

Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC

ARVIAT NUNAVUT



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2017

ACKNOWLEDGEMENTS

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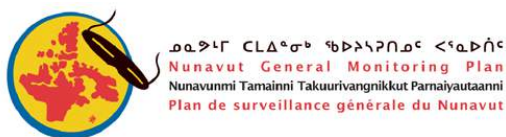
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Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada

Photo by: Andrea Darlington

PARTICIPANT BIOGRAPHIES

(IN ALPHABETICAL ORDER)

NO PHOTO
AVAILABLE

JOACHIM AKATSIK



THOMAS SIATALAAQ ALIKASUAK is an active hunter and a member of the Arviat HTO board.



LOUIE ANGALIK was born October 1, 1938. He was raised on the land- way inland during winter and at the shore during and spring. At first, he was a hunter and trapper, then worked at the mine for 4 years. Then he became a hunter and trapper again and for 12 years he worked at the store. In the 1970s he worked at the school taking kids hunting. He developed the education system at the school in Arviat first then for all of Nunavut. He also monitored people who are prisoners who were sent to the land.



PAUL KABLUTSIK was born on the land on February 12, 1941 and was raised on the land. When he was 10 years old he moved to Arviat from the land. Upon reaching adulthood he was a hunter and trapper and on and off worked in heavy duty construction. He also worked at the mine from 1989 to when it closed. He is now 77 years old and is still working with heavy equipment.



JOE KARETAK is married to Susanne, and has 6 boys and 3 girls. He is an active hunter, and is a Directors for Aqqiumavvik Society, a community wellness focus group. He is the Community Education Development Coordinator, and spends a lot of time researching Inuit culture and their ways of being. He promotes the ways Inuit use to manage their existence, based on a holistic perspective and self-reliance. He was born in Arviat, during a blizzard, and has lived most of his life up north.

PARTICIPANT BIOGRAPHIES

(IN ALPHABETICAL ORDER — CONTINUED)



SCOTTIE SHAMEE was born on October 18, 1957 at Churchill Manitoba. He was raised in Churchill and then Arviat. He worked at Hamlet of Arviat as a truck driver for 31 years and he is now retired. He is now 59 years old and is a hunter.



ARDEN NIBGOARSI was born in Arviat on November 16, 1953. He was raised in Arviat. He became a teacher in 1993 and worked for 23 years. He enjoys hunting and dog mushing and hunting and fishing in the summer.



EXECUTIVE SUMMARY

Arctic ship traffic has increased by more than 75% since 2005. Most of that increase happened in Nunavut waters. Corridors have been mapped in the Arctic Ocean as part of the Low Impact Shipping Corridors Initiative co-led by Transport Canada, the Canadian Coast Guard, and Canadian Hydrographic Service. Low impact shipping corridors are the current framework for governing shipping in the Canadian Arctic. The intent of the low impact shipping corridors is to reduce the likelihood of marine incidents by providing predictable levels of service to mariners transiting the corridors. Identification of Inuit and northerners' perspectives on the potential impacts of marine vessels on marine areas used for cultural and livelihood activities, and on community members, and the inclusion of Inuit and northerners' voices in the development of potential management strategies for the low impact shipping corridors and Arctic marine transportation are key considerations in the current prioritization of the corridors.

This report reflects opinions gathered through participatory mapping, focus group discussions, and interviews with Arviat community members who were identified by local organizations as key knowledge holders. Data analysis was aimed at understanding Inuit and northerners' perspectives on the potential impacts of marine transportation on local marine use areas and community members, and on identification of potential management strategies for the low impact shipping corridors and for Arctic vessels management. This report was validated by the research participants.

THE SPECIFIC PROJECT OBJECTIVES WERE TO:

- describe local marine use areas including significant socio-cultural, archaeological and ecological areas, and local travel routes, for integration into the low impact shipping corridors;
- outline potential impacts of marine vessels on identified marines use areas and community members; and
- provide recommendations regarding management of the low impact shipping corridors and Arctic marine vessels.

KEY FINDINGS OF THE PROJECT ARE:

- Impacts of marine vessels transiting through the low impact shipping corridors include
- potential increase or decrease in local travel costs depending on where wildlife flees to
- behavioural changes in wildlife
- decreased meat quality (changed taste of meat due to stress when animal flees)
- increased level of contaminants in sea, sea mammals, country food, and people
- increased shoreline erosion

- Community members would like to be consulted during search and rescue operations, and spills containment and clean up, so that local knowledge can help inform decision-making.
- Icebreaking has never happened in Arviat. Potential impacts of icebreaking are unknown.
- Community members ask that ship sonar use be limited, and ship noise and wake be reduced.
- Existing oil/fuel spills response capacity is not sufficient on ships or in Arviat and needs to be.
- Research documenting the impact of ships on northern waters, the impact of waves on shoreline erosion, and the impact of sonar activity on marine mammals and country food supply is needed.
- Research participants will approach the Arviat Hunters and Trappers Organization (HTO) requesting the HTO approach the Nunavut Planning Commission to seek involvement with the Nunavut Marine Council and on-going shipping policy development.

EXECUTIVE SUMMARY – CONT'D

RECOMMENDATIONS INCLUDE:

- key areas where new or improved charting is needed
- no-go zones, and restricted-use zones (size of ship, limited sonar, reduced wake and noise)
- preferred revised corridors including wider corridors located farther from shore
- permanent, lighted navigational markers or GPS co-ordinates marking reefs to guide ships in to Arviat
- monitoring ship sewage and waste disposal in Hudson Bay
- improved communication and feedback including notification of changes made to the low impact shipping corridors, and on-going discussions about the corridors as the sea, marine mammals and ship traffic change
- formation of a committee that includes territorial-level organizations, and hunters and community members from across the Canadian Arctic, to manage the low impact shipping corridors.



Photo by: Gordy Kidlapik

BACKGROUND

Arctic ship traffic has increased by more than 75% since 2005. Most of that increase happened in Nunavut waters. Corridors have been mapped in the Arctic Ocean as part of the Low Impact Shipping Corridors Initiative co-led by Transport Canada, the Canadian Coast Guard, and Canadian Hydrographic Service (Figure 1). The Low Impact Shipping Corridors Initiative is the current framework for governing marine transportation in the Canadian Arctic. The goal of the initiative is to reduce the likelihood of shipping incidents. Inuit and northerners' perspectives on the potential impacts of shipping on marine areas used for cultural and livelihood activities, and potential management strategies for the low impact

shipping corridors and Arctic marine vessels are key considerations in the current prioritization of the corridors.

This report documents Arviat community members' knowledge and extensive year-round use of important marine areas (ecological, socio-cultural, archaeological, and travel routes), the potential impacts of marine vessels on those areas and on community members, and recommendations for management of the low impact shipping corridors near their community. This report is one of several community reports which accompanies a main report.



Figure 1. Low impact shipping corridors

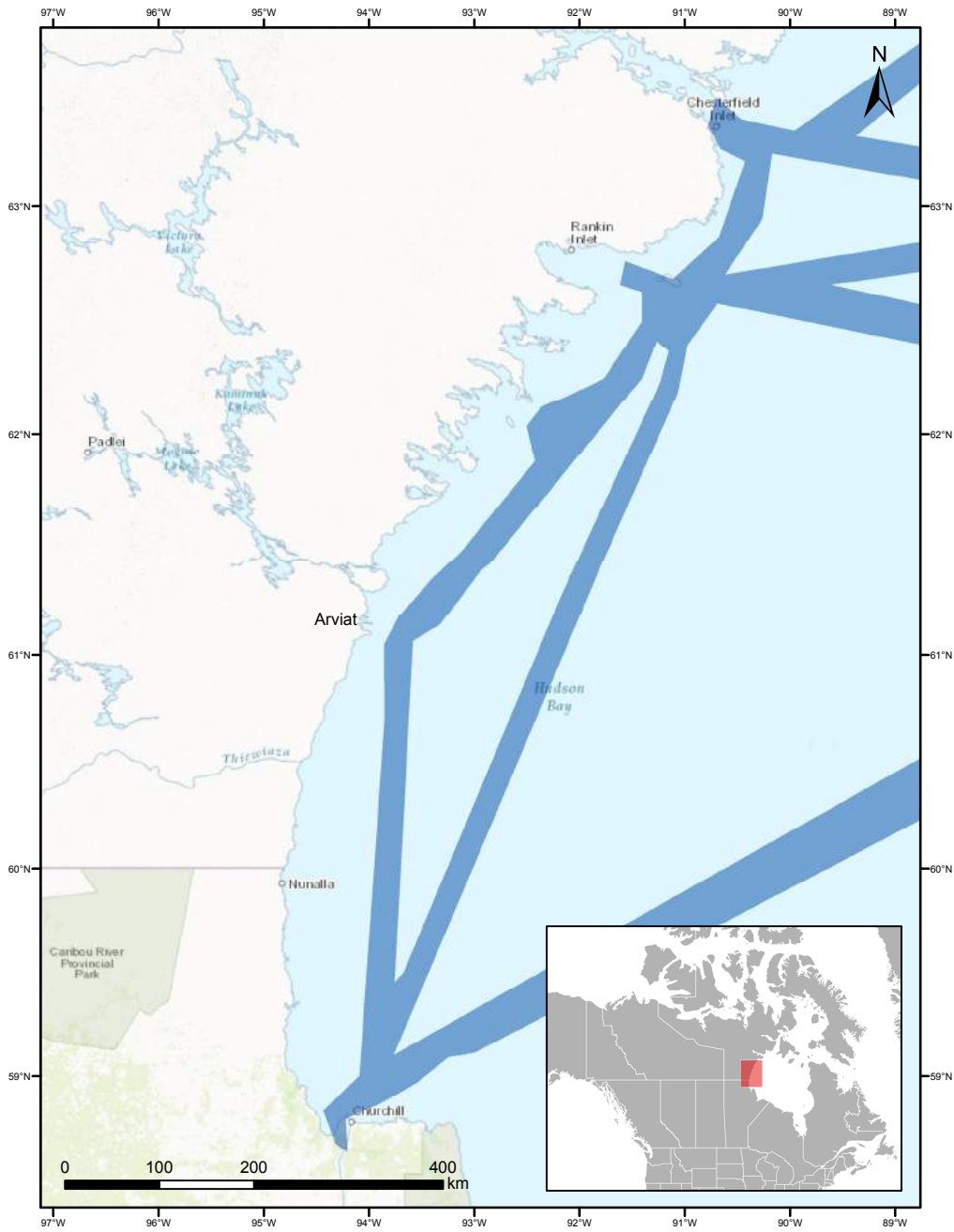


Figure 2. Low Impact Shipping Corridors Arviat, Nunavut

CHANGE IN SHIPPING ACTIVITY

(1990-2000 AVERAGE COMPARED TO 2011-2015 AVERAGE)

