Results of a community survey on environmental forecasting uses and needs

Full Inuktitut/English bilingual report will be available in February 2024 at: https://straightupnorth.ca/community-wwic-uses-and-needs/
Quana tamaffi havakpakkamikik uqautigiplugitlu atuqpakhimajatik.

Aaron Pedersen
Angulalik Pedersen
Brent Nakashook
Cathryn Epp
George Naikak Hakongak
Roland Emingak

Unalu 21 Ekaluktutiamitki kitkut apiqivaktut atirmingnik titiraqujingittutik


Pivakhimajugut anginirmik ikajuutikharnik talvanga qaujihainikkut havaqaqatigiiktut talvani SmartICE, Ukiuqtaqtumi Inirnihat Katimajiit, Ittaq Ilitquhiliqijunik ulu Qaujihainikkut Havagvingat, Avatiliqijitkut Hilaup Aalannguqtirninga Kanatami, Carleton University, Memorial University Newfoundland, unaluqilhavvikyuanga Ottawa-mi. Qujagijumajaqqut Aqqiumavvik Katimajiit havaktiit nunaani Arviat ikajuutainun ihuaqghainirmun naunaijautimik hulilukaarutikhainik tamainni Nunavunmi.

We wish to acknowledge the 27 Ekaluktutiarmiut who participated in this survey between January 2020 and October 2022. Thanks to everyone for their time and sharing their experiences.

Aaron Pedersen
Angulalik Pedersen
Brent Nakashook
Cathryn Epp
George Naikak Hakongak
Roland Emingak

And 21 Ekaluktutiarmiut who asked to remain anonymous.

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We received tremendous support from our research partners at SmartICE, Arctic Eider Society, Ittaq Heritage and Research Centre, Environment and Climate Change Canada, Carleton University, Memorial University of Newfoundland, and University of Ottawa. We would especially like to thank Aqqiumavik Society staff in Arviat for their support in coordinating survey activities across Nunavut.
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03 Havaakhalluat Hulilukaarutit
04 Naunaijautit Iniqtavikhat atuqtilugu Qalarjuarniq-19 Aanniarutirjuaq
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08 Kangiqhimablugit Qaffiuniit uvani Unniudjutimi
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21 Hilahiutit, Imarmik, Hikumik uvalu Aallat Avatikkut Qanuriniit Naunaijaqpaktait Aullaaqtinnatik
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Piks: Gita Ljubicic
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TALVUUNA UNA HAVAAKHAKKUT

Qaujihainikkut havaaqatiigiktut ilayuyt Inuit, ukiuqtaqtumi, hivuraanilu qaujihaijut havaaqatiigiktut amigaituni ukiuni Nunavunmi nunallaani. Avatqumajuni ukiuni tuhaajugut Nunavunmuninut (Inuit Nunavunmi) tapkua kivqaqtuutit tunihijut kangiqhidjutinik hilakkut, imakkut, uvalu hikukkut qanuriniit ajungnaingitut aturiangani, pijaronnikut, uvaluuni kangiqhidjutikhanik. Tuhaavaktuqutlu tapkua nauniaqhitikhat ihuarrayangittut nunallaani qanuriniinik. Una, ukualu hilaatutaliqtuq atauttikkuqhivaliqhuni, uvalu aallanguqppaliqtut tariup hikua, ajungnaqhitivaktuq uvalu qajangnaqhitijuq Nunavunmiunun anguniarmikkut uvalu aullarnikutt qajangnaqhivaliqtuq. Havakaqqtut una havaakhaq ajuriqumapluqta qanuqut Nunavunmiutat atuqpakhamajait avatiliqinikkut naunaitkutikhat ihumaliiqitingani qajangnairutikharnik aullaaarnirmik nunami (ilayuyt imakkut hikukkutlu)

Tikinahuarutivut ikajuutikhat ihuaqhiujuumurutikhat naunaitkutikhat hailijut, uvalu qanuq tuhaqtiuavuktut ukiuqtaqtumi nunallaani. Iniqtiriangani una tikinahuarut, havaktuqut naunaijautit pijangangini kiudjutikhanik nunallaanin tamaini Nunavunmi. Naunaijautit apiqutit piluqtaqut havaaqatiigikhuta ihumagijainik tamainin havaaqatiigikuntun ilayuyt, talvanganu avatiliqinikkut ikajuktijuq, Inuit timiqtingit, ukiuqtaqtumi kavamangit qaujhihainikkutlu timiqtingit


