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Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC

SALLUIT QUEBEC

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ARCTIC CORRIDORS RESEARCH

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MEOPAR

OCEANS NORTH

IRVING
Irving Shipbuilding Inc.

Fisheries and Oceans Canada
Pêches et Océans Canada

PARTICIPANT BIOGRAPHIES

Qautsalik Aluku

Qautsalik Aluku has been one of the Canadian Rangers for over 20 years and was born in his hometown Salluit.

Michael Cameron

Michael Cameron is "Michael of all trades, master of none."

Charlie Ikey

Charlie Ikey moved to Salluit in 1975. He has learned how to hunt, do rescues, and help people in any way that he can. Most of all, Charlie sees things that the community needs, either on the land or in the water ways such as real docks, cameras on the water ways, longer airstrips for jets, and much more.

Kulula Ituluk

Kulula Ituluk has traveled and lived in many Northern communities throughout his life. His mother was from Salluit and his father was from Cape Dorset. He was born in Cape Dorset and has lived in Kimmirut, Iqaluit, and Salluit. He has worked as a board member of the Kimmirut Hamlet, a taxi driver in Iqaluit, a local police officer, HEO Forman, and a construction worker for building airstrips in other Northern communities. He likes helping people in his life; from children to elders in the community.

Markusie Jaaka

Markusie Jaaka was 12 years old when his father taught him how to hunt. He is now 42 years old and makes a living as a hunter.

Amamatuak Kadjulik walks a lot to the land and hunts.

Kaitak Kaitak has two children. He likes to go hunting and eat Inuit country foods.

Sandy Kakayuk is a father and husband of a big family; children, grand-children and great-grand-children. He has lived in Salluit all his life, has worked in public service for many years, as a police officer when he was younger, a by-law officer, and was a reporter for quite a while at Taqramiut Nipingat Incorporated (TNI).

Putulik Kenuayuak is a proud hunter and is thankful to have participated in this event and that his traditions have been respected.

Jimmy Kulluayuk Angutigirk

Jimmy Kulluayuk Angutigirk was born in Salluit and raised by his parents. His parents were active in hunting and making things for the kids and themselves. They used to go camping out of Salluit to hunt for more animals and mammals.

Barbara Papigatuk

Barbara Papigatuk is a mother and grandmother who lives in the north. As an employee of the Northern Village of Salluit, Barbara is very involved with the community and mining file.

Sammy Pootoo

Sammy Pootoo is 45 years old from Salluit. He works as the Recreation Coordinator for Salluit Northern Village. Sammy has two children and one grandchild.

Eli. T. Quananack

Eli. T. Quananack is a husband and father of two sons, two daughters and 10 grandchildren. He spends his time hunting, camping every spring or summer, at labor jobs, and as a hotel driver to the airport. Eli is a retired Canadian Ranger.

Adamie Tayara

Adamie Tayara was the Petro manager for 11 years for the Co-op in Salluit. Adamie enjoys helping with research that involves his community and culture.

EXECUTIVE SUMMARY

Ship traffic in the Canadian Arctic nearly tripled between 1990 and 2015.[1] During this time, there has been an increase in ship traffic in the Hudson Strait region.[1] The community of Salluit experiences shipping near the community due to vessels delivering goods, as in many other northern towns, but has additional experience with shipping due to local mining activities. Shipping activities associated with the nearby mines in Deception Bay, located approximately 54 km east of Salluit, date back to the 1960s, with regular production at the mine site starting in 1997 and ongoing today. Thus, the community of Salluit has experience with marine vessel traffic, the local impacts from vessels, and negotiating conditions for vessel travel (i.e., limitations to icebreaking during certain seasons).

The Government of Canada is developing a network of low-impact marine transportation corridors in the Arctic that encourages marine transportation traffic to use routes that pose less risk and minimize the impact on communities and the environment. The Low Impact Shipping Corridors will be a framework to guide future federal investments to support marine navigation safety in the North, including improved charting and increased hydrography in partnership with Northerners. The corridors initiative is co-led by the Canadian Coast Guard, Transport Canada, and Canadian Hydrographic Service.

Key considerations in the current prioritization of the Low Impact Shipping Corridors include identification of Inuit and Northerners' perspectives on 1) the potential impact of marine vessels on marine areas used for cultural and livelihood activities and on community members and 2) potential management strategies for the corridors.

This report reflects opinions gathered through participatory mapping, focus group discussions, and interviews with Salluit community members who were identified by local organizations as key knowledge holders.

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 marine use areas and community members; and
- Provide options regarding management of the Low Impact Shipping Corridors and Arctic marine vessels.

KEY FINDINGS OF THE PROJECT ARE...

- Existing shipping in the region has already affected the Salluit region both positively and negatively.
- Potential impacts of marine vessels transiting through the Low Impact Shipping Corridors include
  - contamination of Arctic waters, animals, and people;
  - behavioural changes in wildlife, and destruction of animal habitat;
  - increased food insecurity; and
  - increased incidence of dangerous ice conditions for local travel.
- Disruption of sea ice formation by icebreakers and marine vessels is especially disruptive to
  - seal pupping in the region during the spring months; and
  - Inuit and Northerners' ability to use local travel routes safely, and hunt successfully.
- Existing oil spills response capacity is not sufficient locally, and the community would like to see this capacity increased.
- Large vessels in the open water season can be dangerous for inexperienced boaters.
- The governance and regulations around foreign vessel travel in Canadian Arctic waterways is of concern in terms of vessel safety and potential environmental impacts.

COMMUNITY-IDENTIFIED RECOMMENDATIONS INCLUDE...

- Seasonal no-icebreaking inside the inlets during seal pupping (already implemented for Deception Bay);
- Reduced speed limit and no-wake zones within the inlets to limit the impacts;
- Stronger regulations against waste disposal ballast water in community-identified significant areas;
- Charting of the region in order to better identify the most suitable low impact corridor placement; and
- Corridors should be further offshore to minimize marine vessel impact on the important coastal areas where hunting, fishing and camping are done in the region.

Inuit and Northerners must be and wish to be included on an on-going basis in the development and management of the Low Impact Shipping Corridors.

BACKGROUND

Ship traffic in the Canadian Arctic nearly tripled between 1990 and 2015.[1] In the Hudson Strait region, there was an increase in vessel activity across this time period due to mining activities north of Baker Lake, and in the Deception Bay region near Salluit. The Government of Canada is developing a network of low-impact marine transportation corridors in the Arctic that encourages marine transportation traffic to use routes that pose less risk and minimize the impact on communities and the environment (Figure 1). The Low Impact Shipping Corridors will be a framework to guide future federal investments to support marine navigation safety in the North, including improved charting and increased hydrography, in partnership with Northerners. The corridors initiative is co-led by the Canadian Coast Guard, Transport Canada, and Canadian Hydrographic Service.

Key considerations in the current prioritization of the corridors include identification of Inuit and Northerners' perspectives on 1) the potential impact of marine vessels on marine areas used for cultural and livelihood activities, and on community members and 2) potential management strategies for the corridors.

This report documents Salluit community members' knowledge and extensive year-round use of important marine areas (ecological, socio-cultural, archaeological, and travel routes), the potential impacts of shipping on those areas and on community members, and potential management strategies for the Low Impact Shipping Corridors. This report was validated by Salluit research participants, community members, and organizations.

