the best decisions in travel
- Create a list of reliable community sources (who to learn from)
- Share more information in communities about environmental conditions and hazards
- Always travel with an inReach or SPOT device
- Raise awareness about ways to share and access information (local radio, CB/VHF channels, specific social media options)
UNDERSTANDING THE NUMBERS IN THIS REPORT

PERCENT
100% = all 66 participants
Most of the survey results in this report are shown as % (percent) where 100% means all 66 participants in Iqaluit who completed the survey.

Sometimes participants could choose more than one answer, so totals in some figures don’t add to 100%.

In this example from p. 13, participants could choose more than one method of transportation.

COUNTS
Count = the number of participants giving that answer

Some of the charts show the results in percent and the count (actual number) of participants who gave that answer. In this example from p. 12, cell phones are owned or regularly used by 97% of participants (64 participants).
UNDERSTANDING THE NUMBERS IN THIS REPORT (CONTINUED)

PARTICIPANTS
Participants = everyone (all 66 people) who did this survey in Iqaluit

RESPONDENTS
Respondents = only the participants who answered follow-up questions
There are some questions in the survey that not everyone answered.
Participants who answered "no" to a question would skip to the next section.
But participants who answered "yes" to the same question would be asked some related follow-up questions. When we show the results to follow-up questions, we call this group of participants "respondents", because they were the ones who answered the question.

In this example from p. 26, 99% of the participants said "yes I can call for help if I get stranded on the land".

CONTACTING OTHERS FOR HELP

If Iqalungmiut participants get stranded or have an accident on the land, 99% (out of a total of 66) can call for help.

Of the 65 respondents who can call for help, most would call a family member (74%), or a friend (69%).

Only the participants who said "Yes, I can call for help", were asked the follow-up question, "Who, can you call for help?" This smaller group of participants who answered the follow-up question are called respondents. So the percent shown for respondents are out of the total who answered the question, and not the total of participants.
Some participants did not use every type of environmental forecasting information (i.e. weather forecasts, marine forecasts, ice services, tide tables, satellite images).

In this example from p. 37, of the respondents who said "Yes, I experience challenges when accessing satellite images", 3 of them experience challenges because the information is hard to interpret. Of the respondents who said "Yes, I experience challenges when accessing ice services", 4 of them experience challenges because the information is not updated often enough.
UNDERSTANDING THE MAPS IN THIS REPORT

TOTAL TRAVEL

Number of respondents who travelled in the selected area

MAP COLOURS AND LEGENDS

Each coloured box on the maps represents a certain number of respondents who travelled to that area, and all of the types of transportation they used to travel there (e.g. if a respondent went to an area by ATV and by snowmobile, it is counted as having travelled to the area twice).

Darker/brighter colours = more respondents went there.
Lighter colours = less respondents went there.

Respondents = only the participants who completed maps
Some participants did not complete travel maps (due to technical issues and other reasons). When we show the maps, we call this group of participants "respondents", because they were the ones who completed maps.
IQALUNGMIUT SURVEY
PARTICIPANT DEMOGRAPHICS

Survey participants ranged in age from 16 to 79 years, with the highest proportion being between 40-49 years old (32%). No one under the age of 16 or 80 years and older, participated in the survey.

82% of participants identify as male
18% of participants identify as female

Most participants identify as male (82%), and 18% identify as female.

Nearly half of participants identify as an Indigenous person (52%), and all Indigenous respondents identified as Inuit.
It is important to understand how long participants have lived in Iqaluit as this relates to (although does not necessarily determine) how much experience they have with travel on the land, water, or ice.

Most participants (79%) have lived in Iqaluit for 10 or more years.

Participants were asked about which languages they speak.

All participants speak English, and most (53%) speak Inuktitut. Some respondents (21%) speak French, and a few (5%) speak another language (Serbian, Russian, Spanish).