Talvallarl, qanuriniit una havaakhaq ikajuutauniaqtuq kivraqtuijunut ihumaliiqapaktunutlu naunaiqhititiarlutik ihuatqiyanik naalumajuuniklu Nunavunmunut, ikajurlutik aanniqtailinikkut aullaaariangi.
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 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. We developed this project to learn how Nunavummiut (people of Nunavut) 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 Aajiiqatigingniq 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 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.
Havaakhaq ilauyut 8 nunallaani Nunavunmi: Arviat, Iqaluktuuttiaq, Kangiqtugaapik, Salliq, Uqhuqtuuq, Iqaluit, Mittimatalik, unalu Sanikiluaq.

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
# Havaakhalluat Hulilukaarutit (2018 - 2022)

<table>
<thead>
<tr>
<th>Kiqliqhaqaqtut</th>
<th>Hulilukaarutikhat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ubluirvia 2018</strong></td>
<td>- chavaqatigiingniikkut havaakhat upalungajaijut katimadjuutaini uvani ArcticNet katimarjuarutaini Ottawa, Ontario</td>
</tr>
<tr>
<td><strong>Ubluqtuhirvia – Hikutirvia 2019</strong></td>
<td>- (ilaublugit havaakhat tukhiutit havaqatigiiktut, Nunallaani Qaujiharnikkut Tutqikhaijit, uvalu qaffit hilataani ihivriuqtit)(ilaublugit havaakhat tukhiutit havaqatigiiktut, Nunallaani Qaujiharnikkut Tutqikhaijit, uvalu qaffit hilataani ihivriuqtit) &lt;ul&gt; - una pidjutaajuit naunaijainikkut aqipqitit, tainikkut, uvalu atugakjait naunaittut, ihuqatit, uvalu pijuminaqatunik Nunavunmiut &lt;br&gt; - naunaittiqatqumik qanuriiit ihuqaajijanajaitit uvalu ihuqajjajunikluk qauhaitjinnu, ukuuqtaajturmiunut, uvalu maligakhuajutinut&lt;/ul&gt;</td>
</tr>
<tr>
<td><strong>Tattiarnaqtuq – Hikutirvia 2019</strong></td>
<td>- ilihaidjutikhangit katimadjutikharnik talvani Nunallaani Qaujiharnikkut Tutqikhaijit hanjani Montreal, Quebec uvanimi Iqaluit, Nunavut</td>
</tr>
<tr>
<td><strong>Ubluirvia 2019 – Qiqailruq 2020</strong></td>
<td>- Nunallaani ihivriuqhinikkut Tutqikhaijit katimapkajjut naunaijaidjutikhanik nunamingni</td>
</tr>
<tr>
<td><strong>Qiqailruq 2020</strong></td>
<td>- naunaijautit nutqaatitaajuit pidjutigiblugu Qalarjuarniq-19 aanniarutiqjuaq (taqulugu makpiqag 4. naunaiqhiititiarumaguvit) &lt;ul&gt; - havaqatigiikhuta upalungaijaujimik qajangnaitumik iniqtiirangi ihaa khaq</td>
</tr>
<tr>
<td><strong>Imaruqtitirvia 2021</strong></td>
<td>- Nunallaani Qaujiharnikkut Tutqikhaijij auilaittitifaaqapkhimajut naunaijautit katitirutikhat &lt;ul&gt; - una pijaatqajit kinguani inungnun aanniaqtaalimmun uvalu qauhaitjinnuk laisit/pijumanikkut pitkalidjujut pipkaatqajuit, uvalu nunamingni nunallaani katimajit ikajuutait &lt;br&gt; - Nunallaani Qaujiharnikkut Tutqikhaijit maliktaillu ilangit hivani ilayut naunaittiarlugit kiudjujutikhat</td>
</tr>
<tr>
<td><strong>Tattiarnaqtuq 2021</strong></td>
<td>- Havaqatigiingniikkut naunaijautit ajuiqhaqatigiiktut nunaani Arviat, Nunavut</td>
</tr>
<tr>
<td><strong>Hikutirvia 2022</strong></td>
<td>- Nunallaani Qaujiharnikkut Tutqikhaijij nutqaqtitaat aulapkaiplutik naunaijautingit nunamingni</td>
</tr>
<tr>
<td><strong>Ubluirvia 2022</strong></td>
<td>- havaqatigiikhutik ihivriurniq ajuiqhaqatigiiktut uvani Paris, Ontario &lt;ul&gt; - katimapkajjut ihuqajhaqhimajuninik qanuniniit uvani ArcticNet katimarjuarutaani hamani Toronto, Ontario</td>
</tr>
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</table>
# KEY PROJECT ACTIVITIES (2018 - 2022)