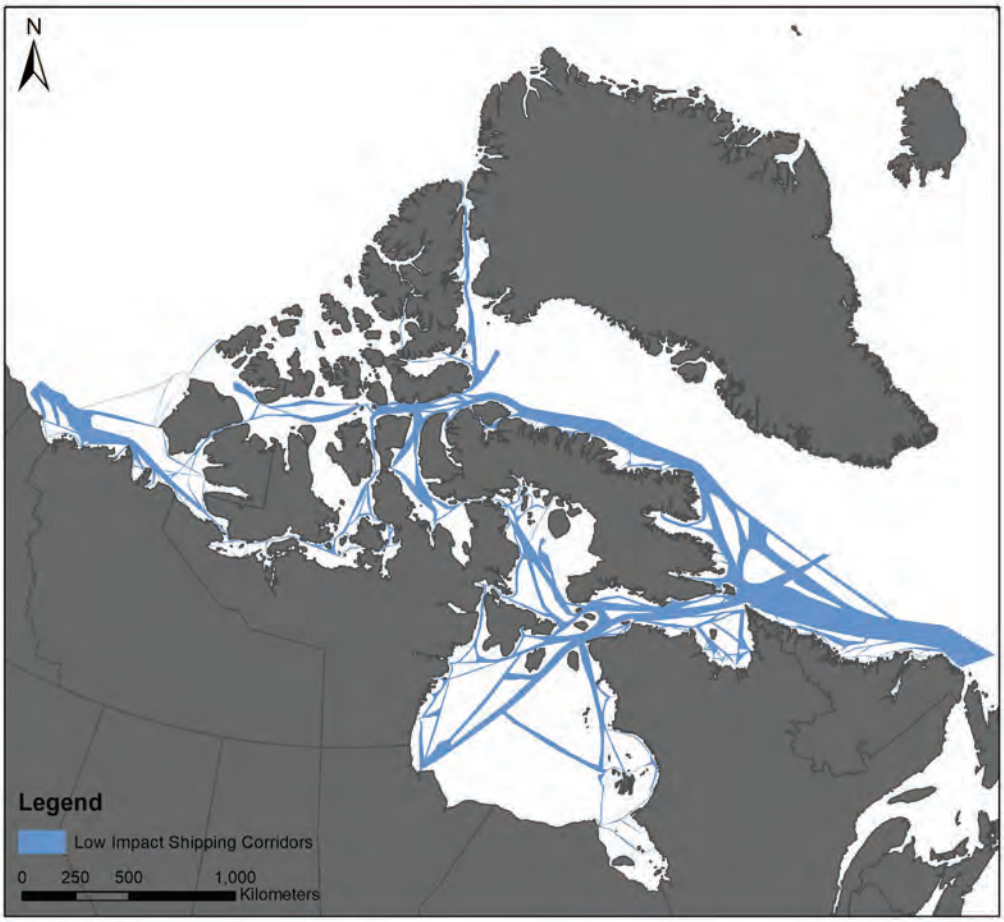

Figure 1. Example of Low Impact Shipping Corridors

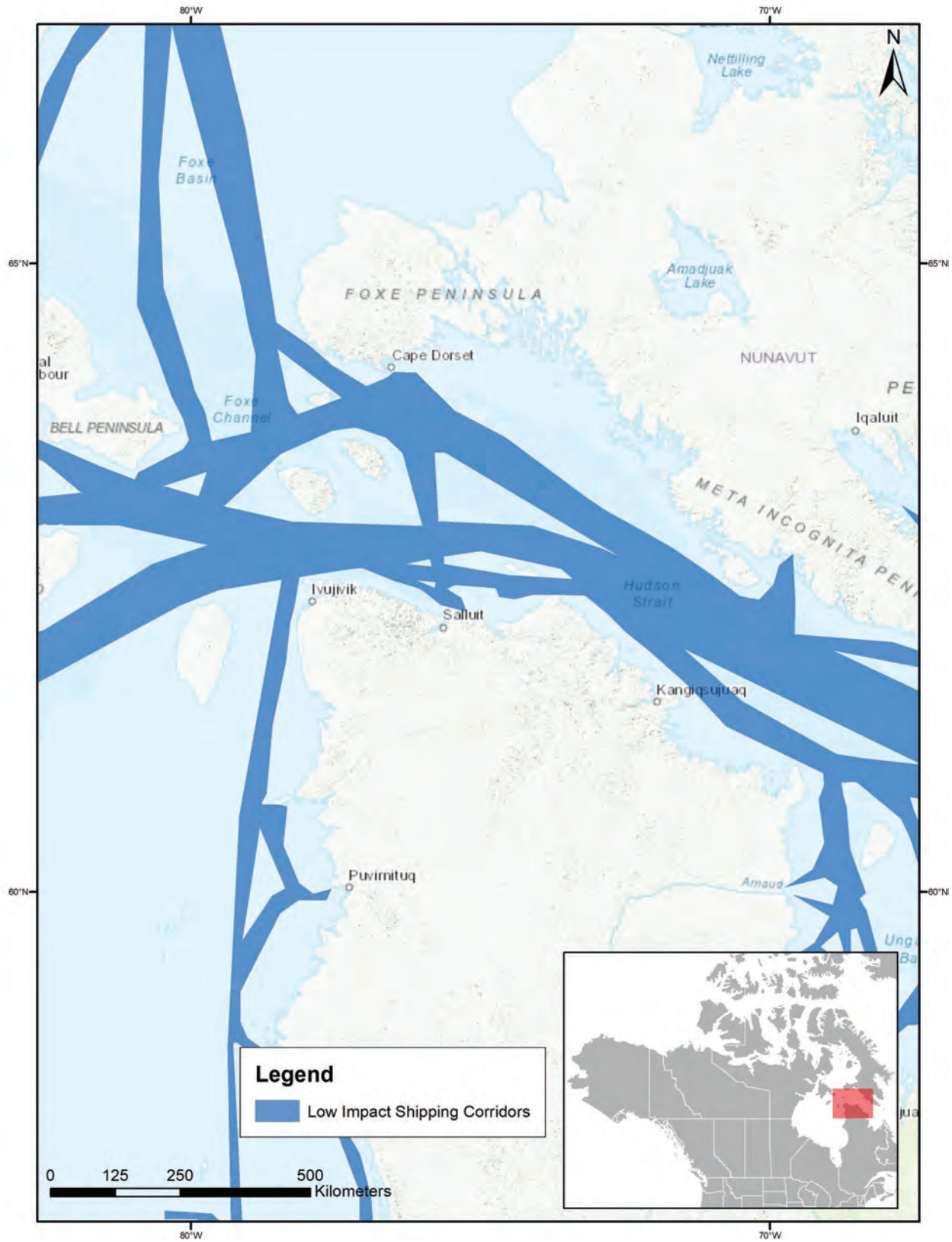

Figure 2. Example of Low Impact Shipping Corridors near Salluit, Quebec

CHANGE IN SHIPPING ACTIVITY

(1990–2000 ANNUAL AVERAGE COMPARED TO 2011–2015 ANNUAL 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 south west Baffin Bay, the Queen Maud Gulf area, north west Hudson Bay, and in the Hudson Strait region (Figure 3). Changes in shipping intensity in Hudson Strait have been generally minor for the towns on the north side of Hudson Strait (e.g., Cape Dorset, Kimmirut), but have increased near towns on the southern side of the strait (e.g., Ivujivik and Salluit). Changes in the High Arctic have been negative (e.g., Resolute, Arctic Bay, Eureka). Salluit has experienced some of the most intense increases in shipping activity when comparing the average number of kilometres of shipping activity from 1990-2000 to the average from 2011-2015 **(Figure 4)**.

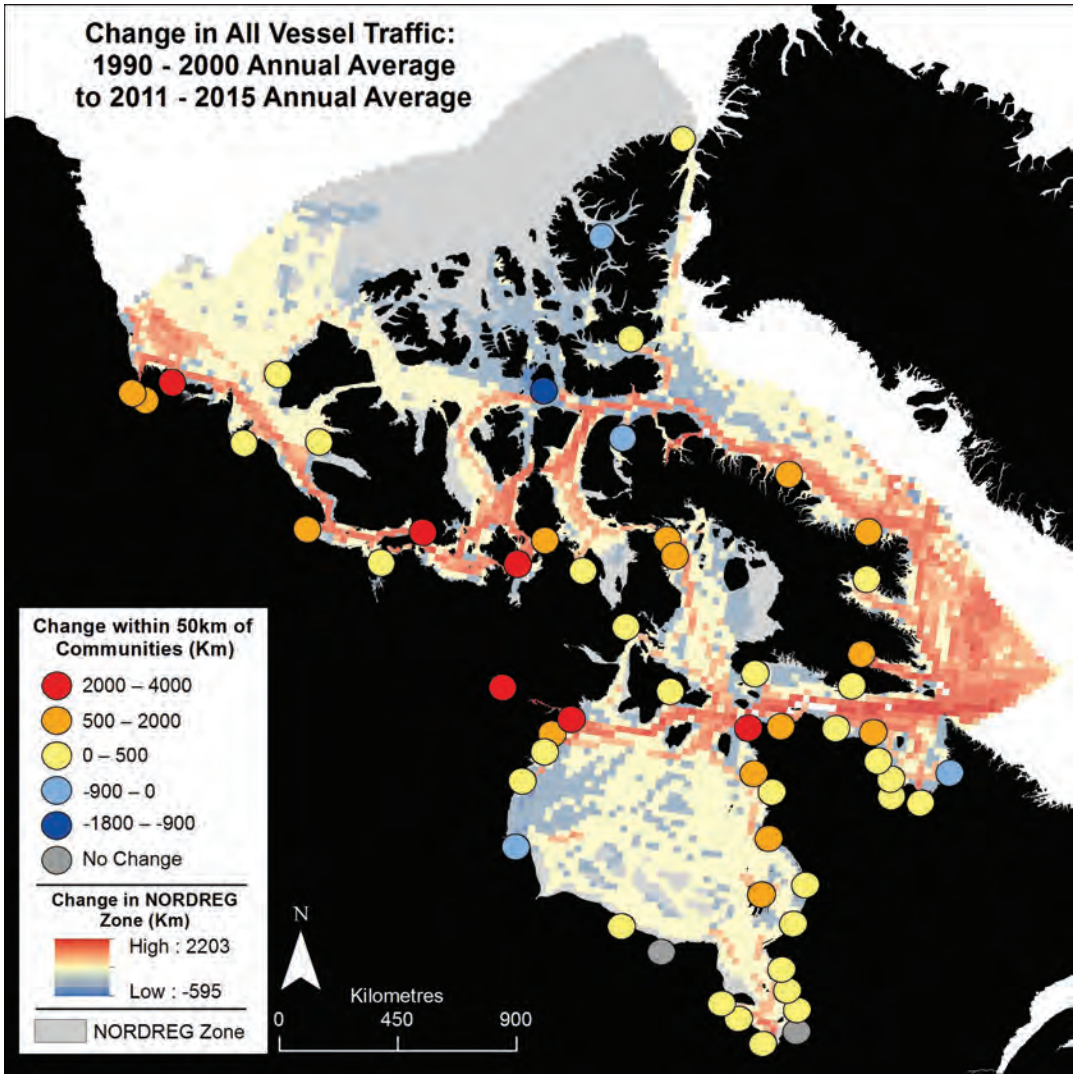

Figure 3. Change in shipping activity (km) in the Canadian Arctic: 1990–2000 annual average compared to 2011–2015 annual average[1]