Participants could choose multiple languages.
## TRAVEL EQUIPMENT

### TYPES OF EQUIPMENT IQLUNGMIUT SURVEY PARTICIPANTS OWN OR REGULARLY USE

<table>
<thead>
<tr>
<th>Equipment</th>
<th>% of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone</td>
<td>64 participants</td>
</tr>
<tr>
<td>Snowmobile</td>
<td>62 participants</td>
</tr>
<tr>
<td>Computer</td>
<td>60 participants</td>
</tr>
<tr>
<td>InReach or SPOT* device</td>
<td>60 participants</td>
</tr>
<tr>
<td>GPS*</td>
<td>60 participants</td>
</tr>
<tr>
<td>Truck, car, SUV*</td>
<td>59 participants</td>
</tr>
<tr>
<td>Boat</td>
<td>51 participants</td>
</tr>
<tr>
<td>Tablet</td>
<td>51 participants</td>
</tr>
<tr>
<td>Short-wave radio*</td>
<td>46 participants</td>
</tr>
<tr>
<td>Satellite phone</td>
<td>39 participants</td>
</tr>
<tr>
<td>All-Terrain Vehicle (ATV)</td>
<td>50 participants</td>
</tr>
<tr>
<td>Other (see below)</td>
<td>14 participants</td>
</tr>
<tr>
<td>Dog team</td>
<td>12 participants</td>
</tr>
<tr>
<td>Bombardier</td>
<td>5 participants</td>
</tr>
</tbody>
</table>

* GPS: Global Positioning System; SUV: Sport Utility Vehicle; SPOT: Satellite Personal Tracker; Short-wave radio e.g. CB, SBX, VHF

Cell phones and snowmobiles are the types of equipment most often owned or regularly used by participants, followed by computers, inReach or SPOT devices, and GPS. Participants who answered "Other" also use chart plotters, sonars, depth finders and sounders, and side-by-side ATVs with dump box.

All participants have access to the internet in their home. This is important to know because it affects what kinds of information they might be able to access.
TRAVEL HABITS

METHODS OF TRANSPORTATION SURVEY PARTICIPANTS USE TO TRAVEL ON THE LAND

When survey participants travel, snowmobile is the most common method of transportation used. This is followed by boat, and on foot. Participants also travel by ATV, vehicle (truck, car, SUV), and dog team.

Survey participants use different types of transportation at different times of year. Snowmobiles, ATVs, boats, vehicles, on foot, and dog teams are used all through the year.

In different times of year, survey participants spend different lengths of time on the land. Most commonly, participants are on the land for hours or days at a time. In July and August the number of participants that are out on the land for weeks at a time, increases. Some travel for longer periods of time.
Survey participants travel on the land, water, and ice for many reasons. Most often they travel to get out of town/go to a cabin or camp hunt in the ocean, on land, or on sea ice. Those who said "Other" travel for clam digging, dog sledding, exercise, hiking, kiting, mapping sea ice with a drone, mental health, kayaking, photography, practicing Inuit Qaujimajatuqangit, skiing, fat biking, and mobile journalism.
WHERE IQALUNGMUUT RESPONDENTS TRAVEL (TOTAL TRAVEL)

Number of respondents who travelled in the selected area

64 respondents completed maps

To access full page maps visit
https://straightupnorth.ca/community-wwic-uses-and-needs/
WHERE IQALUNGMIUUT MEN AND WOMEN RESPONDENTS, TRAVEL

TRAVEL BY MEN

TRAVEL BY WOMEN

Number of respondents who travelled in the selected area

Geographic Coordinate System: GCS WGS 1984; Projection: Lambert Azimuthal Equal Area; Maps created by Regena Sinclair, June 28, 2023; Service Layer Credits: HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
WHERE IQALUNGMIUT RESPONDENTS TRAVEL (BY AGE)

AGES 16 TO 24 TRAVEL

AGES 25 TO 34 TRAVEL

AGES 35 TO 49 TRAVEL

AGES 50 TO 69 TRAVEL

AGES 70 AND ABOVE TRAVEL

Number of respondents who travelled in the selected area

Geographic Coordinate System: GCS WGS 1984; Projection: Lambert Azimuthal Equal Area; Maps created by Regena Sinclair, June 28, 2023; Service Layer Credits: HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
WHERE IQALUNGMIUT RESPONDENTS TRAVEL (BY MODE OF TRAVEL)

**SNOWMOBILE TRAVEL**
- Geographic Coordinate System: GCS WGS 1984; Projection: Lambert Azimuthal Equal Area; Maps created by Regena Sinclair, June 28, 2023; Service Layer Credits: HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
- 62 respondents completed maps