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Activities</th>
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<tbody>
<tr>
<td><strong>December 2018</strong></td>
<td>• <strong>collaborative project planning</strong> meeting at ArcticNet conference in Ottawa, Ontario</td>
</tr>
</tbody>
</table>
| **January - November 2019** | • **collaborative survey development** (involving our project proposal team, Local Research Coordinators, and a number of external reviewers)  
  o this led to survey questions, wording, and options that were much more clear, relevant, and accessible for Nunavummiut  
  o it also means results can be more meaningful and impactful to researchers, northerners, and policymakers |
| **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)  
  o we started working together on a plan for how to safely continue the project                                                                  |
| **June 2021**             | • **Local Research Coordinators restarted survey facilitation**  
  o this could only happen after public health and research license/ethics restrictions allowed it, and with local community organizations’ support  
  o 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                                                                      |
SURVEY TIMELINE DURING THE COVID-19 PANDEMIC

PAUSED SURVEY FACILITATION due to universities prohibiting travel and in-person research

REVISED UNIVERSITY AND NUNAVUT ETHICS to follow public health protocols and resume survey

RESUMED ONLINE SURVEY FACILITATION then PAUSED SURVEY FACILITATION due to territory-wide shutdown

RESUMED ONLINE AND IN-PERSON SURVEY FACILITATION and followed all public health protocols

PAUSED SURVEY FACILITATION due to territory-wide shutdown

RESUMED ONLINE AND IN-PERSON SURVEY FACILITATION and followed all public health protocols

ENDED SURVEY
Atauttimut, 19 Nunallaani Qaujiharnikkut Tutqikhaijit ilaungmata havauhikhami, unalu iniqhimajut 360 qaujihaijainiq tamainnut 8 nunalingni Nunavunmi.

Nunallaani Qaujiharnikkut Tutqikhaijit qaitqujait nunallaani ilaautquplugit atuqhqugit naunaitkutit maliktakhangit. Imalluaq, ajuirumajugut aturninnganik ihariagininnganiklu hilakkut, imaktuk, hikumut, hilauplu naunaitkutait ikajuutingillu nunamingni ilayut aullaaqpauhiiniq nunakkut (unalu imakkut hikumilu) kingulliri pingahuni ukiuni (talvanga 2017). Ukuu ilayut uniqtut angnallu tamainik ukuuaqtut uvalu atuqhimagait aktlaangit, uvalu ajutut anguniaqtit, hilaup aallangurniani aullaqpaktut, uvaluuniin Inuit kitkut aullaarumajut maniqqami.

Nunallaani Qaujiharnikkut Tutqikhaijit aulatitivakhimajut naunaiyainikkut Qablunaaqtun uvaluuniit Inuktut ilaautinik Qualtrics naunaijautinik qaritaujaliqidjutikhat iliurarlugit kiudjutinik hapkuunani iPads.

Aulatitivakhimajut naunaijautit nunallaani havagviani ilayut aihimaviini, naunaiqtaujut inungnun ihuarjjaujut qanuriniit. Ilangit ilayut havaktat naunaijautinik inmingnik atuqhutik qaritauijakkut naujnauijaunmik qaritaujaliqutikkut, taima Qalarjuarniq-19 aanniamiq inungnut aannialiqtailitikhat pittailivauihit atuqjuautitlungit inungnut naunaijautit. Ilayut akiliqtauvaktut ikajuutainut. Pijavut qaujihainirmut ukpirtuqjunut uvalu laisikkut angirutat aulaqtitinikkut naunaijautimik

Uumunga unniudjutimun, tunivaktavun qanuriliurutinik tunnganiqarluni qaujiharnikkut kiudjutinik atauttimut ukua 27 Ekaluktutiarmiut = 100%.