In the Canadian Arctic, when comparing the average number of kilometres of shipping activity from 1990-2000 to the average from 2011-2015, shipping increases have been predominantly focused in the eastern Arctic, particularly around SW Baffin Bay (e.g., Pond Inlet, Qikiqtarjuaq, Iqaluit,) in the Queen Maud Gulf area (e.g., Cambridge Bay and Gjoa Haven), and NW

Hudson Bay (e.g., Chesterfield Inlet) (*Figure 3*).¹ Changes in Hudson Strait have been generally minor (e.g., Cape Dorset, Kimmirut), and changes in the High Arctic have been negative (e.g., Resolute, Arctic Bay, Eureka).¹ Arviat experienced a 252 km increase in shipping from 2011-2015 compared to 1990-2000 (*Figure 4*).¹

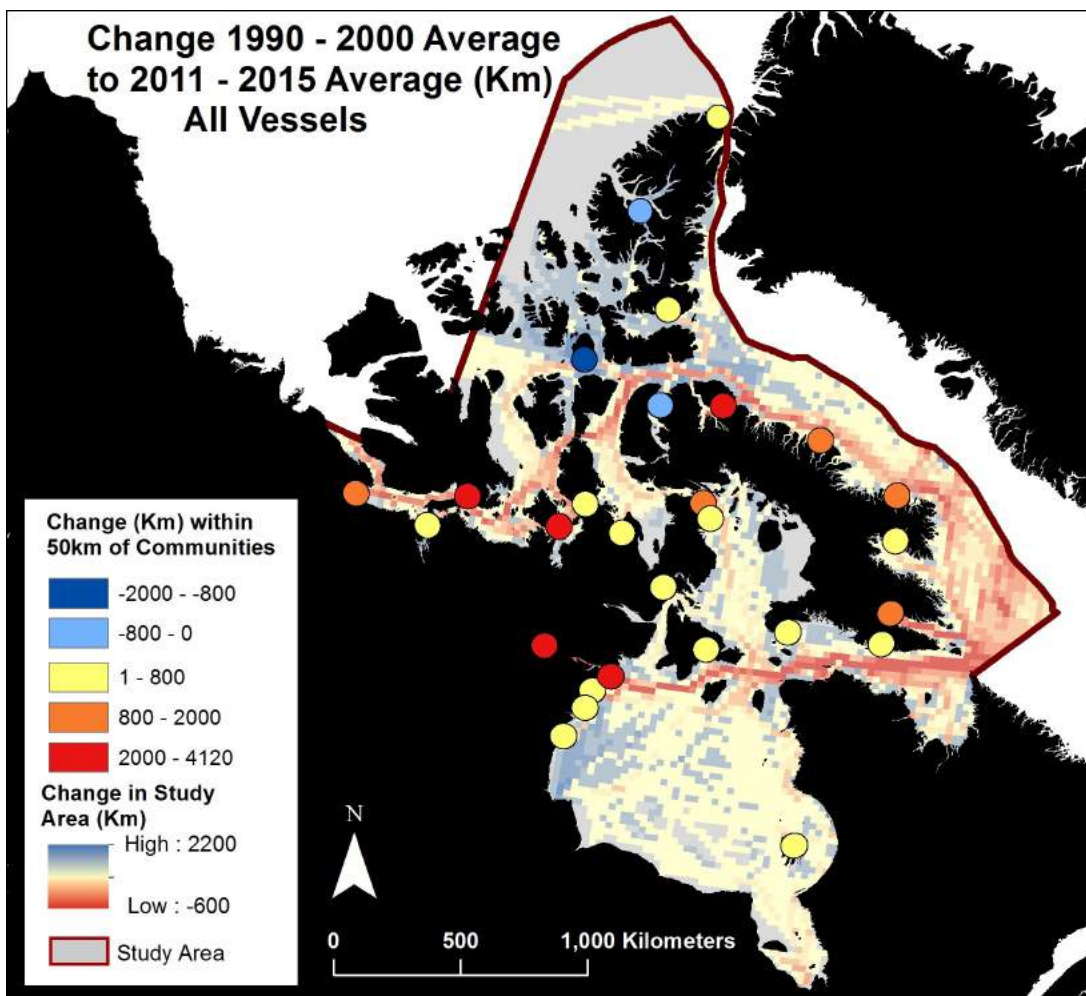


Figure 3. Change in shipping activity (km) in Canadian Arctic: 1990-2000 average to 2011-2015

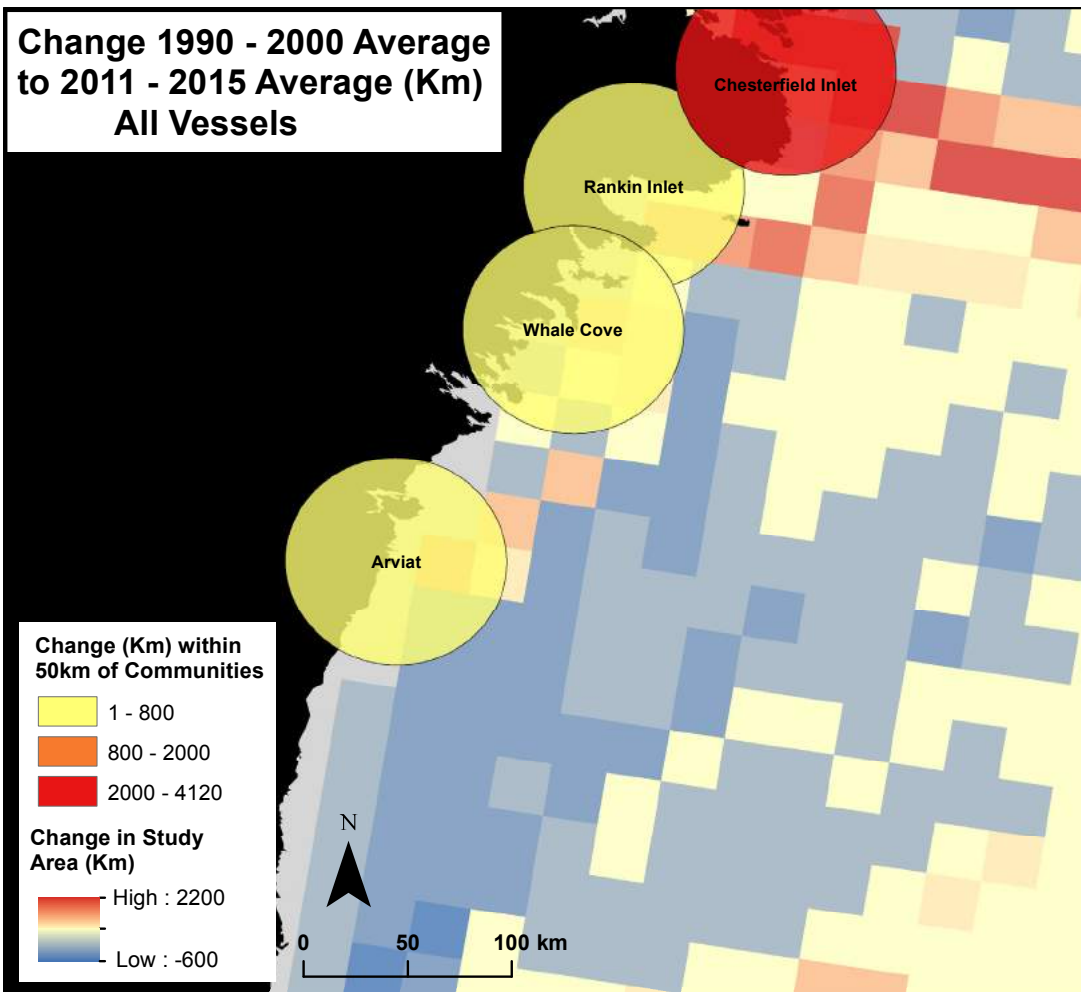


Figure 4. Change in shipping activity (km) near Arviat, Nunavut: 1990-2000 average to 2011-2015 average¹

FOUR SEASONS

There are 4 main seasons in Arviat, Nunavut. The seasons are weather and ice dependent therefore the months each season happens in can be different each year. However, in general the seasons are:

SEASON	MONTHS IN WHICH IT HAPPENS	OCEAN CONDITIONS
SPRING	MARCH THROUGH JUNE	FROZEN AND BREAK-UP (JUNE)
SUMMER	JULY AND AUGUST	OPEN WATER
FALL	SEPTEMBER, OCTOBER	OPEN WATER AND FREEZE-UP (SOME YEARS FALL INCLUDES NOV & DEC)
WINTER	NOVEMBER THROUGH FEBRUARY	FROZEN