**ATV TRAVEL**
- 29 respondents completed maps

**BOAT TRAVEL**
- 56 respondents completed maps

**VEHICLE TRAVEL**
- 5 respondents completed maps

**DOG TEAM TRAVEL**
- 14 respondents completed maps

**ON FOOT TRAVEL**
- 51 respondents completed maps

Number of respondents who travelled in the selected area
Iqalungmiut participants check many types of weather conditions before they travel on the land, water, sea ice and snow. Wind strength, snow fall intensity, low visibility, blowing snow, and whiteout are the weather conditions most commonly considered necessary to check before travelling. Those who said "Other" also check blizzard warnings.
Iqalungmiut participants check many types of water conditions before they travel on the water. Tide timing and height, and wave height and direction are the water conditions most commonly considered necessary to check before travelling. Those who said "Other" also check slush and overflow on rivers and lakes.
Iqalungmiut check many types of ice conditions before they travel on the land. Sea ice thickness, location and size of leads and polynyas, position of the floe edge and river and lake ice thickness are the ice conditions most commonly considered necessary to check before travelling. Those who said "Other" also check snowing conditions (if flakes are small or large).
Iqalungmiut check many other environmental conditions before they travel on the land. Trail conditions, moon stage, and number of daylight hours are the most important environmental conditions to check before travelling. Participants who said "Other" also check humidity and frost, winds on higher mountain peaks and ranges, as well as polar bear reports around town.
**INFORMATION SOURCES IQALUNGMIUT PARTICIPANTS USE WHEN PLANNING A TRIP**

![Bar chart showing the percentage of participants who consider different information sources necessary, good to know, don't consider, and not applicable.]

- **Weather forecast**: Necessary (100%), Good to know (75%), Don't consider (25%), Not applicable (0%).
- **Personal observations**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **Tide tables**: Necessary (100%), Good to know (75%), Don't consider (25%), Not applicable (0%).
- **Marine forecast**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **People who recently traveled in the areas**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **People in home community**: Necessary (100%), Good to know (75%), Don't consider (25%), Not applicable (0%).
- **Local monitoring program**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **People who are on the land (from town)**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **Satellite images**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **Ice charts/service**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **People met during travel (on the land)**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **Social media**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).
- **People in other communities**: Necessary (75%), Good to know (50%), Don't consider (25%), Not applicable (0%).

**When planning a trip**, Iqalungmiut participants access many sources of information before they travel on the land. Weather forecast, personal observations, tide tables, and marine forecast are information sources that participants most often consider necessary to check. A few (9%) participants consider it necessary to contact people in Kimmirut, Kinngait, Pangnirtung, and Qikiqtarjuaq, before they travel.

**While on the land and when deciding to return home** personal observations, talking to people met during travel on the land, people who recently traveled in the areas, weather forecast, and tide tables are the information sources that are used most by Iqalungmiut participants.
CONTACTING COMMUNITY INFORMATION SOURCES

Reacting people on the land while in Iqaluit

<table>
<thead>
<tr>
<th>Method</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB, HF (SBX), VHF</td>
<td>34</td>
</tr>
<tr>
<td>inReach or SPOT</td>
<td>27</td>
</tr>
<tr>
<td>Cell phone</td>
<td>23</td>
</tr>
<tr>
<td>Satellite phone</td>
<td>23</td>
</tr>
<tr>
<td>Home phone</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

% of respondents (out of a total of 52 respondents who contact people on the land)

Respondents who contact people on the land to ask about environmental conditions while they themselves are in Iqaluit mostly use short-wave radios (CB, HF(SBX), VHF), and inReach or SPOT. Those who said "Other", use Facebook, drive over in person, or get someone else to call.

Reacting people in Iqaluit while on the land

<table>
<thead>
<tr>
<th>Method</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone</td>
<td>36</td>
</tr>
<tr>
<td>inReach or SPOT</td>
<td>35</td>
</tr>
<tr>
<td>Satellite phone</td>
<td>31</td>
</tr>
<tr>
<td>CB, HF (SBX), VHF</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

% of respondents (out of a total of 55 respondents who contact people in Iqaluit)

Respondents who contact people in Iqaluit to ask about environmental conditions while they themselves are on the land use cell phones, inReach or SPOT, satellite phone, and short-wave radios (CB, HF(SBX), VHF). Those who answered "Other" use Facebook messenger.
Respondents who contact people in other communities to ask about environmental conditions mostly use home phones (landline) and cell phones to contact them. Those who said "Other" use social media.