Naunaittiarmaguvit talvuuna unniudjunmik anginirmiklu naunaijautit hivajarlugu:

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Natalie Carter, McMaster-mi Ilihaqvikyuami, carten7@mcmaster.ca
Gita Ljubicic, McMaster-mi Ilihaqvikyuami, gita.ljubicic@mcmaster.ca

Pijaangani Nunavunmi-tamainun unniudjutit, aalallu nunallaani unniudjutit, takuluq:
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 **27 Ekaluktutiarmiut = 100%**.

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

**Shirley Tagalik**, Aqqiumavvik Society, 204-218-0866, inukpaujaq@gmail.com

**Natalie Carter**, McMaster University, carten7@mcmaster.ca

**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/](https://straightupnorth.ca/community-wwic-uses-and-needs/)
At the 2021 and 2022 collaborative workshops, local research coordinators developed Twelve key messages for service providers:

1. Provide more information that is specific to communities
2. Increase the number of VHF repeaters and cell towers
3. Increase the number of weather stations
4. Expand support for community programs and leadership
5. Increase awareness of local services and programs
6. Create forecast products that are easy to interpret and use (colour coded visuals)
7. Make ice charts and satellite images simpler to use (add links)
8. Increase the number of pages and sites to go to when accessing online environmental products
9. Need more real-time weather information (update more often)
10. Provide more tide information that is specific to communities
11. Increase the number of VHF repeaters and cell towers
12. Increase the number of weather stations

These messages aim to improve the accessibility, relevance, and utility of environmental services and information for service providers and the communities they serve.
TUHAQTITAAULLUAQTUKHAT NUNALLAANUT

Uvani 2022 havaqatigingniikkut naunajautit katimaqjarutit, Nunallaani Qaujiharnikkut Tutqikhajijit havaktait saivat tuhaqtidjutit nunallaanun timiqutaujunut:

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At the 2022 collaborative analysis workshop, Local Research Coordinators developed seven key messages for community organizations:

**Key messages for communities**

- 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 useful/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)

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UNDERSTANDING THE NUMBERS IN THIS REPORT

PERCENT
100% = all 27 participants
Most of the survey results in this report are shown as % (percent) where 100% means all 27 participants in Cambridge Bay 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, snowmobiles are owned or regularly used by 93% of participants (25 participants).
PARTICIPANTS
Participants = everyone (all 27 people) who did this survey in Cambridge Bay

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.28, 35% of the participants said "yes there are places in Cambridge Bay where people meet to talk about recent travel conditions".

Of the 9 respondents who said "yes there are places", 89% go to these places to listen or ask for advice and 78% go to share observations or advice.

Only the participants who said "Yes, there are places", were asked the follow-up question, "Do you go to these places to listen or ask for advice?" 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 they experience "Yes, I experience challenges when accessing weather forecasts", 3 of them experience challenges due to cost. Of the respondents who said "Yes, I experience challenges when accessing ice services", 2 of them experience challenges because the information is hard to interpret.
UNDERSTANDING THE MAPS IN THIS REPORT

TOTAL TRAVEL

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.
Survey participants ranged in age from 25 to 69 years, with the highest proportion (29%) being between 30-34 years old. No one under the age of 25, or 70 years and older, participated in the survey.

Most participants identify as male (93%), and 7% identify as female.

Nearly all participants identify as an Indigenous person (93%), and all of the Indigenous respondents identify as Inuit.
Participants were asked about which languages they speak.

All participants speak English (100%). Some speak Inuktitut (26%), and some speak Inuinnaqtun (30%).

It is important to understand how long participants have lived in Cambridge Bay as this relates to (although does not necessarily determine) how much experience they have with travel on the land, water, or ice.

Most participants (86%) have lived in Cambridge Bay for 20 or more years.
Snowmobiles, ATVs, and cell phones are the types of equipment most often owned or regularly used by participants, followed by InReach or SPOT devices. Participants who answered "Other" use a side-by-side.