SEASONAL CYCLE OF HARVESTING ACTIVITIES

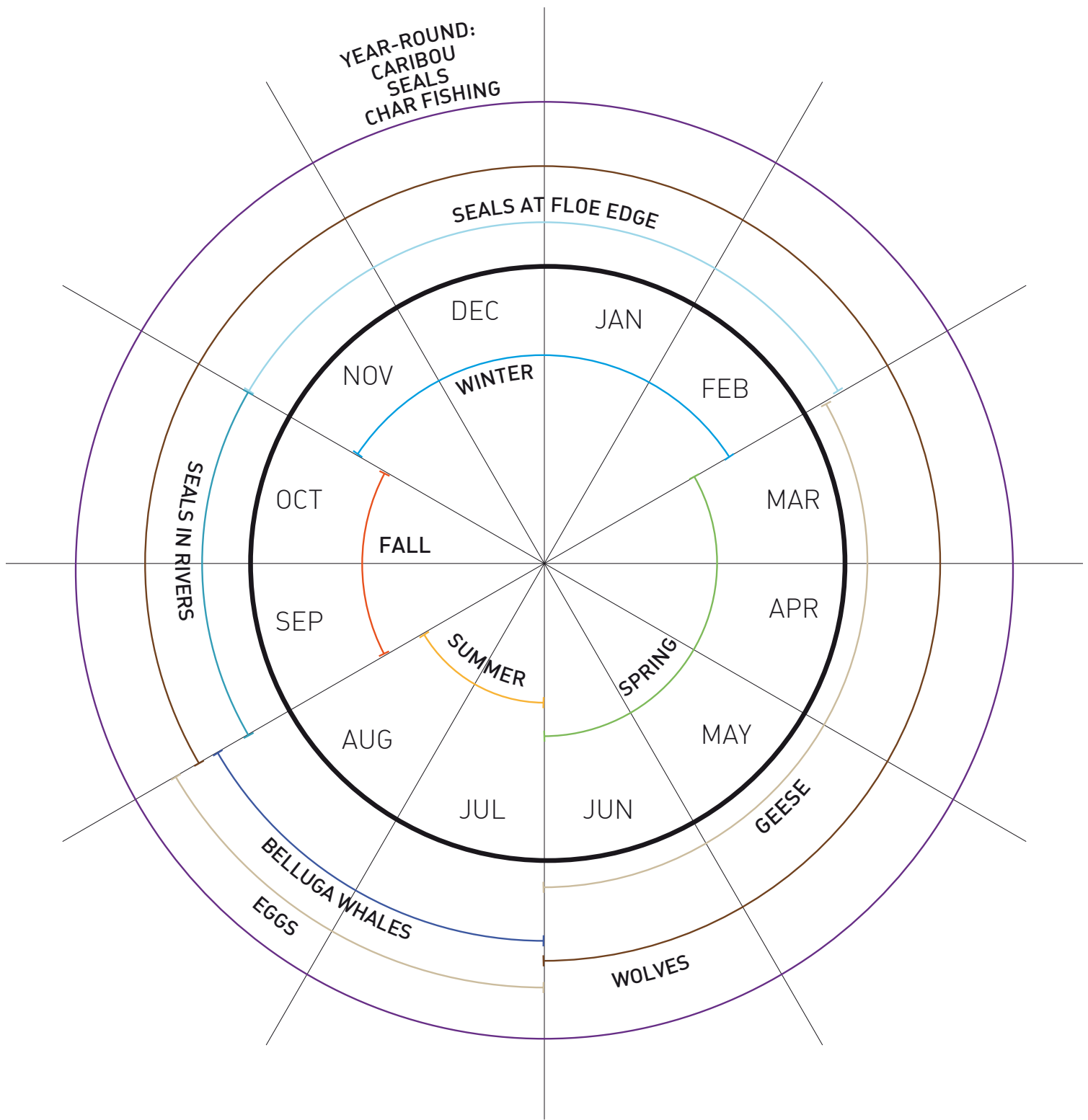


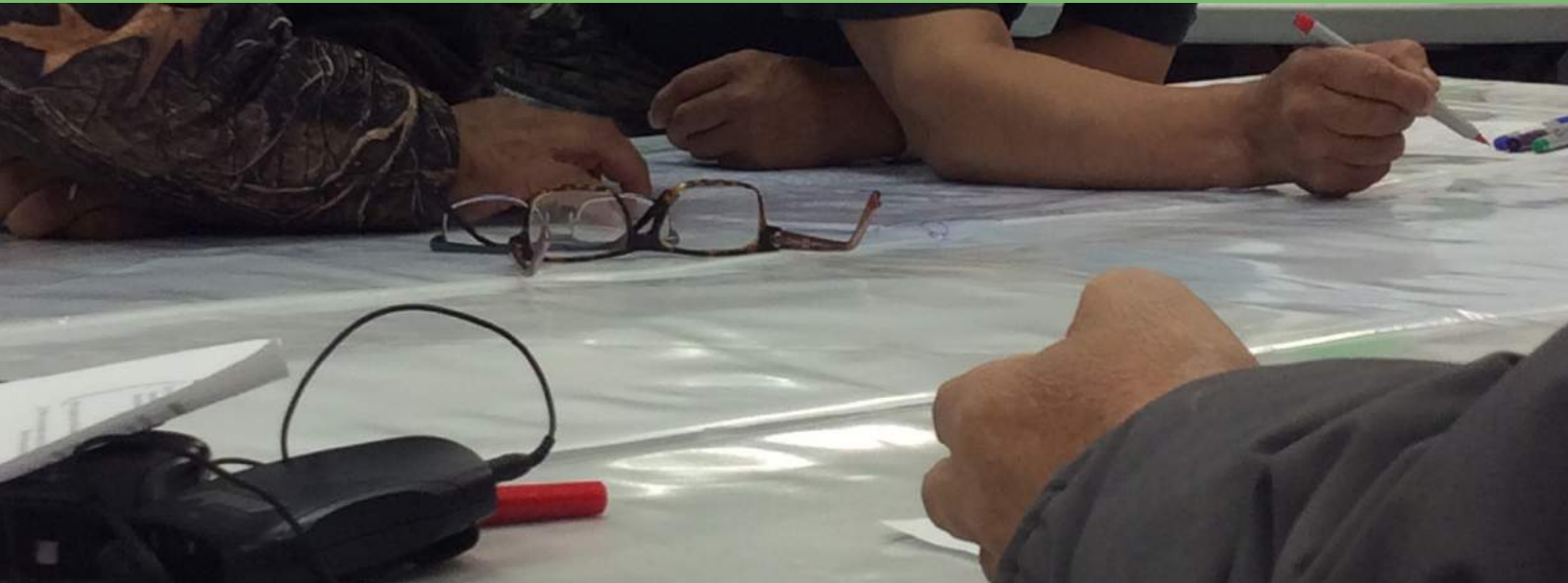
Figure 5. Seasonal cycle of harvesting activities near Arviat, Nunavut.

MAPS OF MARINE USE AREAS AND RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

MAPS INCLUDE:

1. Location and behavioral activities of animals, sea mammals, fish, and birds/eggs;
2. Location of community members' activities as well as camps and cabins, floe edge, and dangerous areas;
3. Local travel routes; and
4. Preferred revised corridors including wider corridors located farther from shore and community-access routes, no-go zones, essential-travel-only zones, key areas where new or improved charting is needed, and restricted-use zones (limited sonar, and reduced wake and noise).

Maps will be available at www.arcticcorridors.ca, and in Arviat at Young Hunters.