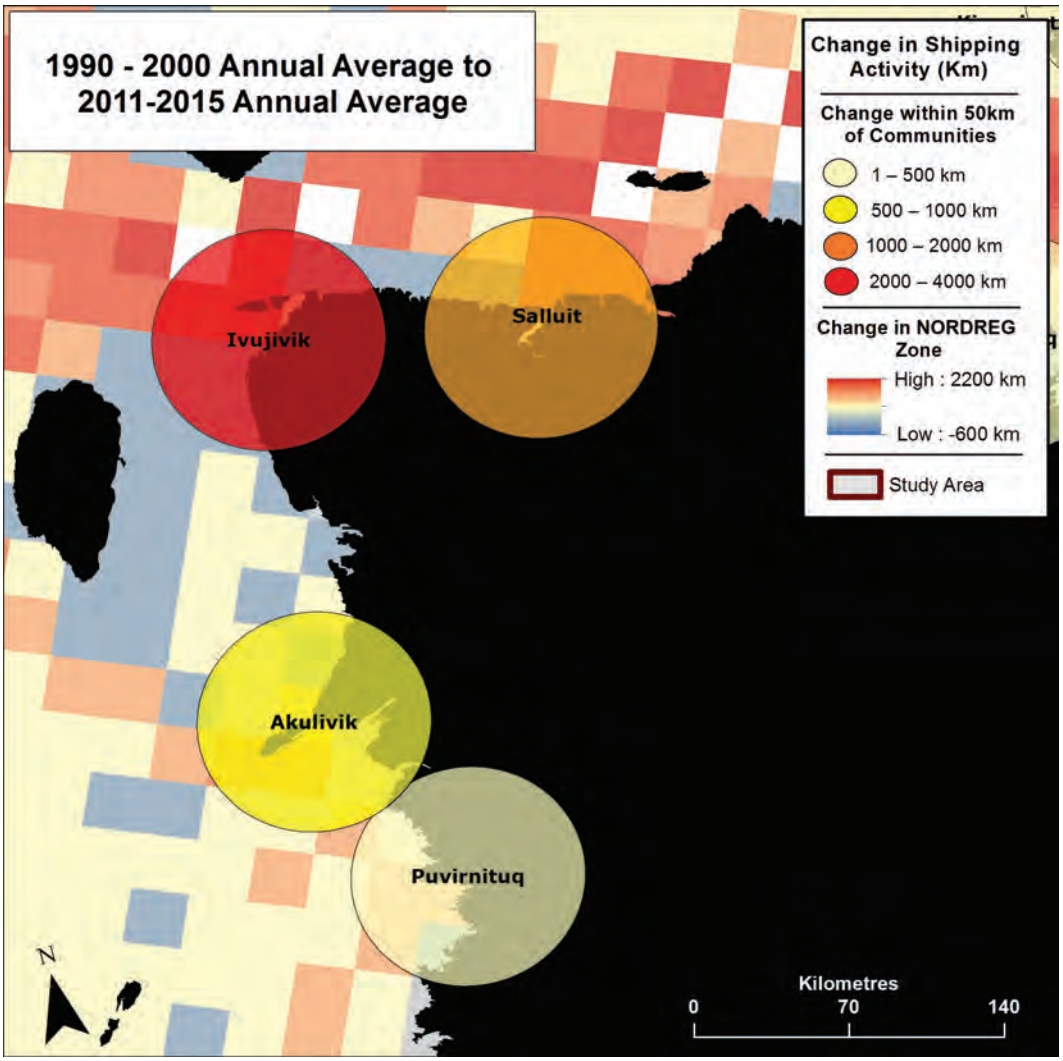

Figure 4. Change in shipping activity (km) near Salluit, Quebec: 1990–2000 annual average compared to 2011–2015 annual average[1]

FIVE SEASONS

There are 5 main seasons in Salluit, Quebec. 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 THEY HAPPEN	OCEAN CONDITION
Winter	December to March	Solid ice
Spring	April to June	Solid coastal ice
Summer	July to early September	Open water
Fall	Late September to October	Open water
Freeze-up	November	Freeze-up, coastal ice forming

SEASONAL HARVESTING CYCLE

Harvesting happens according to seasons and follows an annual cycle.

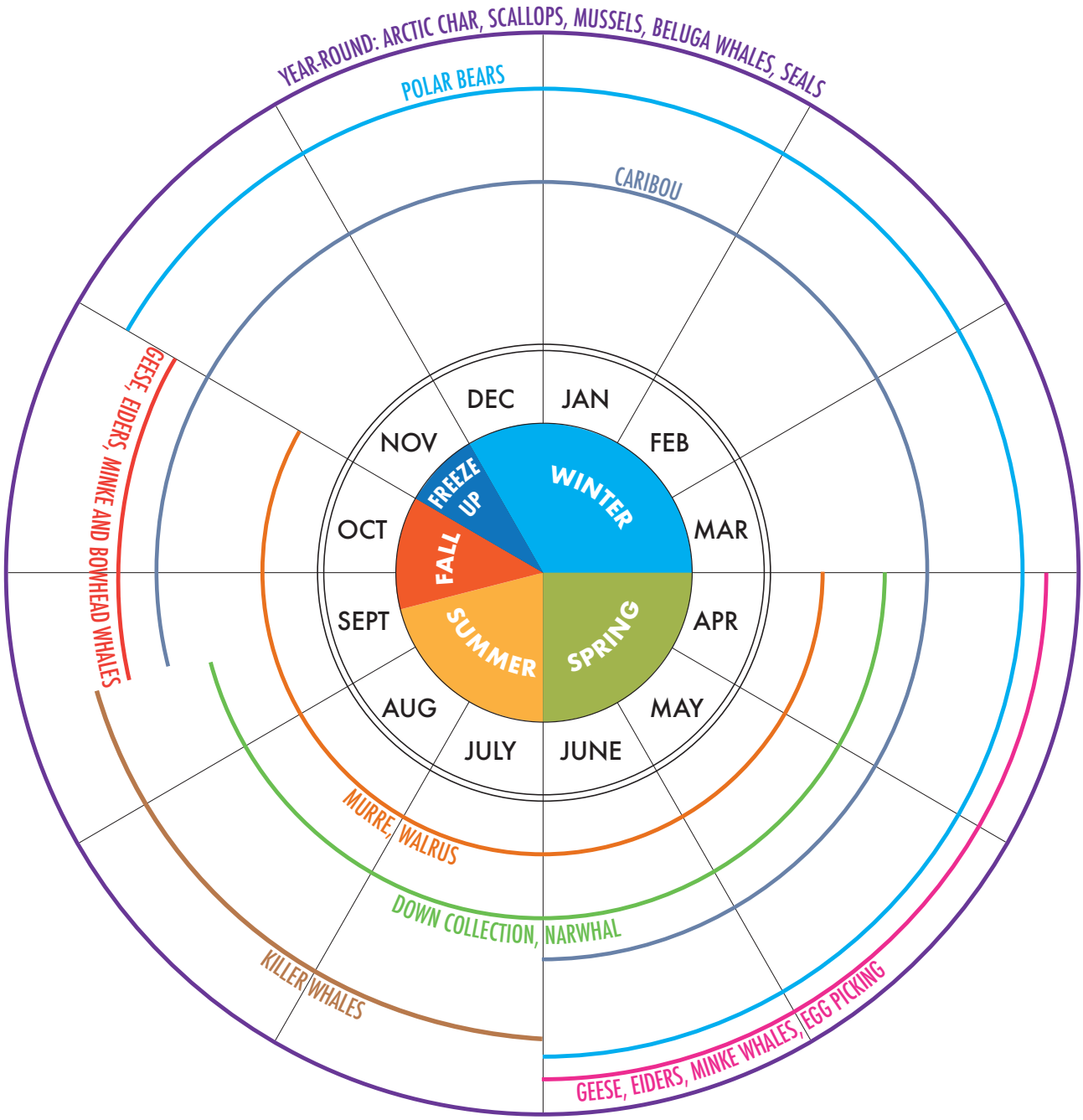

Figure 5. Seasonal cycle of harvesting activities near Salluit, Quebec

MAPS OF CULTURALLY SIGNIFICANT MARINE AREAS

Maps include:

1. Location of animals, marine mammals, fish, and birds;
2. Location of community members' activities, camps, and local travel routes; and
3. Significant marine features such as year-round open water.

Maps will be available at www.arcticcorridors.ca and in Salluit at the Northern Village Office and the Land Holding Office.