Most (85%) participants have access to the internet in their home. This is important to know because it affects what kinds of environmental forecast information they might be able to access.
TRAVEL HABITS

METHODS OF TRANSPORTATION SURVEY PARTICIPANTS USE TO TRAVEL ON THE LAND

When survey participants travel on the land, snowmobile is the most common method of transportation used. This is followed by boats and ATVs. Participants also travel on foot, and by vehicle.

Survey participants use different types of transportation at different times of year. Snowmobiles, ATVs, vehicles, and on foot are used all through the year. Some snowmobiles are hydroplaned over water all summer. Boats are used from June to October.

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 May through 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 hunt on land, to get out of town, go to a cabin or camp, and to fish in lakes, rivers, or the ocean.

Ekaluktutiarmiut participants also travel to visit Bathurst, Kugluktuk, and Umingmaktuq (Bay Chimo).
WHERE EKALUKTUTIARMIUT RESPONDENTS TRAVEL

TOTAL TRAVEL

22 respondents completed maps

Number of respondents who travelled in the selected area

To access full-page maps visit https://straightupnorth.ca/community-wwic-uses-and-needs/

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 EKALUKTUTIARMIUT 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 EKALUKTUTIARMIUT RESPONDENTS TRAVEL (BY AGE)

AGES 25 TO 34 TRAVEL

AGES 35 TO 49 TRAVEL

AGES 50 TO 69 TRAVEL

Number of respondents who travelled in the selected area
WHERE EKALUKTUTIARMIUT RESPONDENTS TRAVEL (BY MODE OF TRAVEL)

SNOWMOBILE TRAVEL

ATV TRAVEL

BOAT TRAVEL

VEHICLE TRAVEL

ON FOOT TRAVEL

Number of respondents who travelled in the selected area

1 - 10  11 - 20  21 - 30  31 - 40  41 - 50  51 - 60  61 - 70  71 - 80  81 - 90  91 - 100  101 - 150  151 - 200  201 - 249

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
WEATHER CONDITIONS
EKALUKTUTIARMIUT PARTICIPANTS
CHECK BEFORE THEY TRAVEL

Ekaluktutiarmiut participants check many types of weather conditions before they travel on the land, water, sea ice, and snow. Whiteout, low visibility, wind strength, blowing snow, window of clear weather, and freezing rain intensity are the weather conditions most commonly considered necessary to check before travelling. Participants who said "Other" also check wind speed on the water.
Ekaluktutiarmiut participants check many types of water conditions before they travel. Wave height, storm surge, wave direction, strong current areas, tide timing, and tide height are the water conditions most commonly considered necessary to check before travelling.
Ekaluktutiarmiut participants check many types of ice conditions before they travel. Sea ice thickness, ice roughness, over flow, river and lake ice thickness, ice ridges, location and size of leads and polynyas, ice colour, and ice brittleness are the ice conditions most commonly considered necessary to check before travelling. Participants who said "Other" also check the direction of snow drifts.
Ekaluktutiajumiut participants check many other environmental conditions before they travel on the land. Trail conditions and snow drifts are the other environmental conditions most often considered necessary to check before travelling.
When planning a trip, Ekaluktutiarmiut participants access many sources of environmental information before they travel. Weather forecast, personal observations, and marine forecast are information sources that participants most often consider necessary to check before travelling.

While on the land talking to people who have recently taken the route or been close to the area participants are going to, people met during travel (on the land), and people who are on the land in the area participants are planning to travel to, as well as personal observations, weather forecast, and marine forecast are most often considered necessary to check.

When planning to return home talking to people met during travel, personal observations, people who have recently taken the route or been close to the area, weather forecast, marine forecast, and people who are on the land in the area participants are planning to travel to are the information sources that participants most often consider necessary to check.
CONTACTING COMMUNITY INFORMATION SOURCES

Contacting people who are on the land while respondents are in Cambridge Bay

<table>
<thead>
<tr>
<th>Method</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>InReach or SPOT</td>
<td>24 respondents</td>
</tr>
<tr>
<td>Cell phone</td>
<td>14 respondents</td>
</tr>
<tr>
<td>Satellite phone</td>
<td>10 respondents</td>
</tr>
<tr>
<td>CB, HF (SBX), VHF</td>
<td>10 respondents</td>
</tr>
<tr>
<td>Home phone</td>
<td>3 respondents</td>
</tr>
</tbody>
</table>

% of respondents (out of a total of 26 respondents who contact people on the land)

Respondents who contact people on the land to ask about environmental conditions while they themselves are in Cambridge Bay mostly use InReach or SPOT devices, or cell phones, to contact them.