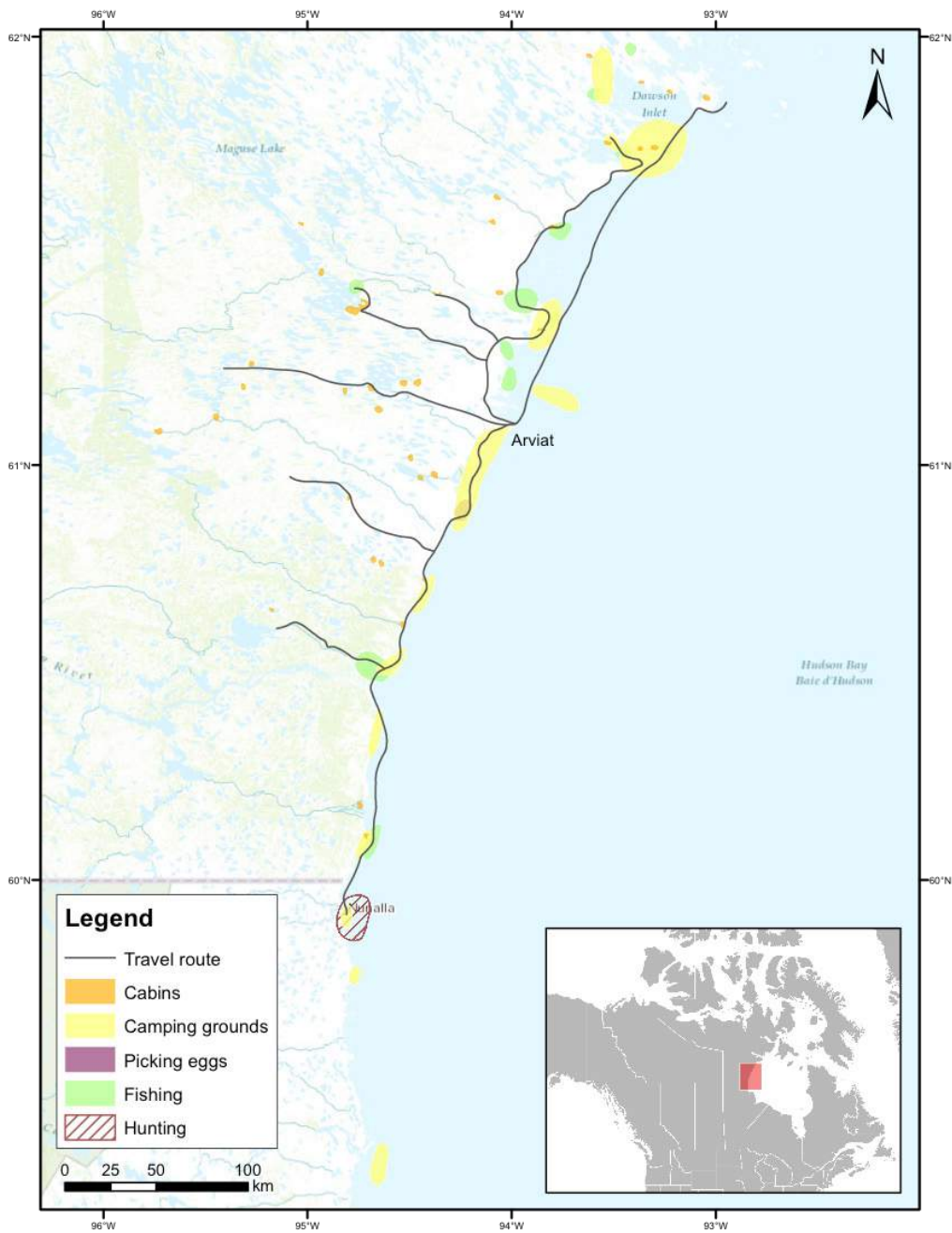


Figure 6. Location of community members' activities around time of sea-ice break-up

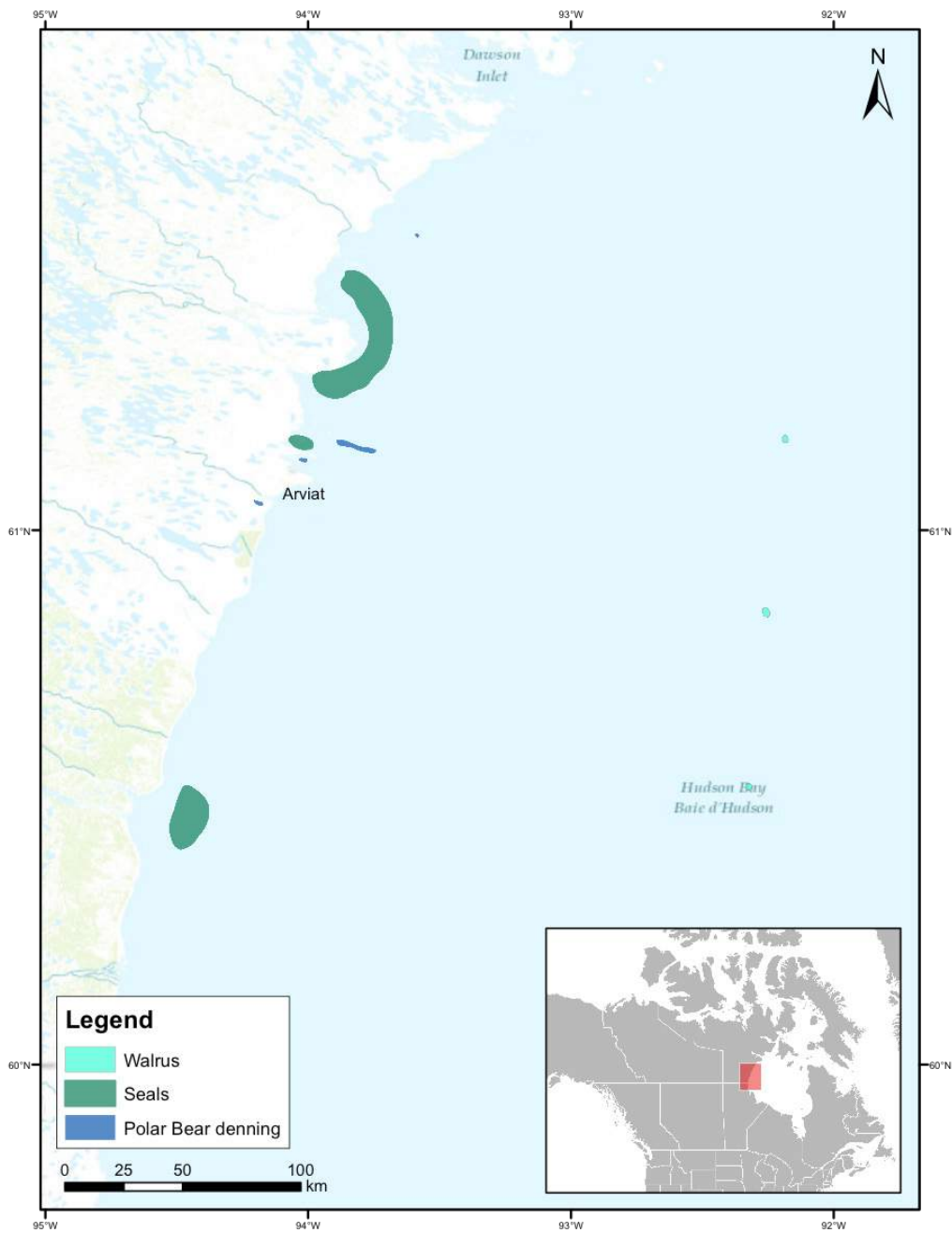


Figure 7. Location and behavioural activities of wildlife around time of sea-ice break-up

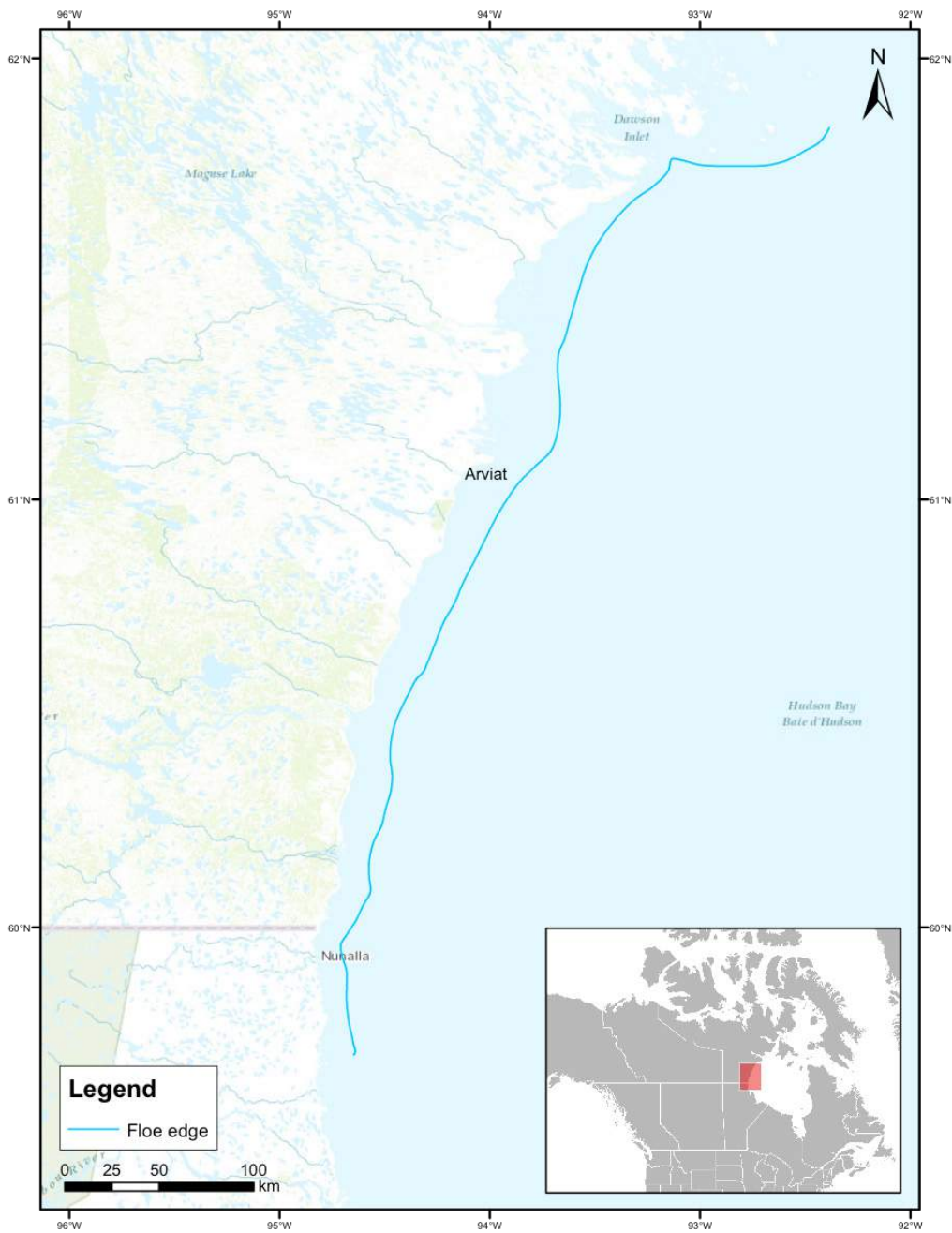


Figure 8. Location of significant marine features around time of sea-ice break-up