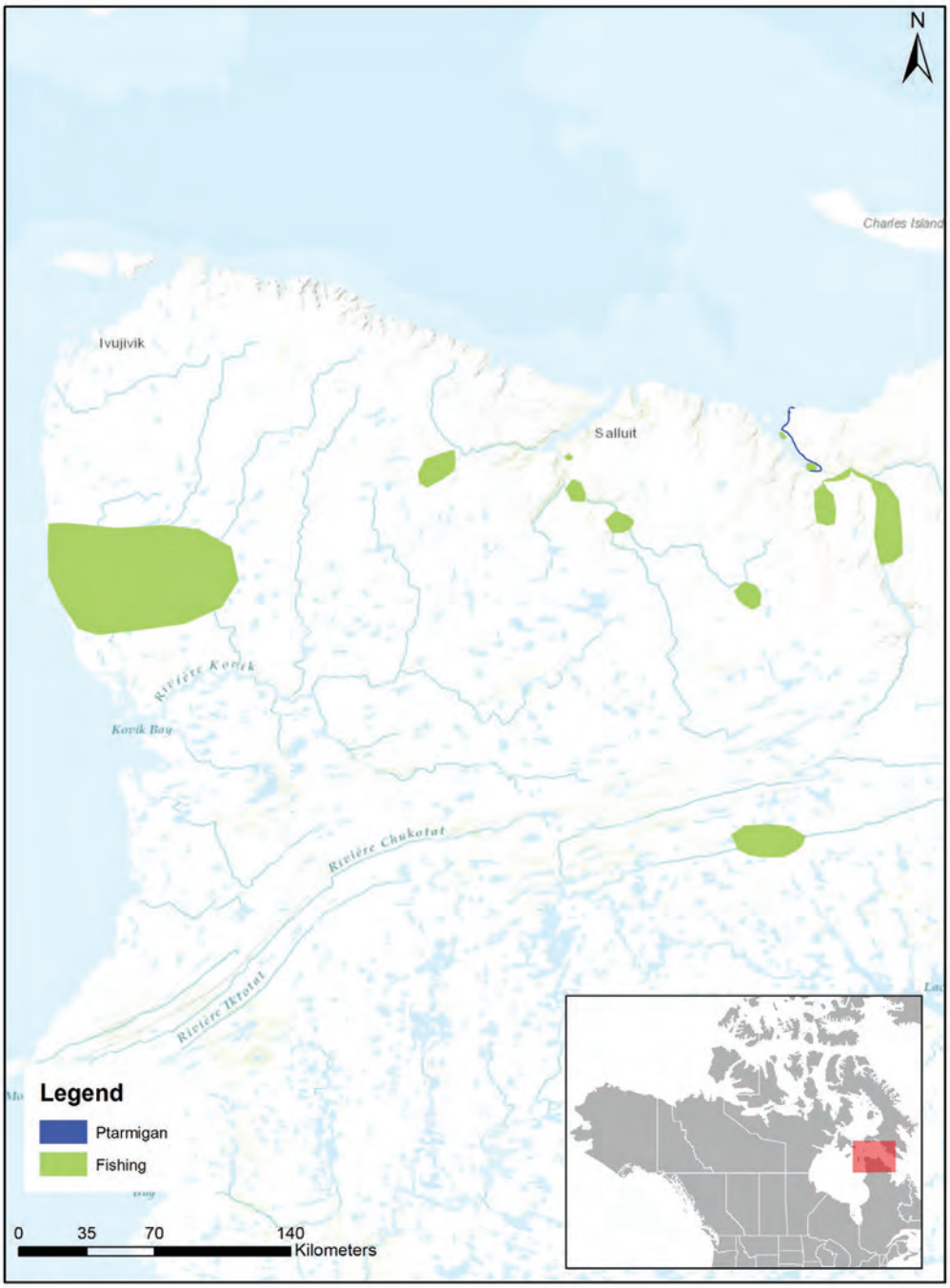

Figure 6. Location of community member activities in the winter when there is solid ice in the region

Figure 7. Location of community members' activities in the winter when there is solid ice in the region

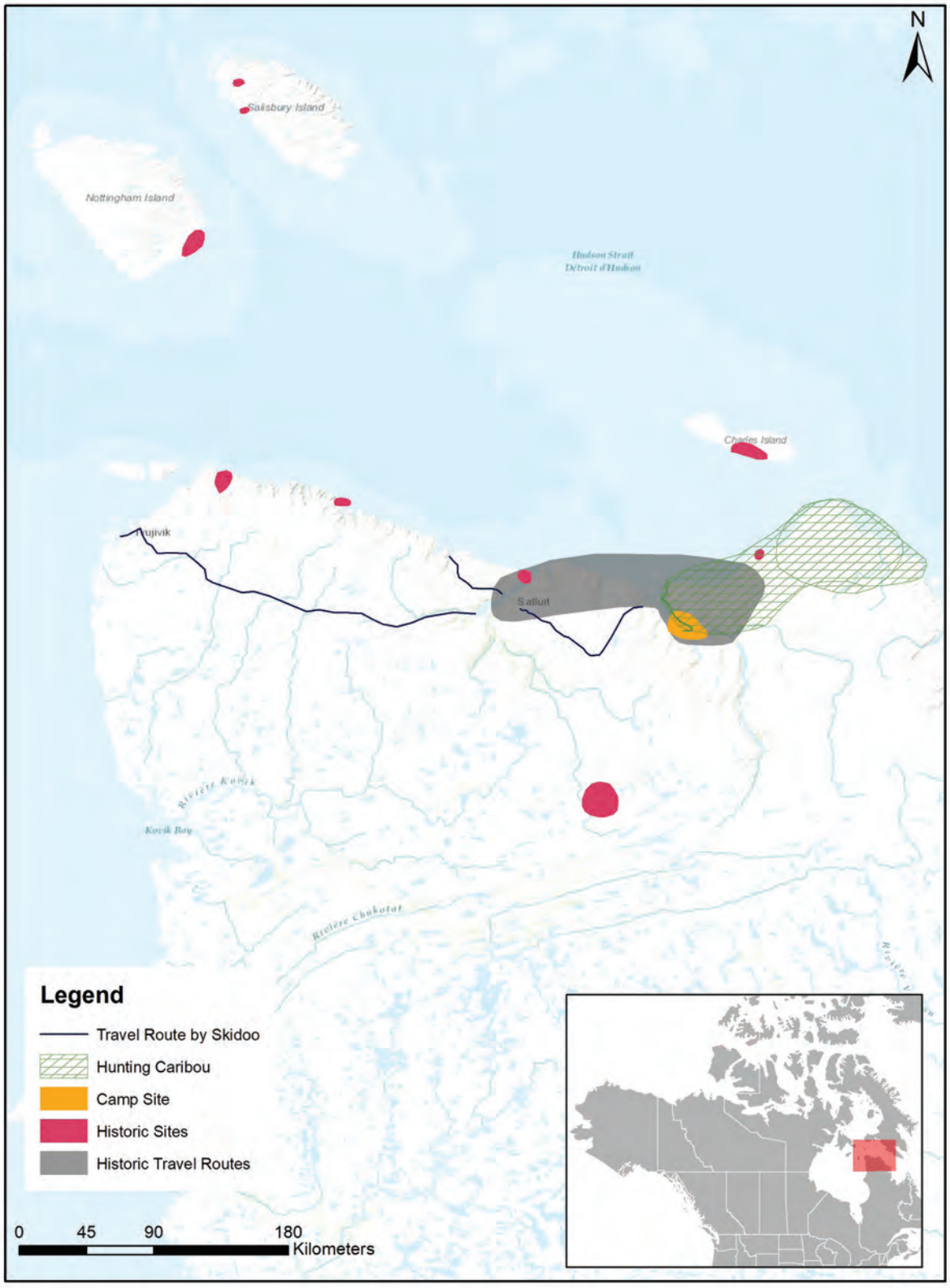

Figure 8. Location of community members' activities in the winter when there is solid ice in the region

Figure 9. Location of floe edge in the winter when there is solid ice in the region

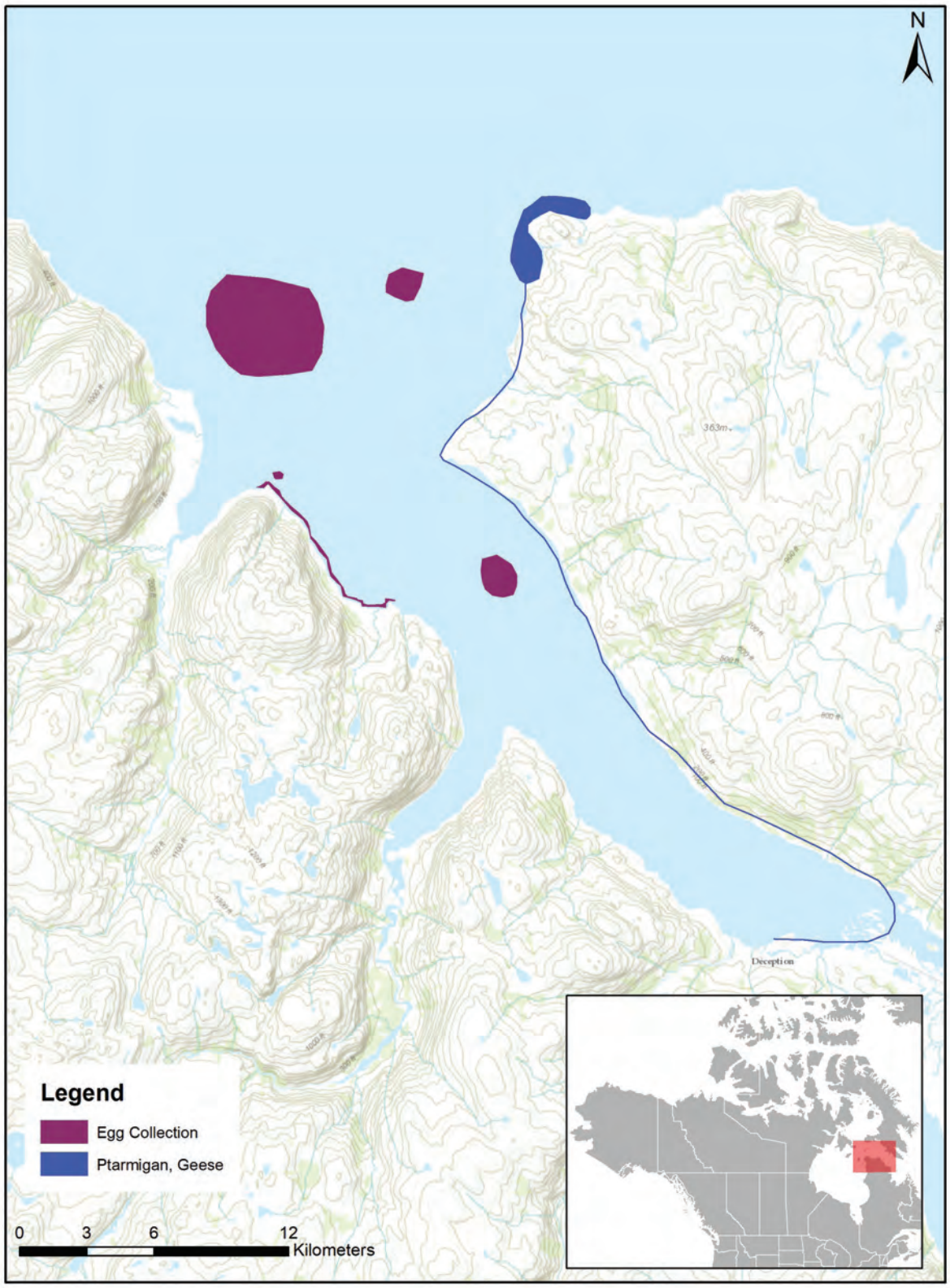

Figure 10. Location of community members' activities around the time of spring when coastal sea ice is present