Contacting people in Cambridge Bay while on the land

<table>
<thead>
<tr>
<th>Method</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>InReach or SPOT</td>
<td>24 respondents</td>
</tr>
<tr>
<td>Cell phone</td>
<td>15 respondents</td>
</tr>
<tr>
<td>CB, HF(SBX)</td>
<td>11 respondents</td>
</tr>
<tr>
<td>Satellite phone</td>
<td>11 respondents</td>
</tr>
</tbody>
</table>

% of respondents (out of a total of 25 respondents who contact people in Cambridge Bay)

Respondents who contact people in Cambridge Bay to ask about environmental conditions while they themselves are on the land mostly use InReach or SPOT devices, or cell phones.
CONTACTING COMMUNITY INFORMATION SOURCES (CONTINUED)

The two respondents who contact people in other communities to ask about environmental conditions use cell phones, satellite phones, short-wave radios, and inReach or SPOT to contact them.

The other communities contacted are: Kugluktuk and Gjoa Haven.
CONTACTING OTHERS FOR HELP

If Ekaluktutiarmiut participants get stranded or have an accident on the land, all of them can call for help.

Participants would call a family member (56%), or friend (56%), and some would call local search and rescue (27%) for help.

Participants would also call Hunters and Trappers Association (15%), or Canadian Rangers (15%), as well as Nunavut Emergency Management (8%).

All participants call for help using inReach or SPOT device. They also use cell phones, satellite phones, and short-wave radios.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>27</td>
</tr>
<tr>
<td>75%</td>
<td>15</td>
</tr>
<tr>
<td>50%</td>
<td>11</td>
</tr>
<tr>
<td>25%</td>
<td>9</td>
</tr>
</tbody>
</table>

Participants who can call for help (out of a total of 27): InReach or SPOT (27 participants), Cell phone (15 participants), Satellite phone (11 participants), CB, HF (SBX), VHF, or other radio (9 participants).
SHARING OBSERVATIONS OF WEATHER, WATER, ICE, OR SNOW CONDITIONS WITH OTHERS IN CAMBRIDGE BAY

All of the participants share their observations of weather, water, ice, or snow conditions with others in Cambridge Bay.

Half of the participants said there are people regularly going on community radio in Cambridge Bay, or CB/HF(SBX)/VHF radio, to share warnings or provide advice about weather, water, or ice conditions. A few (35%) participants did not know if people regularly go on community radio in Cambridge Bay, or CB/HF(SBX)/VHF radio, to share warnings or provide advice about weather, water, or ice conditions.
GATHERING TO TALK ABOUT TRAVEL CONDITIONS WITH OTHERS IN CAMBRIDGE BAY

Are there places in Cambridge Bay where people tend to meet and talk about recent travel conditions?

Of the 9 respondents who answered "yes there are places"

- 8 (89%) go to these places to listen or ask for advice
- 7 (78%) go to share observations or advice

About one third (35%) of participants said there are places where people tend to meet and talk about recent travel conditions, or weather, water, ice and other environmental conditions. More than one third (38%) did not know, and 27% said there are no places where people meet to talk about travel conditions. Of the 35% (9 participants) who said there are places where people meet, most go to those places to listen or ask for advice (89%), or to share observations or advice (78%).

PLACES EKALUKTUTIARMIUT GATHER TO TALK ABOUT TRAVEL CONDITIONS

- Bank
- Co-op store
- Ikaluktutiak Elks Lodge
- Homes
- Hunters and Trappers Organization
- Hunting grounds
- Northern store
- On the street
- Post office
- Saxifrage Resto-café
- Whenever we run into each other either at the store or work place
SOCIAL MEDIA EKALUKTUTIARMIUT USE TO SHARE TRAVEL CONDITIONS

Do Ekaluktutiarmiut use social media to talk about travel conditions?