The other communities contacted are: Kimmirut, Kinngait, Pangnirtung, and Qikiqtarjuaq.
CONTACTING OTHERS FOR HELP

If Iqalungmiut participants get stranded or have an accident on the land, 99% (out of a total of 66) can call for help.

Of the 65 respondents who can call for help, most would call a family member (74%), or friend (69%). Some would call Nunavut Emergency Management (20%), or Local Search and Rescue (20%). About 14% would call for help using inReach or SPOT, 8% would call the RCMP, 5% would call a co-worker, and 2% would call the Hunters and Trappers Organization.

Of the respondents who can call for help, most respondents use an inReach or SPOT device (79%), or cell phone (62%), or satellite phone(62%).
SHARING OBSERVATIONS OF WEATHER, WATER, ICE, OR SNOW CONDITIONS WITH OTHERS IN IQALUIT

The majority (98%) of the participants share their observations of weather, water, ice, or snow conditions with others in Iqaluit.

Do you share your observations with others in Iqaluit?

- Yes: 65%
- Sometimes: 33%
- No: 2%

Are there people in Iqaluit who share travel conditions and warnings on community radio?

- Yes: 77%
- I Don’t Know: 23%

Most (77%) participants said there are people regularly going on community radio in Iqaluit, or CB/HF(SBX)/VHF radio, to share warnings or provide advice about weather, water, or ice conditions.

Some participants (23%) did not know if people regularly go on community radio in Iqaluit, or CB/HF(SBX)/VHF radio, to share warnings or provide advice about weather, water, or ice conditions.
Most (58%) participants said there are places in Iqaluit where people tend to meet and talk about recent travel conditions, or weather, water, ice and other environmental conditions.

Of the 38 participants who said there are places where people meet, some go to those places to listen or ask for advice (55%), and a few go to those places to share observations or advice (18%).
Social Media Iqalungmiut Use to Share Travel Conditions

Do Iqalungmiut use social media to talk about travel conditions?

- Yes 70%
- I Don’t Know 27%
- No 3%

There were 46 Iqalungmiut participants who identified being aware of social media pages or groups where people share observations or advice about weather, water, and ice conditions mentioned using Facebook.

It is important to note that some respondents have their own knowledge of the weather, water, ice, and snow conditions so do not check social media for this information.

Of the 46 respondents who said “yes” 43 (94%) use the information shared over social media.

Commonly used social media
- Facebook
  - Iqaluit Public Service Announcements
  - Personal Feed
  - Nunavut Hunting Stories of the Day
  - Iqaluit Ajjinguat- Photos of Iqaluit
  - Iqaluit Dog Teams
  - Amaruq Hunters and Trappers Association

Topics include
- Blizzard conditions
- Ice conditions
- Snow conditions
- Trail conditions
- Water conditions (waves)
- Weather conditions
- Polar Bear Sightings
When asked about local weather stations it is notable that 37 participants said that they do not know if there are local weather stations and 29 said that local weather stations do or do not exist. Of the 13 participants who said there are local weather stations, 4 said the information is available in Iqaluit, and all 4 said they use the information.

When asked about local water and ice monitoring programs it is notable that 32 participants said that local water/ice programs exist and 25 said that they do not know. Of the 32 participants who said there are local water/ice monitoring programs, 18 said the information is available in Iqaluit, and 9 said they use the information.
COMMUNITY MONITORING PROGRAMS (CONTINUED)

Remote cameras are cameras placed in areas where a photographer cannot be at the camera to take photos. Remote cameras often have a self-timer built into the camera so photos can be taken at specific times. An example is a remote camera mounted somewhere near a floe edge. A built-in timer is set to take a photo at noon each day.

When asked about remote cameras, it is notable that 39 participants said that they do not know if there are remote cameras around Iqaluit, and 2 participants said there are remote cameras. Of the 2 participants who said that there are remote cameras, 1 said the remote camera information is not available in Iqaluit, and all 1 did not know if it is available or not.

SmartICE is a partner in this project, and through them we know there are local monitoring programs in Iqaluit, including SIKU and SmartICE. However, survey responses suggest that community members are not widely aware of these programs, or they did not associate them with the way the questions were asked in the survey.
Iqalungmiut identified several community-based monitoring programs that are run by a number of organizations. A wide range of conditions are monitored related to weather, water, and ice.