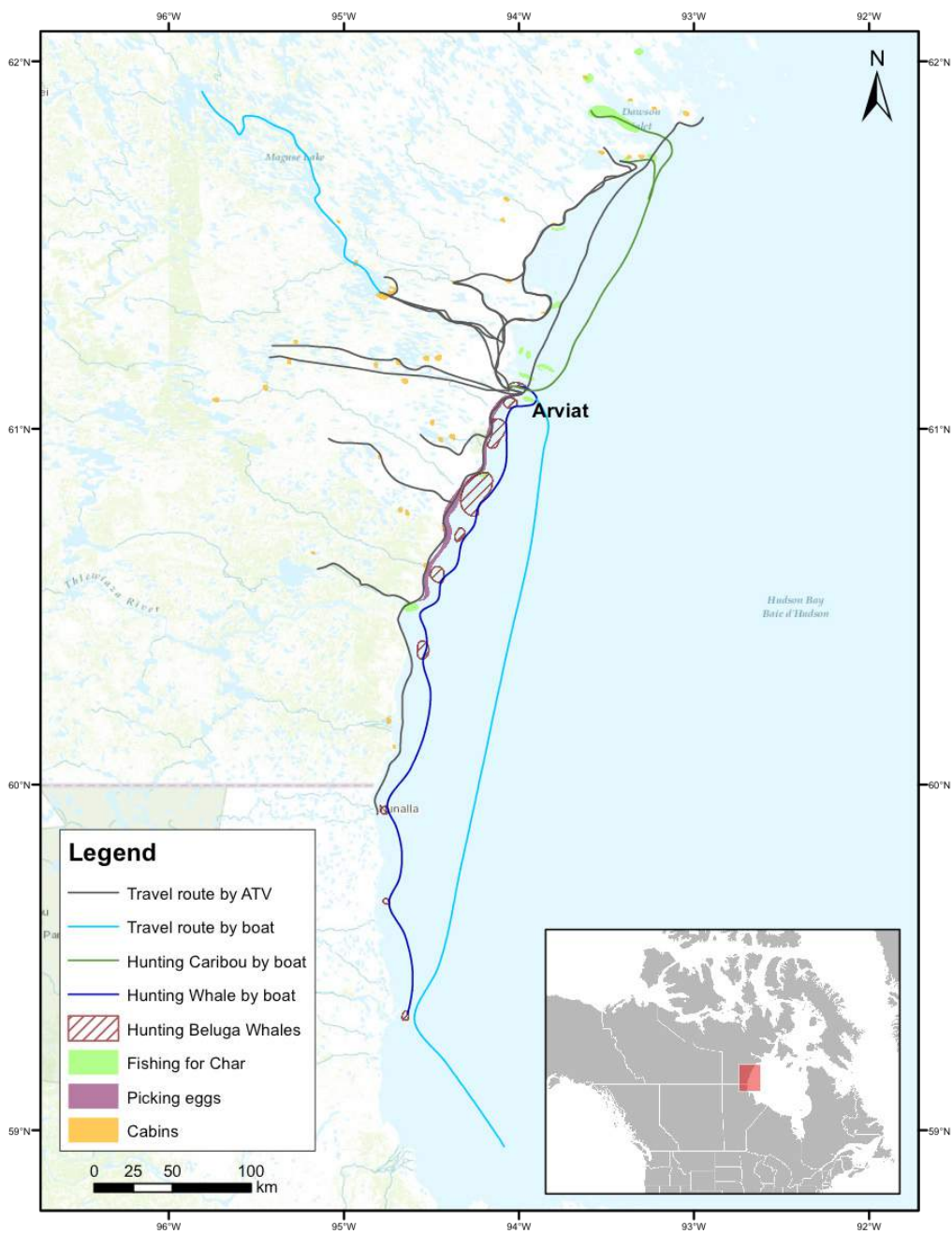


Figure 9. Location of community members' activities during open water

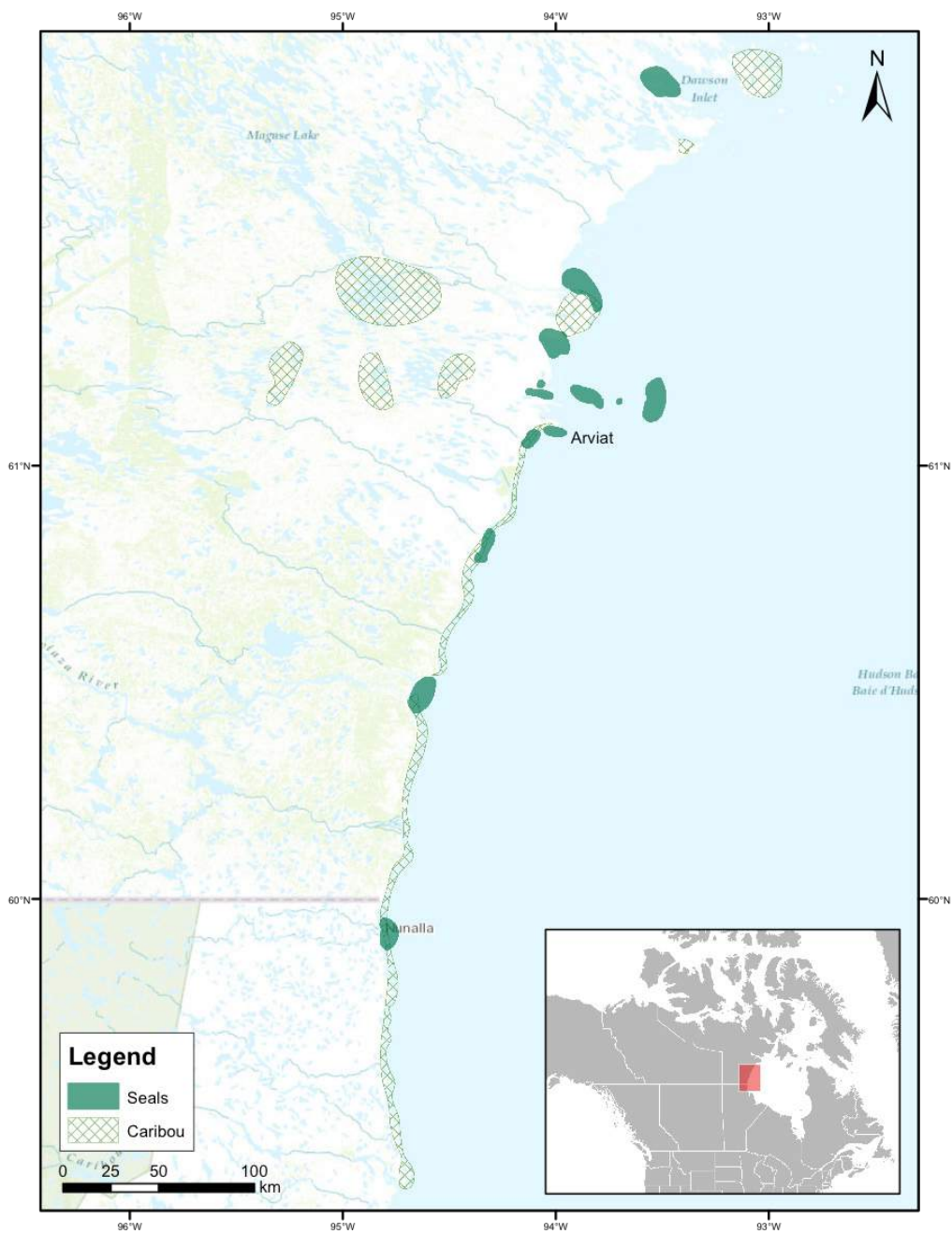


Figure 10. Location and behavioural activities of wildlife during open water

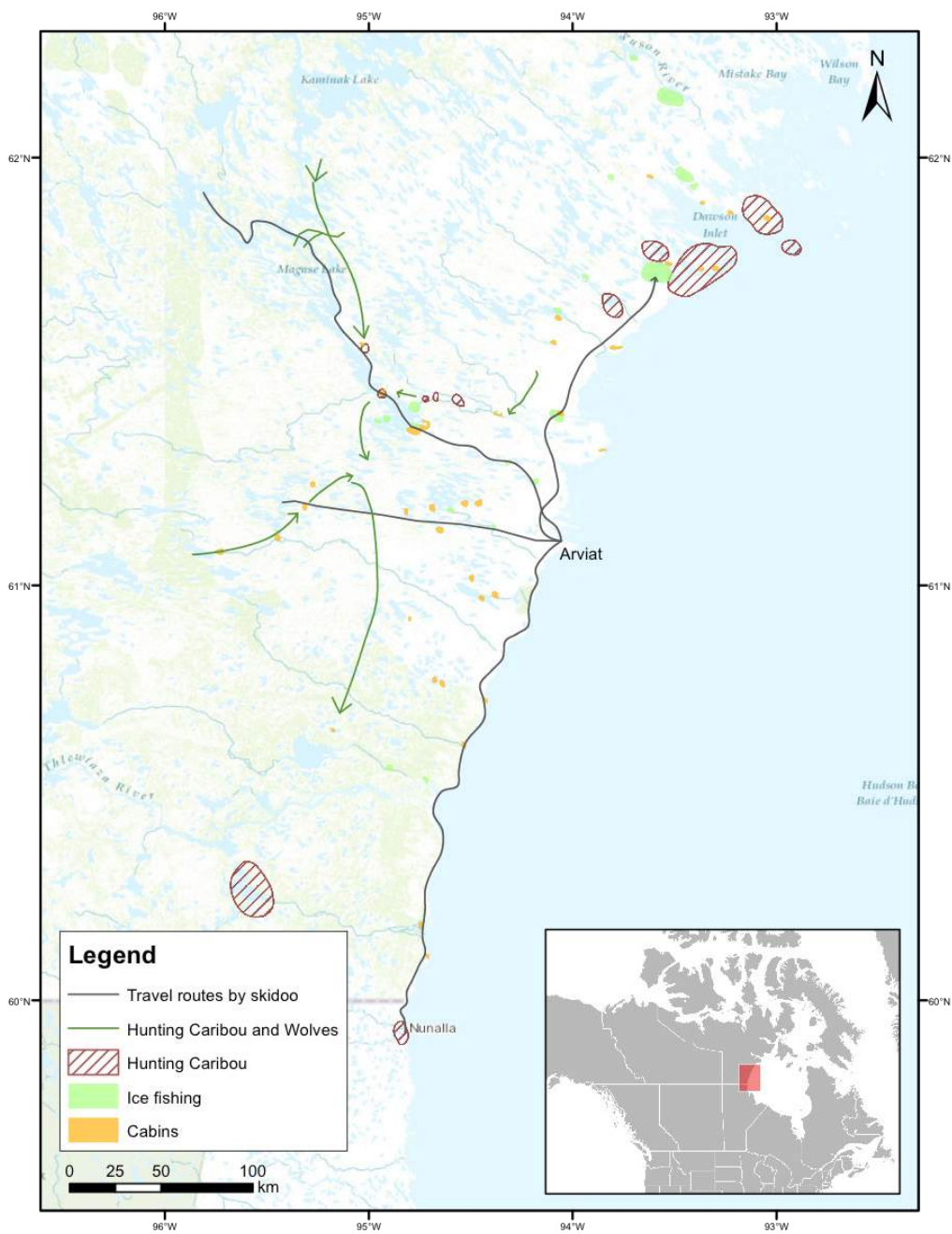


Figure 11. Location of community members' activities during freeze-up and frozen ocean

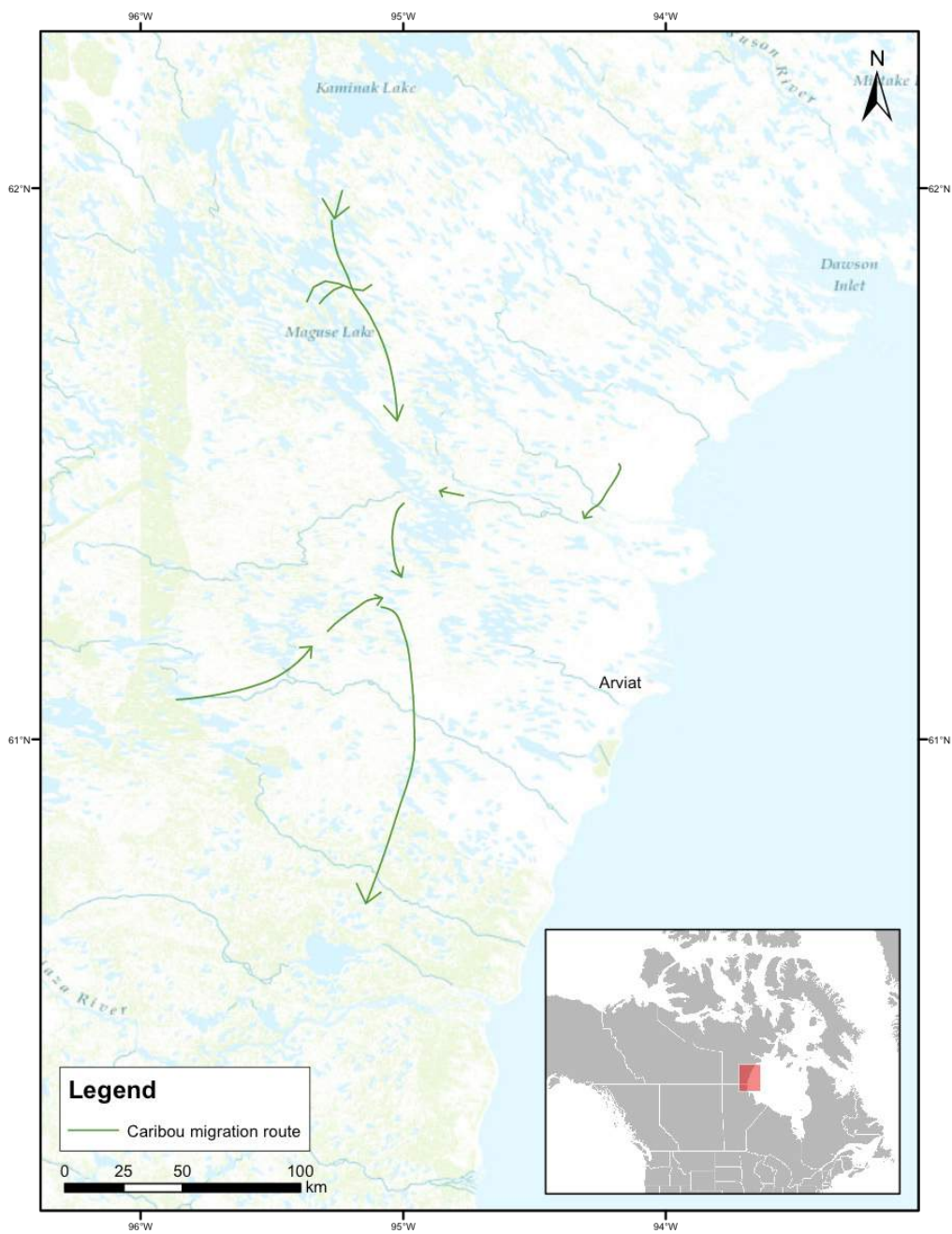