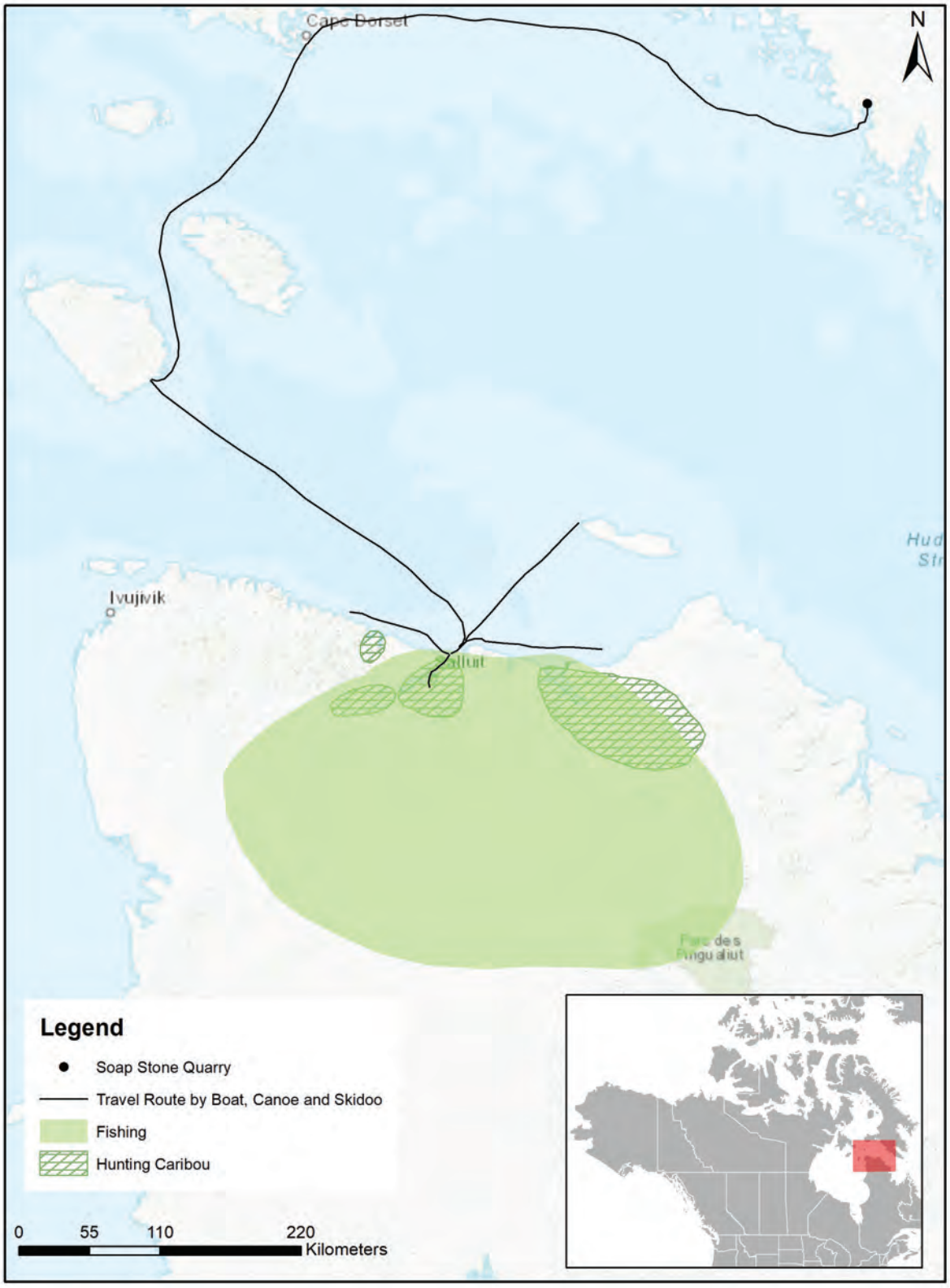

Figure 11. Location of community members' activities around the time of spring when coastal sea ice is present

Figure 12. Location of community members' activities around the time of spring when coastal sea ice is present

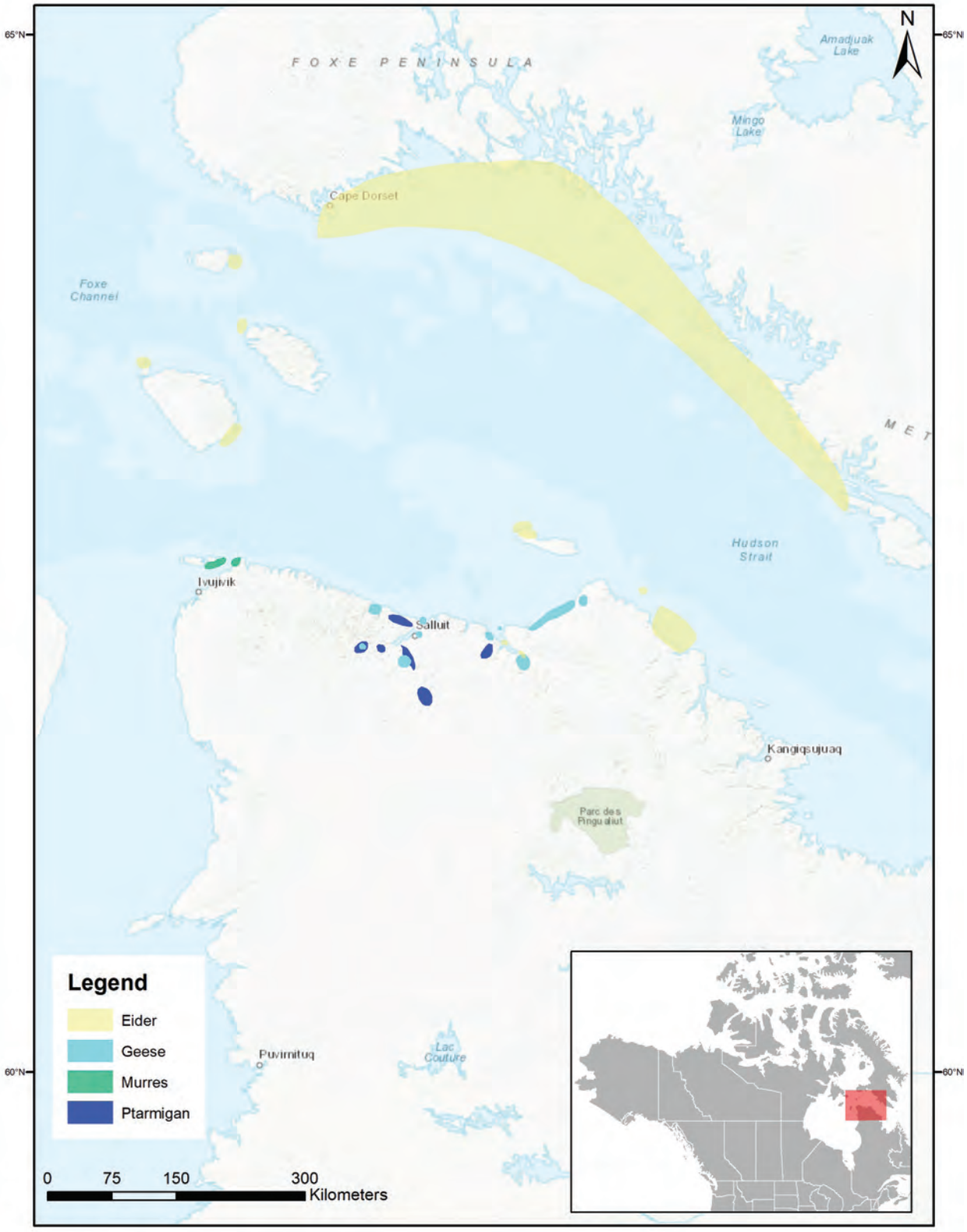

Figure 13. Location and behavioural activities of wildlife around the time of spring when coastal sea ice is present