- No 15%
- I Don't Know 35%
- Yes 50%

There were 13 Ekaluktutiarmiut 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 they do not check social media for this information.

Commonly used social media
- Facebook
- Cambridge Bay News
- Cambridge Bay Sell Swap
- EHTO Information Page
- Kugluktuk News
- Nunavut hunting stories of the day
- Instagram
- SIKU, SIKU app

Topics, descriptions, and photos include
- Environmental conditions (experienced on the land)
- Ice conditions, ice thickness
- Local hazards, dangers, obstacles
- Possible blizzard warnings
- Trail conditions
- Weather Conditions – temperature, wind, snow
- Wildlife observations
When asked about local weather stations, it is notable that 10 participants said that they do not know if there are local weather stations and 16 participants said that local weather stations do or do not exist. Of the 14 participants who said there are local weather stations in Cambridge Bay, 10 of them said the weather station information is available in Cambridge Bay, and 7 of them said that they use the information.

When asked about local water and ice monitoring programs it is notable that 11 participants said that they do not know if there are local water and ice monitoring programs and 15 participants said that local programs do or do not exist. There were 12 participants who said there are local water/ice monitoring programs. Of these, 7 respondents said the information is available in Cambridge Bay, and all 7 respondents said that they use the information.
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, with a built-in timer that is set to take a photo at noon each day.

When asked about remote cameras, it is notable that more participants said that they do not know if there are remote cameras than said that remote do or do not exist. 4 participants said there are remote cameras near Cambridge Bay. Those 4 participants said the remote camera information is available in Cambridge Bay, and also said they use the remote camera information.
Ekaluktutiarmiut participants 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>Arctic Research Foundation</td>
<td>Shawn Marriott (Arctic Research Foundation)</td>
</tr>
<tr>
<td>Canadian High Arctic Research Station (CHARS) weather station</td>
<td>Arctic Research Foundation, Polar Knowledge Canada</td>
</tr>
<tr>
<td>Community Aerodrome Radio Station (CARS)</td>
<td></td>
</tr>
<tr>
<td>University of Calgary</td>
<td>University of Calgary (weather information available at SIKU.org)</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>Canadian High Arctic Research Station (CHARS)</td>
<td>Polar Knowledge Canada</td>
</tr>
<tr>
<td>SmartICE</td>
<td>Hunters and Trappers Organization, SIKU, SmartICE</td>
</tr>
</tbody>
</table>

### LOCAL REMOTE CAMERAS

<table>
<thead>
<tr>
<th>PROGRAM PROVIDER</th>
<th>WHAT IS MONITORED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distant Early Warning (DEW) line weather cameras close by (PIN E)</td>
<td>Raytheon</td>
</tr>
<tr>
<td>Hunters and Trappers Organization</td>
<td>Hunters and Trappers Organization</td>
</tr>
<tr>
<td>Wildlife monitoring</td>
<td>Hunters and Trappers Organization</td>
</tr>
</tbody>
</table>
PRODUCTS AND ACCESSING ENVIRONMENTAL FORECASTS

Along with community sources of information to decide if it is safe to travel, Ekaluktutiarmiut respondents use a wide range of weather and marine forecasts available. There may be other information sources available beyond those mentioned by respondents.

WEATHER FORECAST PRODUCTS USED

- CBC news
- Cellular or satellite phone services
- Environment Canada (www.weather.gc.ca)
- Google weather
- inReach weather
- Online weather
- Radio
- Ventusky (www.ventusky.com)
- Windy (www.windy.com), Windy app
- Yr (www.yr.no)

MARINE FORECAST PRODUCTS USED

- Environment Canada (https://weather.gc.ca/marine)
- Google
- inReach
- Phone apps
- Radio station
- Tide time
- Ventusky (www.ventusky.com)
- VHF radio
- Windy (www.windy.com), Windy app
- Yr (www.yr.no)
PRODUCTS AND ACCESSING ENVIRONMENTAL FORECASTS (CONTINUED)

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

**ICE CHARTS/SERVICES USED**

- Canadian High Arctic Research Station
- Canadian ice charts online provided by the government (https://www.canada.ca/en/environment-climate-change/services/ice-forecasts-observations/latest-conditions.html)
- Hunters and Trappers Organization
- Satellite imagery
- SIKU (www.siku.org)