Figure 12. Location and behavioural activities of wildlife during freeze-up and frozen ocean

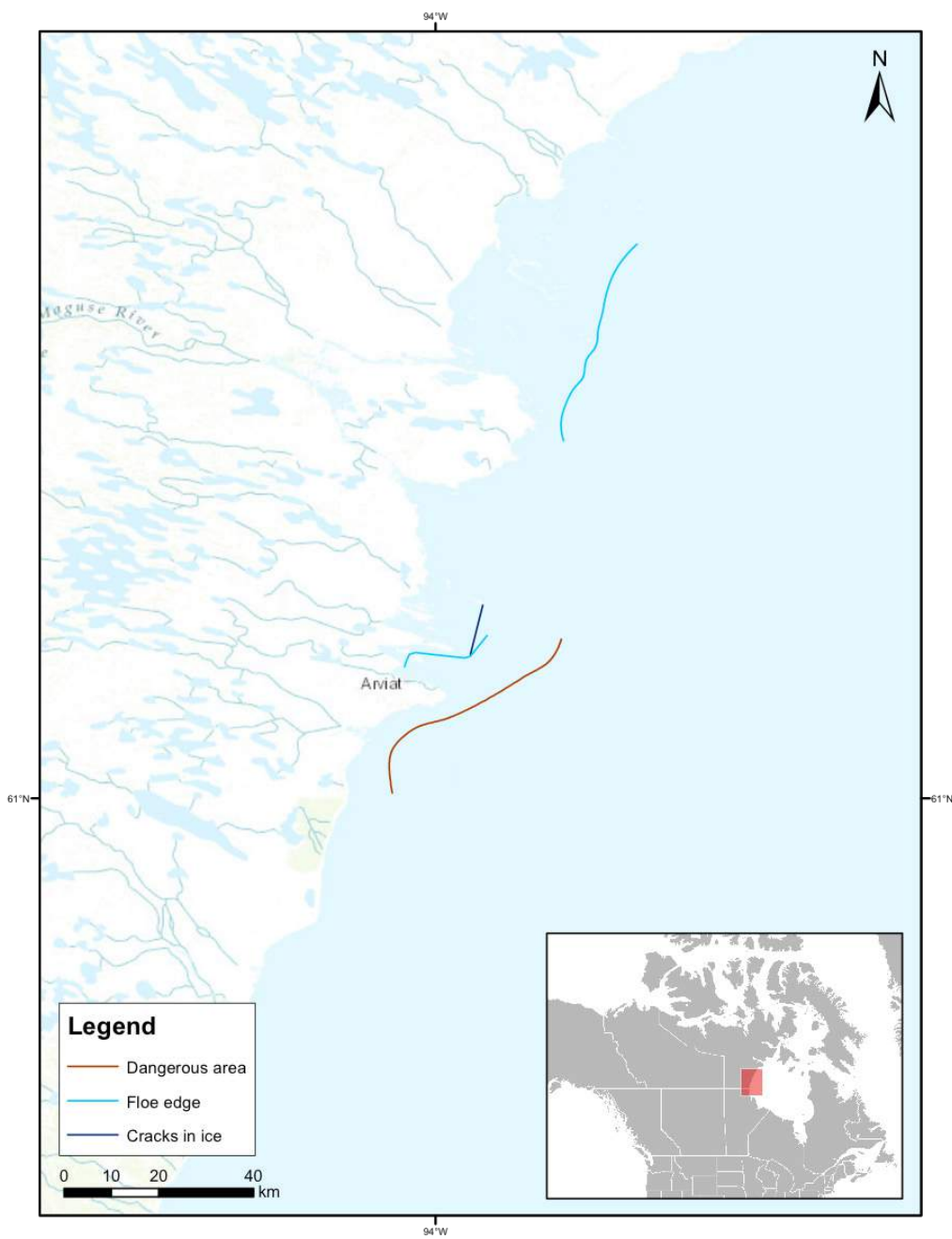


Figure 13. Location of significant marine features during freeze-up and frozen ocean

POTENTIAL IMPACT OF MARINE VESSELS

Vessels travelling through the low impact shipping corridors may impact the ecology and environment (*Table 1*), and hunting (*Table 2*).