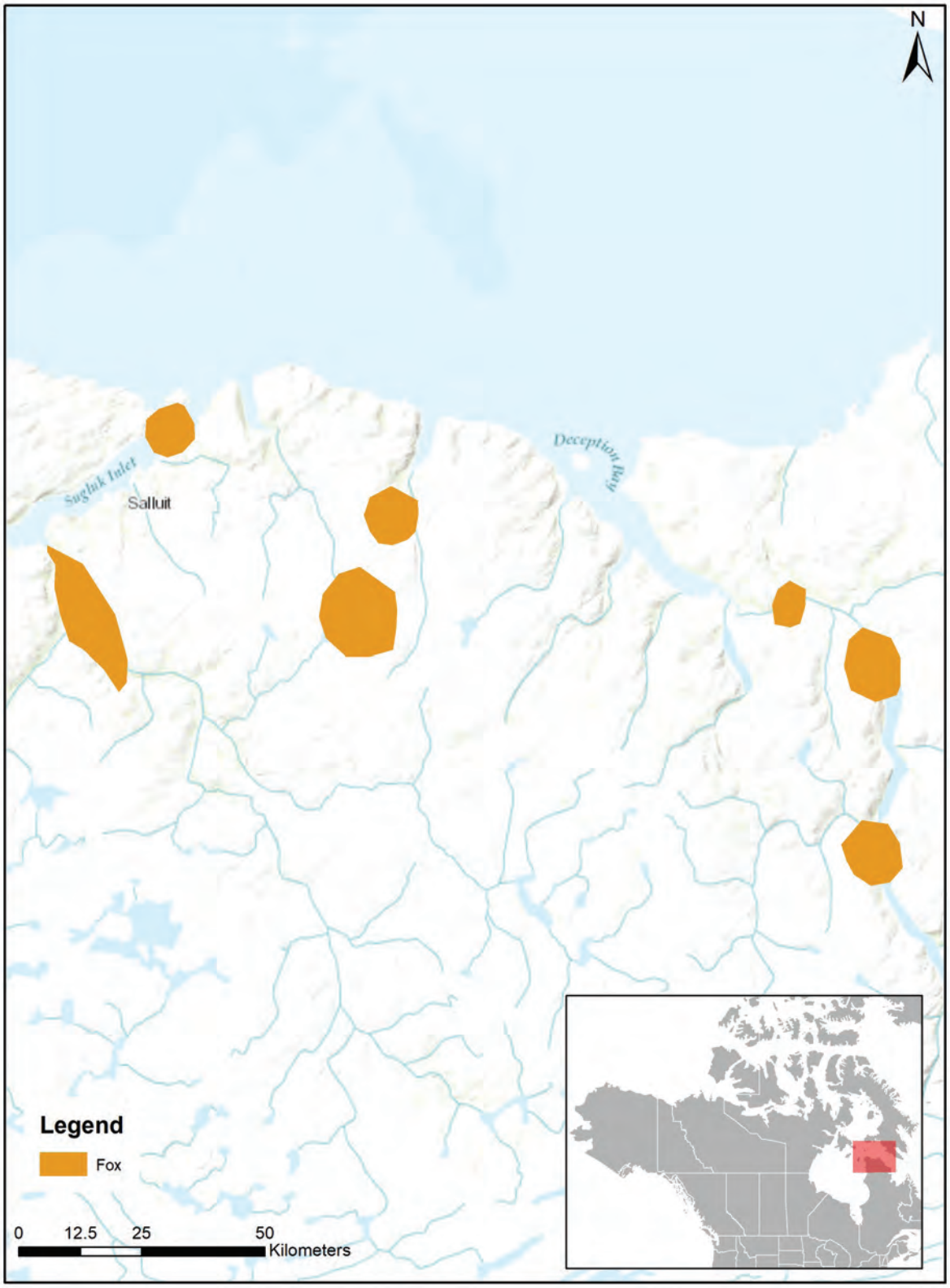

Figure 14. Location and behavioural activities of wildlife around the time of spring when coastal sea ice is present

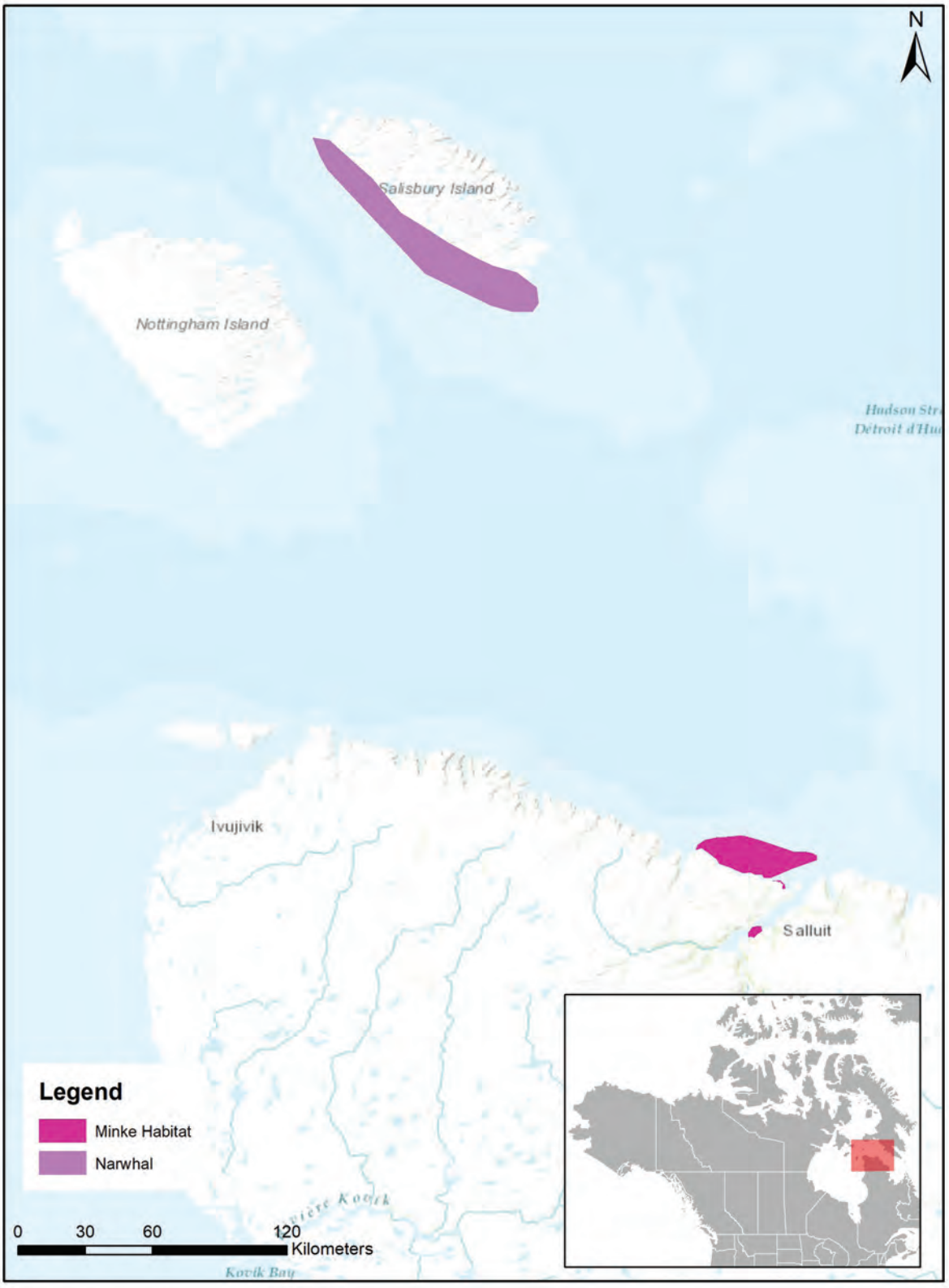

Figure 15. Location and behavioural activities of wildlife around the time of spring when coastal sea ice is present

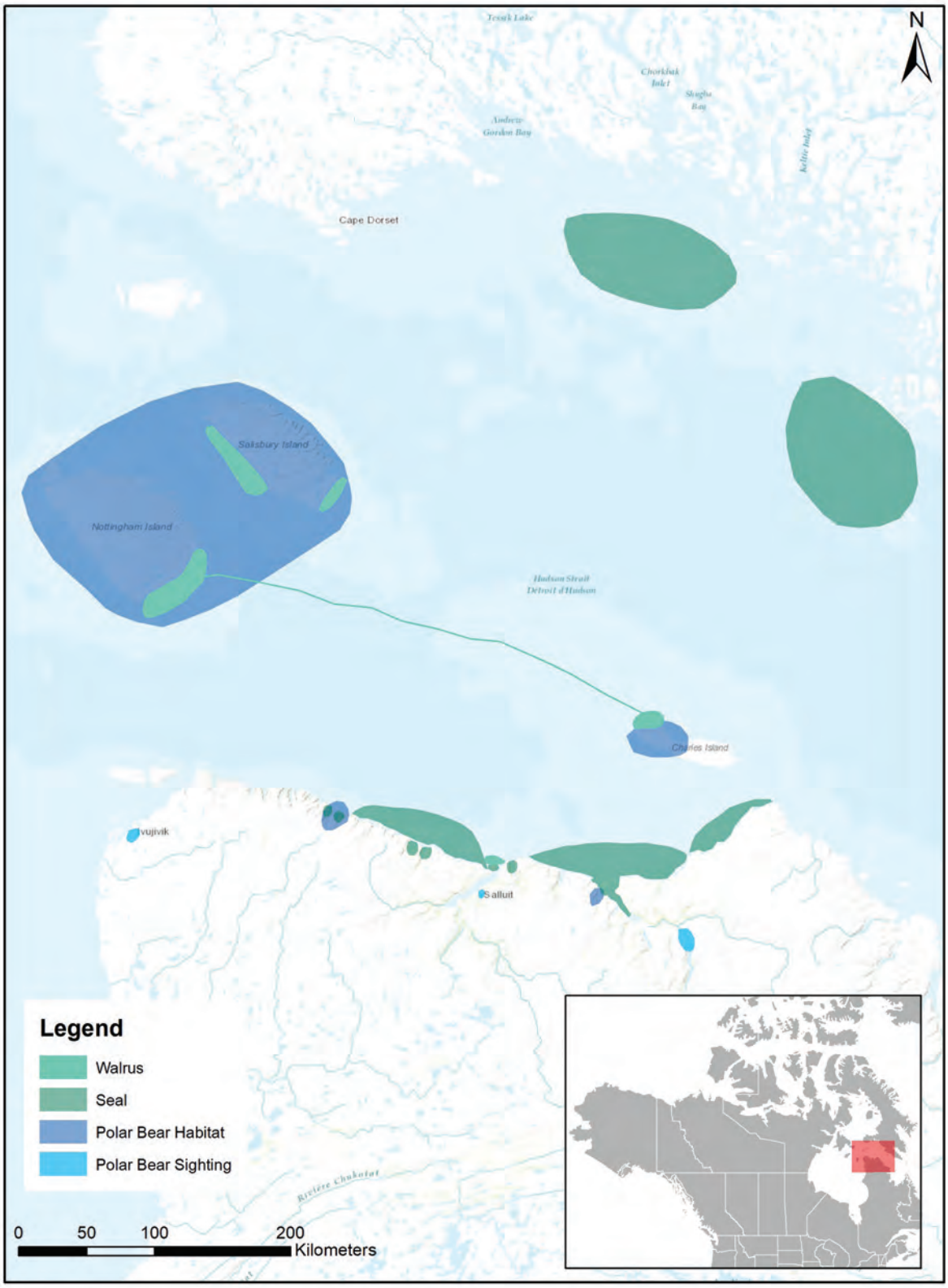

Figure 16. Location and behavioural activities of wildlife around the time of spring when coastal sea ice is present