**TIDE TABLE PRODUCTS USED**

- Google

**SATELLITE IMAGE PRODUCTS USED**

- Google
- Hunters and Trappers Organization
- inReach Earthmate app
- NASA EOSDIS Worldview (https://worldview.earthdata.nasa.gov)
- SIKU app
Of the forecasting products used, respondents most often rely on weather forecasts and marine forecasts, and the other services are less often used. Of the 93% of participants who use weather forecasts, 28% experienced challenges when accessing them. Of the 93% of participants who use marine forecasts, 32% experienced challenges when accessing them. Ice services were used by 56% of participants and of these, 40% experience challenges when accessing them. Satellite images were used by 56% of participants, 47% of whom experience challenges when accessing them. Tide tables were used by 41% of participants and of these, 45% experienced challenges.
Ekaluktutiarmiut respondents access environmental forecast products in a range of ways, and mostly by going online using a personal mobile device or personal computer, by watching a local cable TV channel, or asking someone else to look it up or print it for them, or listening to community radio.

### Ways that Ekaluktutiarmiut respondents access Polar services

<table>
<thead>
<tr>
<th>Respondents access Polar services</th>
<th>Number of respondents who access services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online personal computer</td>
<td>38</td>
</tr>
<tr>
<td>Online personal mobile device</td>
<td>25</td>
</tr>
<tr>
<td>Online public computer or tablet</td>
<td>50</td>
</tr>
<tr>
<td>Community TV to see forecasts</td>
<td>75</td>
</tr>
<tr>
<td>Radio</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

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**Note:** The chart above indicates the distribution of access methods among respondents. Each bar represents a different access method, and the length of the bar corresponds to the number of respondents who use that method.
Ekaluktutiarmiut respondents identified a number of reasons why information is difficult to access. To summarize the main challenges:

- **Cost** creates a challenge for accessing all online products, in particular satellite images.
- **Slow internet connection** creates a challenge for accessing all online products.
- **Information that is not updated often enough** creates a challenge for accessing all online products (except tide tables) especially weather forecasts and ice services.
- **Respondents who said “Other” said that lack of resources, and the lack of high speed Internet in Cambridge Bay make it difficult to access environmental forecasting information.**

These survey results do not necessarily mean that there are no challenges in other areas.
More participants are interested in information about future changes to weather, water or ice conditions (related to climate change) over one season or year than are interested in past changes over one season or year.

However, more participants are interested in information about changes over the past 2-10, or 11-50 years or more, than are interested in information about future changes over the next 2-10, or 11-50 years or more.
Respondents are interested in having information about past and future environmental changes. Common topics of interest included past and future changes in sea ice thickness, changes in timing of sea ice break-up/freezer-up, and changes in timing of lake ice break-up/freezer-up.
INTEREST IN TRAINING

Respondents who said they were interested in receiving training on survival skills and navigating the land (15 participants), observing and understanding environmental conditions (18 participants), local environmental monitoring programs (15 participants), and accessing or using social media pages or groups (10 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**
- Avoiding bad areas (currents, dangerous)
- Navigating the weather conditions the traditional way
- Travelling to unfamiliar places
- Water navigation

**Developing Safety and Survival Skills**
- Search and rescue and CASARA (Civil Air Search and Rescue Association)
- Land survival skills
- Ice safety, ice rescue

**Increasing Knowledge of Environmental Conditions**
- Different conditions in places
- High tide, low tide
- Historical records of ice break up and freeze up compared to today
- Ice conditions
- Impact of climate change
- Local weather observations
- Monitoring wildlife
- Weather conditions

**Strengthening Hunting and Inuit Cultural Practices and Skills**
- Building igluit
- Building stone houses
- Good spots to travel
- Hands on, experiential training from hunters and Elders about all aspects of being on the land, including about weather

**Gaining Familiarity with Technology**
- Environment Canada
- GPS
- Ice charts
- SIKU

**Connecting to Local Programs and Services**
- Canadian Rangers
- Hunters and Trappers Organization
- Polar Knowledge Canada
Results of a community survey on environmental forecasting uses and needs

UBLUIRVIA 2023
DECEMBER 2023