TABLE 1. ECOLOGY AND ENVIRONMENT – POTENTIAL IMPACT OF MARINE VESSELS TRANSITING THE LOW IMPACT SHIPPING CORRIDORS

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
<p>The corridors are right where there is wildlife in the water. If ships keep travelling in the corridors closest to the west shore of Hudson Bay, sea mammals (beluga whales, seals) will have to flee both toward shore, and out into deeper water.</p>	SUMMER & FALL
<p>There are fewer sea mammals found around Arviat because:</p> <ul style="list-style-type: none"> • ships are very noisy so sea mammals flee from their usual habitat toward shore or far out into deeper water; • sea mammals will move away from ship noise and wake, or if they sense something is wrong, or detect a bad odour (such as an oil spill); • hunters are leaving carcasses lying around which contaminates the sea. Animals are very sensitive to smell so they have moved away. • animals are moving to new areas. Belugas are moving into warmer, shallow areas. Fish are moving toward colder, deeper areas. • small animals and small fish that the bigger animals eat, are affected by ship noise. The bigger animals may be following the smaller ones in order to eat. 	SUMMER & FALL
<p>When they are not disturbed by human activity and noise, seals are more active, have better reproduction, and their meat tastes better. Noisy ships, and ships passing by cause marine mammal to flee which stresses them. Stress might change the taste of marine mammal meat, as happens when caribou are chased and the taste of the meat becomes less pleasant.</p>	SUMMER & FALL
<p>Animals are getting used to human behaviour including ships. That could be good or bad. Belugas are used to ships near Churchill because they see ships so often and they know they are not going to get harvested (because of whale watching tourists). Before there was so much noise and activity, belugas were very sensitive and would react by turning or moving away.</p>	SUMMER & FALL
<p>Regardless of where ships travel they are having an effect and leaving contaminants. Metal or some part of ships is contaminating the sea. The sea around Arviat is getting shallower. In shallower water, the effect of contaminants on animals and the people who eat them, will be greater.</p>	SUMMER & FALL
<p>Sonar may cause sea mammals to die, just as it has with sharks in the Caribbean. Or sonar may shock and stun sea mammals. Research investigating the impact of ship sonar activity on sea mammals and therefore country food supply is needed.</p>	OPEN WATER
<p>Blasting in Churchill, MB to accommodate larger ships caused beluga whales to scatter everywhere. We fear the same for our animals and mammals in our area.</p>	YEAR-ROUND
<p>We do not know the effect icebreakers might have on marine mammals. We have never experienced icebreakers. In Newfoundland and Labrador where there is ice-breaking and people harvest seals, the seal population does not seem to be affected.</p>	N/A
<p>There is not much concern about icebreakers. A positive thing about icebreaking is there would be more ships coming in the winter. It might make it easier to go seal hunting. People would adjust their travel routes and go inland instead of using the ice.</p>	N/A
<p>If an oil spill happened it would affect all types of animals and sea mammals. It would take a long time for sea mammals to adapt (new habitat, new feeding grounds). Even if there is an oil spill very far way it will affect our sea area and our animals.</p>	YEAR-ROUND
<p>Ship waves are causing shoreline erosion.</p>	SUMMER & FALL



Photo by: Jimmy Napayok

TABLE 2. HUNTING – POTENTIAL IMPACT OF MARINE VESSELS TRANSITING THE LOW IMPACT SHIPPING CORRIDORS

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
We have not really known any kind of hassle or harassments from ships.	YEAR-ROUND
A positive impact is that when a ship arrives, marine mammals flee toward the land so we go out to search for and harvest them.	SUMMER & FALL
Our animals are being affected and when they are affected we are also affected. For example, animal populations seem to be declining and they are moving away.	YEAR-ROUND
Ship noise makes beluga whales flee. <ul style="list-style-type: none"> • If they flee closer to shore than usual it will be easier to harvest them because they will be easier to see. Harvesters will spend less on gas. • If they flee farther out to sea than usual harvesters and hunters will have to travel farther to harvest on the sea. Harvesters will spend more on gas. 	SUMMER & FALL
Arviat hunters are a big team and communicate about where animals are which is necessary because the location of animals has changed. Hunters sometimes have to travel farther distances than they used to, to find and harvest wildlife.	YEAR-ROUND
Local boaters might run into the partly-submerged fuel pipe between the fuel barge and land. Boaters do not know it is there. There are no lights or obvious markers on the fuel pipe to make it visible especially in the dark and when there is ice. Markers need to be closer together and light up. It would not be good if a boat hit and broke the fuel pipe.	FALL (OCTOBER MOSTLY)

RECOMMENDATIONS FOR MANAGING SHIP TRAFFIC USING THE LOW IMPACT SHIPPING CORRIDORS

TABLE 3. RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

<p>The corridors closest to the west shore of Hudson Bay</p> <ul style="list-style-type: none">• Should be no-go zones for all ships (<i>figure 13</i>).• If no-go is not possible then limited to essential travel only ie. re-supply, military, search and rescue (<i>figure 13</i>).• If no-go is not possible then sonar activity, noise pollution, and impact of waves on the shoreline (erosion) should be reduced (<i>figure 14</i>).
<p>Revised corridor option 1* (<i>figure 13</i>) is</p> <ul style="list-style-type: none">• The corridors closest to the west shore of Hudson Bay should be no-go zones.• All ships should travel in one main corridor further out on Hudson Bay and in community access routes.• Only charted access routes to communities should be used to travel to and from communities.
<p>Revised corridor option 2* (<i>figure 13</i>) is</p> <ul style="list-style-type: none">• The corridors closest to the west shore of Hudson Bay should be no-go zones• All ships should travel in one main, wider corridor further out on Hudson Bay• The main corridor should be widened to accommodate ship traffic
<p>New and improved charting is needed (<i>figure 14</i>).</p> <ul style="list-style-type: none">• The ocean around Arviat is changing and getting shallower.• Even in the corridors farther out to sea there are shallow areas and reefs.• Well-defined routes, especially for fuel re-supply ships, are needed.
<p>Planes always use the same routes when they are flying. Community members would appreciate ships do the same by staying within the low impact shipping corridors.</p>
<p>Permanent, lighted, navigational markers (buoys) or GPS co-ordinates to mark reefs and guide ships into the community are needed (like those in Churchill, MB).</p>
<p>The sea is becoming shallower so the bay will soon be too shallow for ships. The reefs are a hazard and have been for a long time. A different dock/unloading system/wharf is needed.</p>
<p>The corridors are right where there is wildlife in the water. We would like ships to be aware that seals, narwhal, and beluga whales are in the corridors (especially those near the west shore of Hudson Bay).</p>
<p>Shipping companies are encouraged to have a communication protocol wherein the community is notified if their schedule and/or route changes, and if spills happen. It would be helpful if Hamlet Council and HTO were informed. It would be helpful if Hamlet Council and HTO would then alert the community in a timely fashion via radio, posting notices around town, and Facebook.</p>
<p>There is a need for ships to be prepared to respond to and contain spills (trained crew, equipment), communicate immediately with the community, and incorporate local knowledge in spills response and containment.</p>
<p>Community members have expertise about the water, ice, and land. We recommend that search and rescue seek input from the community so local knowledge can contribute to rescue operations.</p>
<p>Arviat is not prepared to respond to spills. Arviat needs to be prepared (training, equipment)</p>
<p>Research about the impact of waves on shoreline erosion is needed.</p>
<p>Monitoring and documentation of the impact of increased shipping in northern waters, by the federal government or by Nunavummiut funded by the federal government, is needed.</p>

*The revised corridor options are conceptual drawings only and should be developed in communication with Canadian Hydrographic Service (charting) and shipping companies to ensure the safest, most cost-efficient revised corridor. The community does not want to incur increased shipping costs if the revised corridor options are implemented.

MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

MAPS INCLUDE:

- preferred revised corridors including wider corridors located farther from shore and community-access routes, no-go zones, essential-travel-only zones, key areas where new or improved charting is needed, and restricted-use zones (limited sonar, and reduced wake and noise).

Maps will be available at arcticcorridors.ca and in Arviat at Young Hunters.