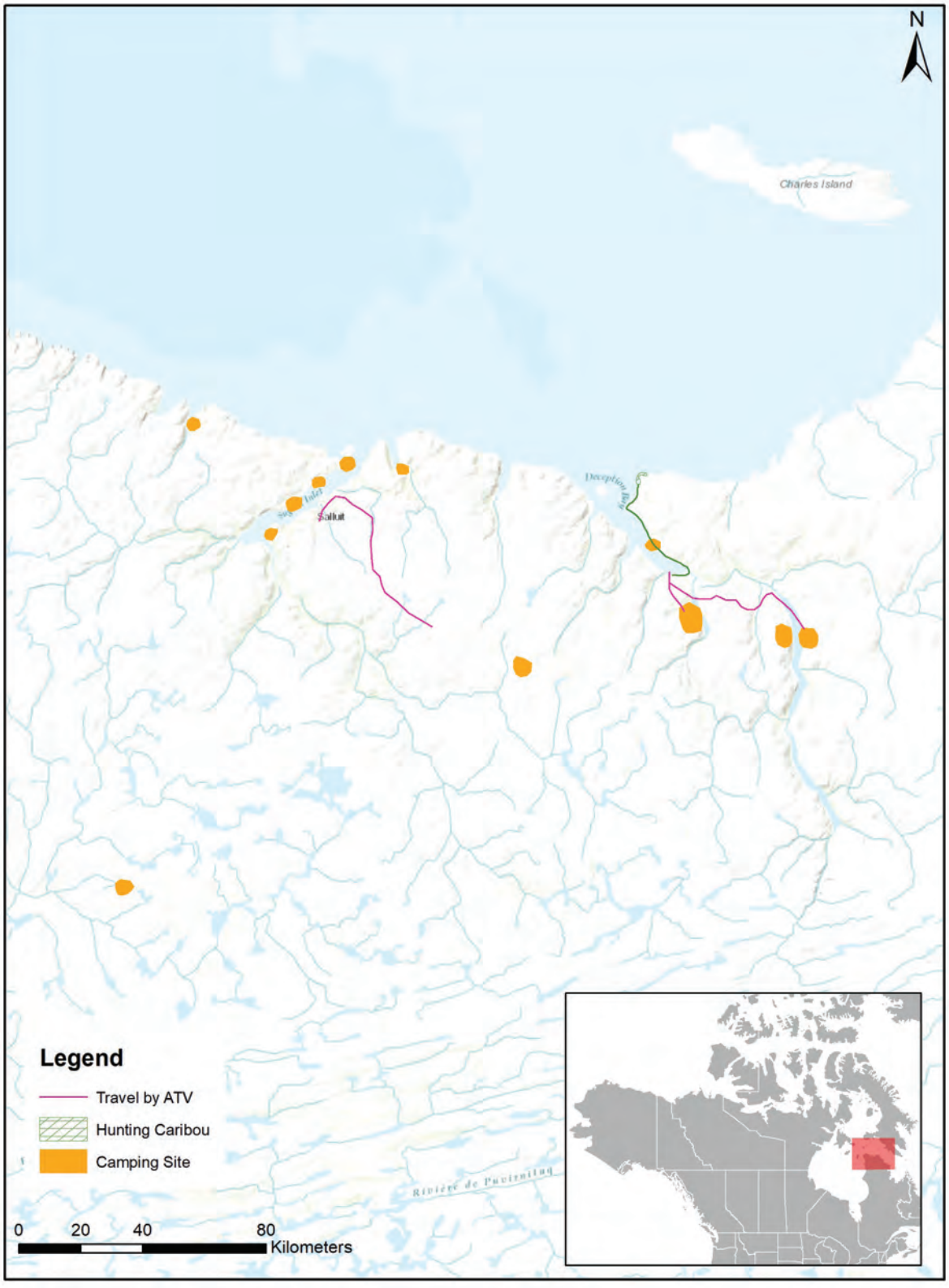

Figure 17. Location of community members' activities during the summer open water time period

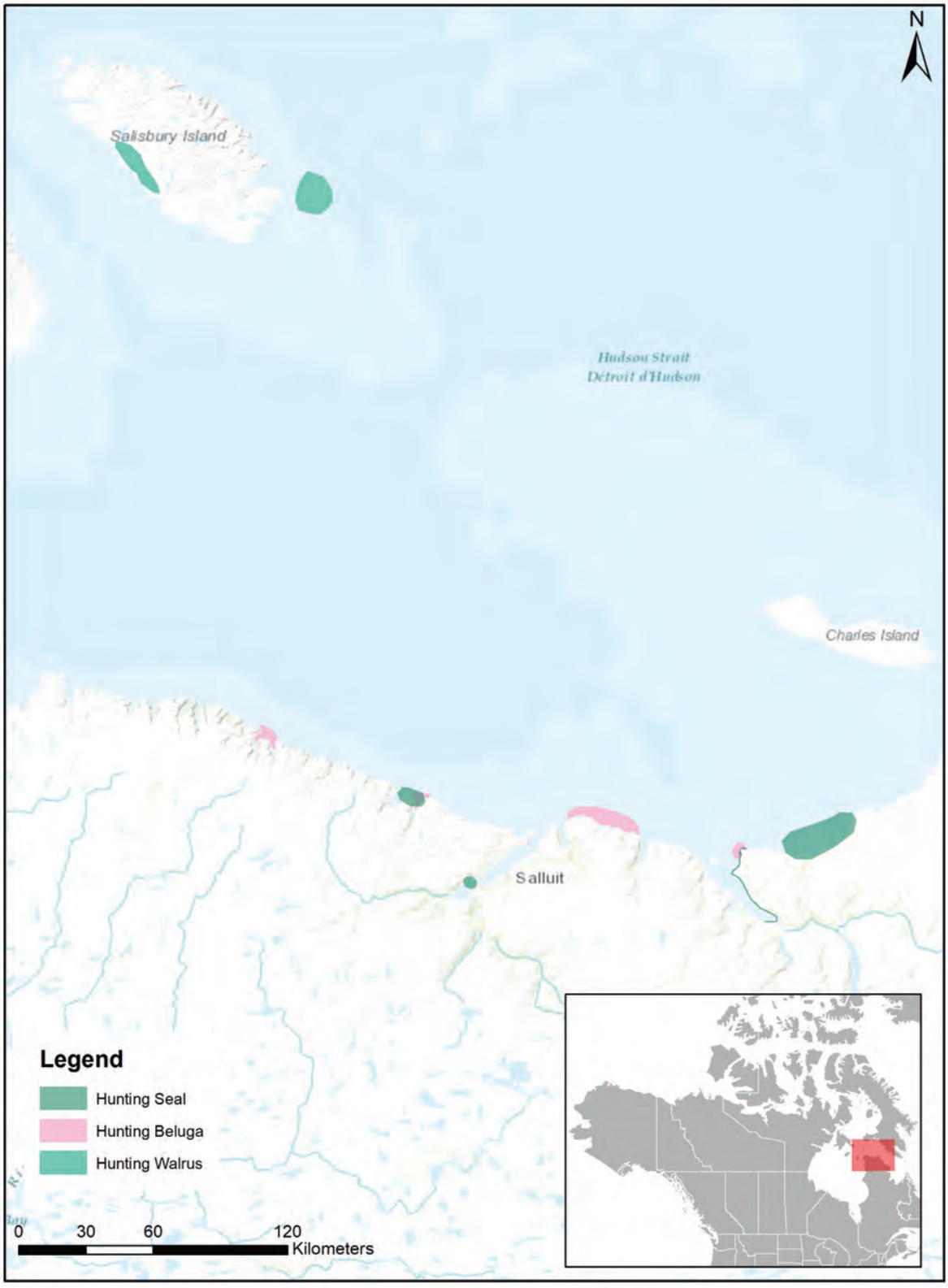

Figure 18. Location of community members' activities during the summer open water time period