### Local Weather Stations

<table>
<thead>
<tr>
<th>Program Provider</th>
<th>What Is Monitored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carleton University meteorology station (snowmelt hydrology research station)</td>
<td>Temperature, relative humidity, wind speed, wind direction, atmospheric pressure, eddy covariance (vapour flux), snow accumulation</td>
</tr>
</tbody>
</table>

### Local Water/Ice Programs

<table>
<thead>
<tr>
<th>Program Provider</th>
<th>What Is Monitored</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmartICE</td>
<td>Sea ice thickness, snow pack on ice, multi-year versus new ice, historical travel corridors</td>
</tr>
<tr>
<td>SIKU (SmartICE information)</td>
<td>Sea ice thickness, dangerous areas, changing ice thickness, danger spots, tides, environmental changes</td>
</tr>
</tbody>
</table>

### Local Remote Cameras

<table>
<thead>
<tr>
<th>Program Provider</th>
<th>What Is Monitored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program name unknown</td>
<td>Ice formation and breakup. Arctic UAV has posted some drone photos and videos over the past few years, on Facebook, to highlights areas of thinning/rotting ice, and open water. They don’t do it regularly, and they don’t do it everywhere.</td>
</tr>
</tbody>
</table>
PRODUCTS AND ACCESSING ENVIRONMENTAL FORECASTS

Along with community sources of information, to decide if it is safe to travel Iqalungmiut use a wide range of weather and marine forecasts, and ice charts/services from polar service providers.

WEATHER FORECAST PRODUCTS USED

- Accuweather (https://www.accuweather.com)
- Aurora forecast (https://auroraforecast.com)
- Environment Canada (https://weather.gc.ca)
- InReach
- EOSDIS Worldview (NASA) (https://worldview.earthdata.nasa.gov)
- NAV CANADA’s Aviation Weather
- Navionics app
- Norwegian Meteorological Institute – YR (https://www.yr.no)
- Spot Wx (https://spotwx.com)
- Twitter
- Weather app on phone
- Weather Channel/Network
- Weather Underground (https://www.wunderground.com)
- Windy (https://www.windy.com)

MARINE FORECAST PRODUCTS USED

- Environment Canada (https://weather.gc.ca/marine)
- InReach
- Windy (https://www.windy.com)
- YR (https://www.yr.no)

ICE CHARTS/SERVICES USED

- Canadian Ice Services
- EOSDIS Worldview (NASA) (https://worldview.earthdata.nasa.gov)
PRODUCTS AND ACCESSING ENVIRONMENTAL FORECASTS (CONTINUED)

Along with community sources of information, to decide if it is safe to travel Iqalungmiut use a wide range of tide table and satellite image products from polar service providers.

**TIDE TABLE PRODUCTS USED**

- My Tide Times app
- Printed Tide Tables from Wildlife Office
- Fisheries and Oceans Canada Tides.gc.ca
- Tide-forecast.com

**SATellite Image PRODUCTS USED**

- Environment and Climate Change Canada (https://weather.gc.ca/satellite/index_e.html)
- EOSDIS Worldview (NASA) (https://worldview.earthdata.nasa.gov)
- FATMAP app
- Garmin MapSource
- Google Earth
- NASA MODIS (includes Rapid Fire) (https://modis.gsfc.nasa.gov)
- ViewRanger (now Outdooractive) (https://www.outdooractive.com)
- Windy (https://www.windy.com)
Of the forecasting products used, respondents most often rely on weather forecasts, marine forecasts, and tide tables, followed by satellite images, and ice services.

Of the 100% of participants who use weather forecasts, 11% experience challenges when accessing them. Of the 100% of participants who use marine forecasts, 12% experience challenges when accessing them. Tide tables were used by 98% of participants and of these, 6% experienced challenges. Satellite images were used by 77% of participants, 137% of whom experience challenges when accessing them. Ice services were used by 47% of participants and of these, 32% experience challenges when accessing them.
Iqalungmiut respondents access environmental forecast products in a range of ways, and mostly by going online using a personal mobile device or personal computer. Those who said “Other” access weather forecasts using a personal desktop computer, or by checking with friends or colleagues who send them images. Work notifications provided by Canadian Coast Guard and Fisheries and Oceans or by accessing satellite images through friends or Wildlife Office, using a GPS to calculate tide levels, or by taking a screenshot or print out of the page and carrying it with them. They access marine forecasts using Delorme (now Garmin), inReach, a satellite phone, or their workplace desktop. They access tide tables by carrying a printout, by carrying a printout at work, or by checking with friends or colleagues. They access ice services through work notifications, and they access satellite images through friends or colleagues who send them images.
Iqalungmiut respondents identified a number of reasons why information is difficult to access. To summarize the main challenges:

- **Weather forecasts** are not accurate enough, the forecast duration is insufficient, and maps/images are not oriented in the right direction.
- **Marine forecasts** are not accurate enough, and the information is only provided seasonally.
- **Ice charts/services** are not accessible when travelling on the land, water, and sea ice. They also said the ice charts/services are not provided seasonally, they did not always see ice, and slow internet and poor visual display make them difficult to access.
- **Satellite images** are not accessible while respondents are out on the land, water, and ice. Cloud cover prevents clear, updated images and can make interpretation difficult. Satellites are not always clear due to clouds, the images are not always provided at certain times of day/week/month/year, and the information is not updated often enough. Information that is not updated often enough creates a challenge for accessing marine forecasts, ice services/charts, and satellite images. These survey results do not necessarily mean that there are no challenges in other areas.

Respondents who said "Other" said:
- **Other Info.** is too general.
- **Other Info.** is not provided for the area of interest (the inner bay), and the scale is not good.
- **Other Info.** is not provided seasonally.
- **Other Info.** is not updated often enough.
- **Other Info.** is difficult to remember which websites to use and difficult to navigate through layers to get to the image of interest.
- **Other Info.** is difficult to remember which websites to use and the images are not always clear due to clouds.
Slightly more participants are interested in information about past changes to weather, water, or ice conditions (related to climate change) than are interested in forecasting or predictions over a year, over 2-10 years, and over 11-50 years or more. However, slightly more participants are interested in information about future changes over a season than are interested in past changes over a season.
More respondents are interested in having information about past environmental changes than are interested in predictions of change. Common topics of interest include changes in sea ice thickness, timing of sea ice break-up/freeze-up, and changing floe edge position. Respondents who answered "Other" said past changes in ocean currents, magnetic fields around the North Pole, and changes in the atmosphere and other layers around the earth. They also expressed interest in past and future changes in tide levels.
INTEREST IN TRAINING

Respondents who said they were interested in receiving training on survival skills and navigating the land (43 participants), observing and understanding environmental conditions (47 participants), local environmental monitoring programs (33 participants), and accessing or using social media pages or groups (20 participants), were invited to describe the kinds of training they are interested in. Respondents were also asked to share about who they would like to learn from, and environmental conditions they would like to learn more about. The points below were organized by report writers to group them into similar topics.

Improving Navigation Skills
- Identifying/mapping navigational hazards, and trails/routes
- Learning how to wayfind, navigate, and map
- Navigating in bad weather
- Traditional navigating including by sun and stars

Developing Safety and Survival Skills
- Boat safety
- First aid
- Search and rescue training
- Traditional land and survival skills
  - On land and water
  - Outdoor skills
  - Shelter building
  - Uses of plants

Increasing Knowledge of Environmental Conditions
- Learning about sea ice including observing/interpreting ice thickness
- Locations and movements of leads and polynyas
- College land programs (Environmental Technology Program)

Strengthening Hunting and Inuit Cultural Practices and Skills
- Learning more about Inuit Qaujimajatuqangit and Inuktut
  - Inuit Qaujimajatuqangit principles
  - Terminology
  - Animal behaviour/movements
- How to sew
INTEREST IN TRAINING (CONTINUED)

Gaining Familiarity with Technology

- How to use and interpret satellite images
  - NASA Worldview
  - Earthdata
- How to use and interpret ice charts/data
  - Canadian Ice Service
  - SmartICE
- How to use and interpret weather and marine forecasts
- How to use specific web sites
  - Navionics
  - SIKU
  - AIS
- General/basic computer training
  - Computers
  - Websites
- How to use personal devices and GPS
- Learning proper equipment use, maintenance and repair
  - Small engine repair
  - How to properly use electronic devices

Connecting to Local Programs and Services

- Learning about local monitoring programs
  - Remote weather stations
  - SmartICE
Results of a community survey on environmental forecasting uses and needs