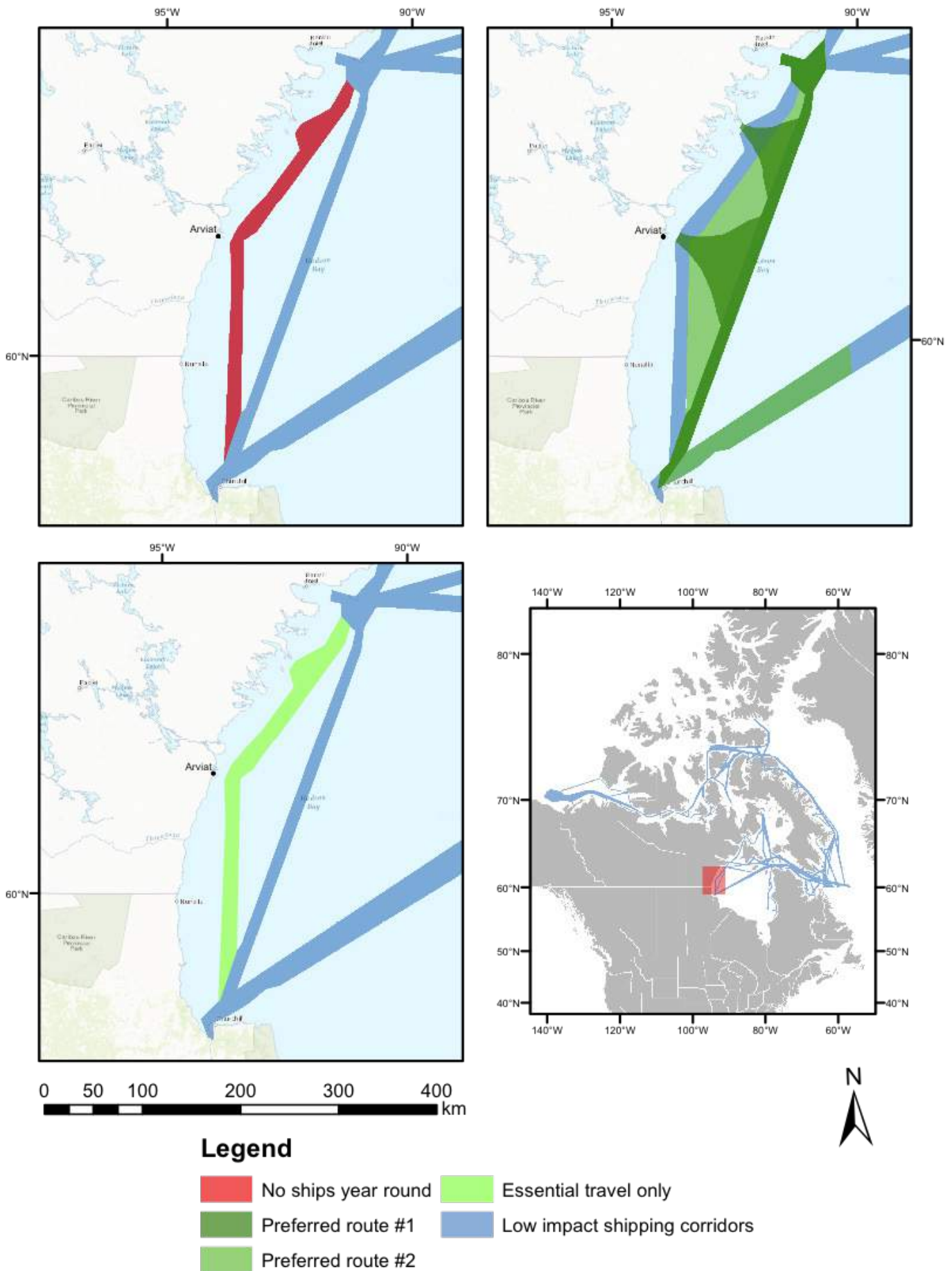


Figure 14. Recommendations for the low impact shipping corridors

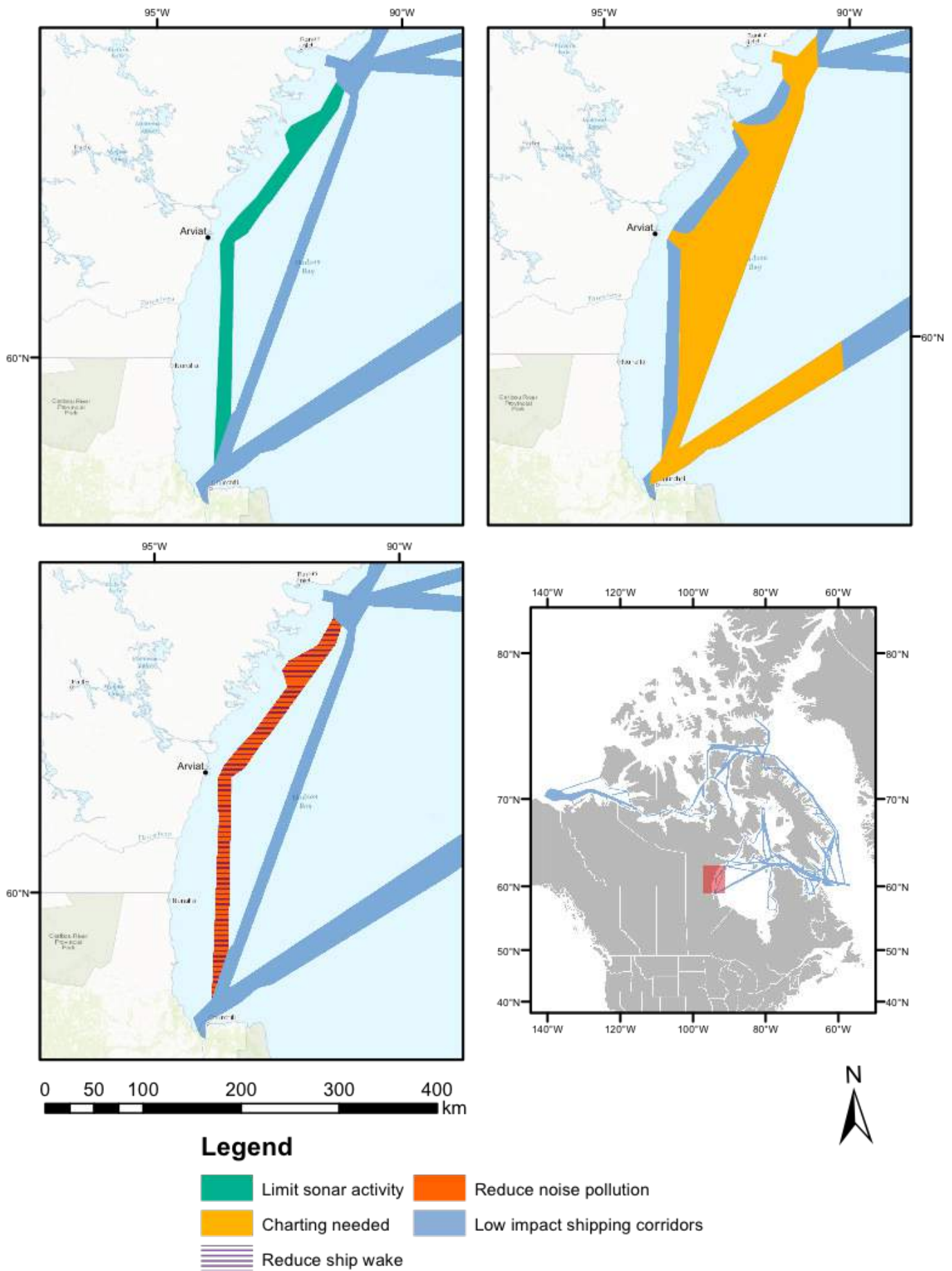


Figure 15. Recommendations for the low impact shipping corridors

TABLE 4. GOVERNANCE AND ON-GOING INVOLVEMENT IN THE DEVELOPMENT AND MANAGEMENT OF THE LOW IMPACT SHIPPING CORRIDORS

A committee that is involved with the corridors in the north and involves hunters, the community, and the territory is needed. That way everyone can participate and join in and help each other deal with this situation. It would not only involve Arviat because the corridors involve the whole north.

Participants plan to ask Arviat Hunters and Trappers Organization (HTO) to approach Nunavut Planning Commission (NPC) in Arviat, about getting involved with the Nunavut Marine Council, and finding out how the HTO will be involved in the corridors development, and what is going to happen about the issues raised during these discussions.

A process is needed at the community level for organizations to review reports (for example from the Government of Nunavut, NPC, or researchers), summarize the reports, and share the key messages so that the information in the reports gets filtered to the community.

It would be helpful for community members to be made aware of any changes made to the corridors, and/or any efforts made to limit sonar, noise pollution, and impact of waves on shore erosion.

The preferred methods of communication include: in writing by email, through local radio, regionally and territorially through CBC, on Facebook, and notices posted in the community.

COMMUNITY MEMBERS DO NOT KNOW AND WISH TO KNOW:

- if any level of government is prepared to keep an oil spill from spreading through the sea;
- the rules and regulations around ships dumping sewage and waste in Hudson Bay;
- if/how the federal government knows if ships are dumping waste in Hudson Bay;
- if animals in shallow water are affected more by ships than animals in deeper water are;
- if the cost of goods for people in Arviat will increase if the corridor revisions proposed in this report, are implemented;
- if there is an organization responsible for shipping regulations and corridors in the Canadian Arctic.

Monitoring and documentation of the impact of increased shipping in northern waters, by the federal government, or by Nunavummiut funded by the federal government, is needed.

Arviat community members should be and wish to be actively involved on an on-going basis in the development and management of the low impact shipping corridors.



Photo by: Luke Copland

CONCLUSION

Although Arviat has experienced one of the smaller increases in marine vessel activity in Nunavut in recent decades, the marine areas that are most significant to community members' subsistence harvesting and livelihood activities, are located directly in the low impact shipping corridors. As well, a phenomenon called uplift, wherein the land and ocean floor slowly rise, is pushing sandbars upwards in the ocean at a rate of 9.3 mm per year², creating shallower water and new hazards for vessels to navigate in the waters around Arviat. Thus, the risk of groundings and marine incidents including spills (oil, fuel, dangerous cargo) is increasing. Given community members' concerns about the changing ocean conditions, and the need for modern charting and improved spills-response capacity, as well as the implications for the ecology, environment, and Inuit way of life, the perspectives of Arviat community members and all communities, should be a fundamental consideration during the implementation and management of the low impact shipping corridors. The consequences of a marine incident would have deep, lasting, and potentially irreversible ecological, environmental, and cultural impacts. Combining scientific and Inuit knowledge will provide the most effective approach for pro-active vessel management through a corridors approach. Infusing Inuit and northerners' voices in the continued development of the low impact shipping corridors is critical to ensuring safe marine transportation near Arviat and throughout the Canadian Arctic.

¹ Dawson, J., Mussells, O., Copland, L., and Carter, N. (2017). *Shipping Trends in Nunavut 1990-2015: A report prepared for the Nunavut General Monitoring Program*. Ottawa, Canada and Iqaluit, Nunavut.

² Simon, K M; James, T S; Forbes, D L; Telka, A M; Dyke, A S; Henton, J A. *Quaternary Research* (New York) vol. 82, issue 1, 2014; p. 185-197. doi:10.1016/j.yqres.2014.04.002.