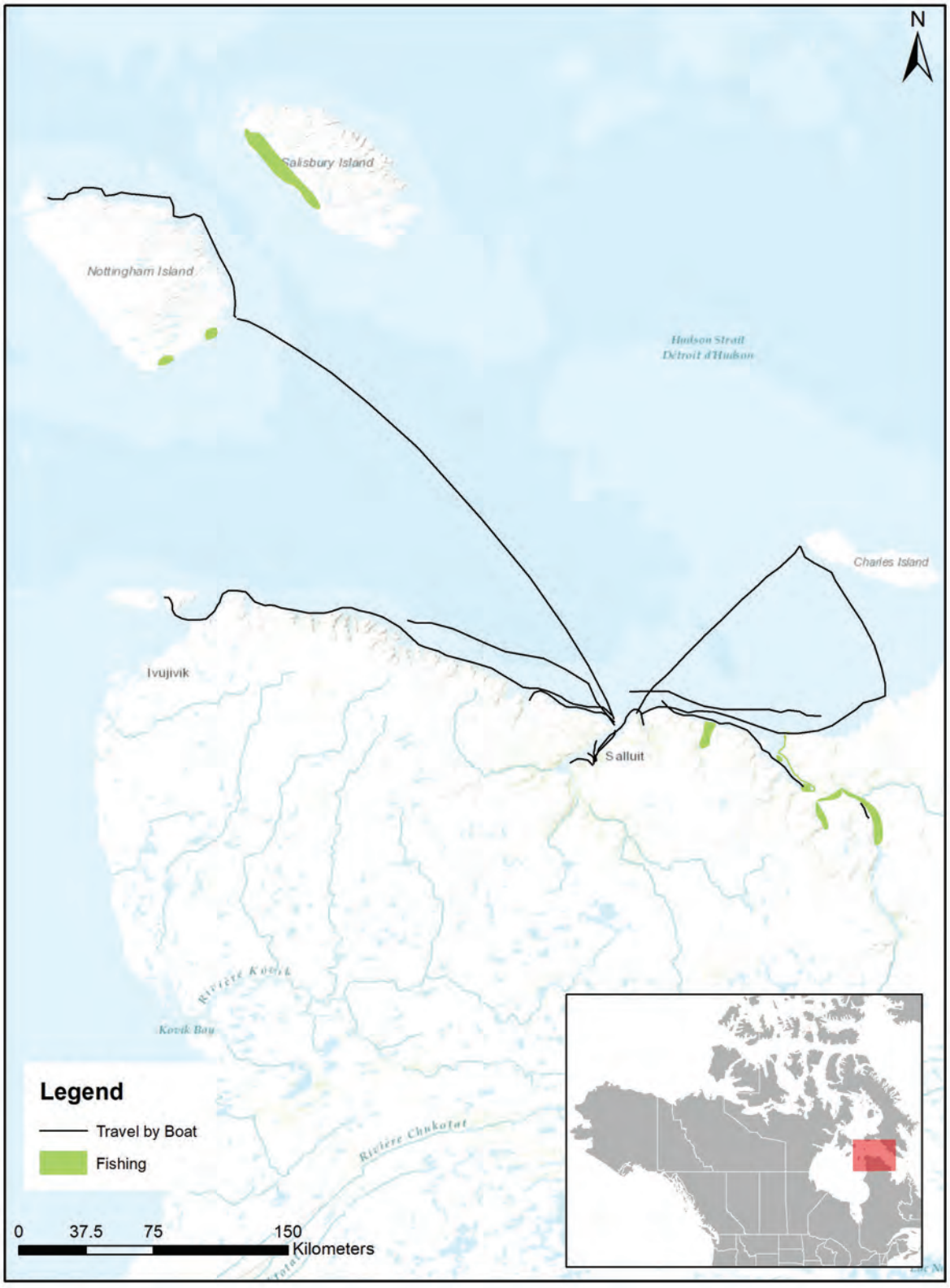

Figure 19. Location of community members' activities during the summer open water time period

Figure 20. Location of community members' activities during the summer open water time period

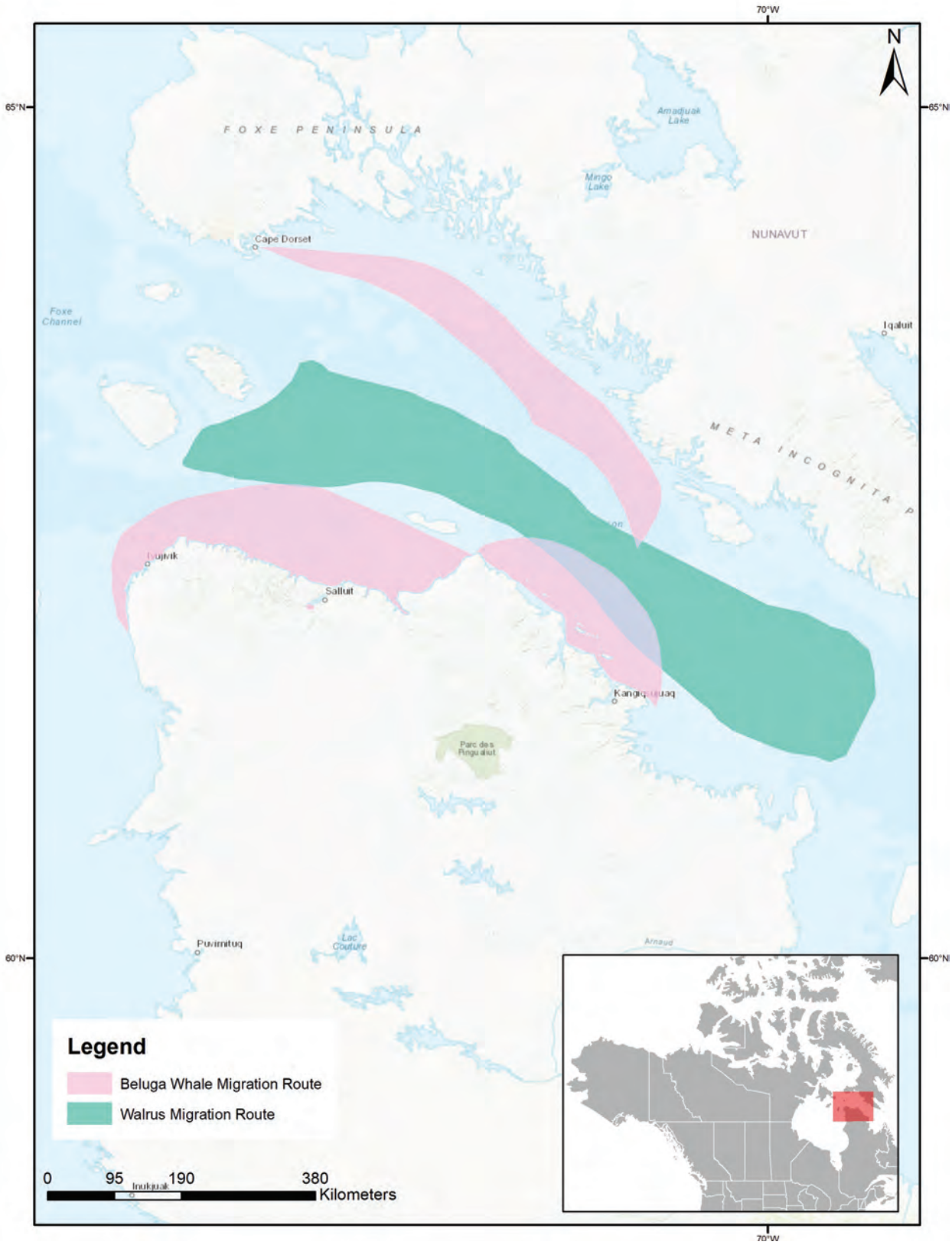

Figure 21. Location and behavioural activities of wildlife during the summer open water time period

Figure 22. Location and behavioural activities of wildlife during the summer open water time period

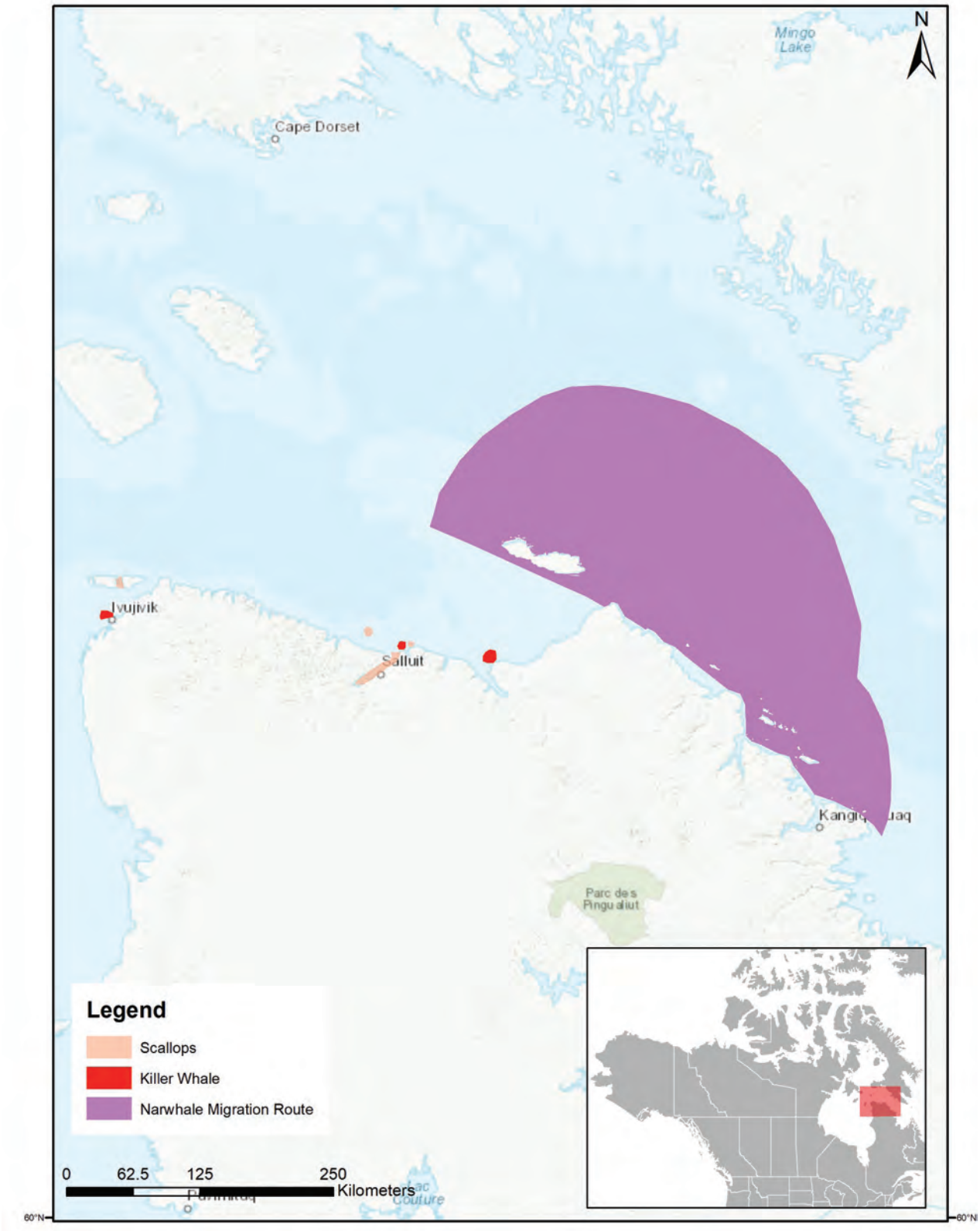

Figure 23. Location and behavioural activities of wildlife during the summer open water time period

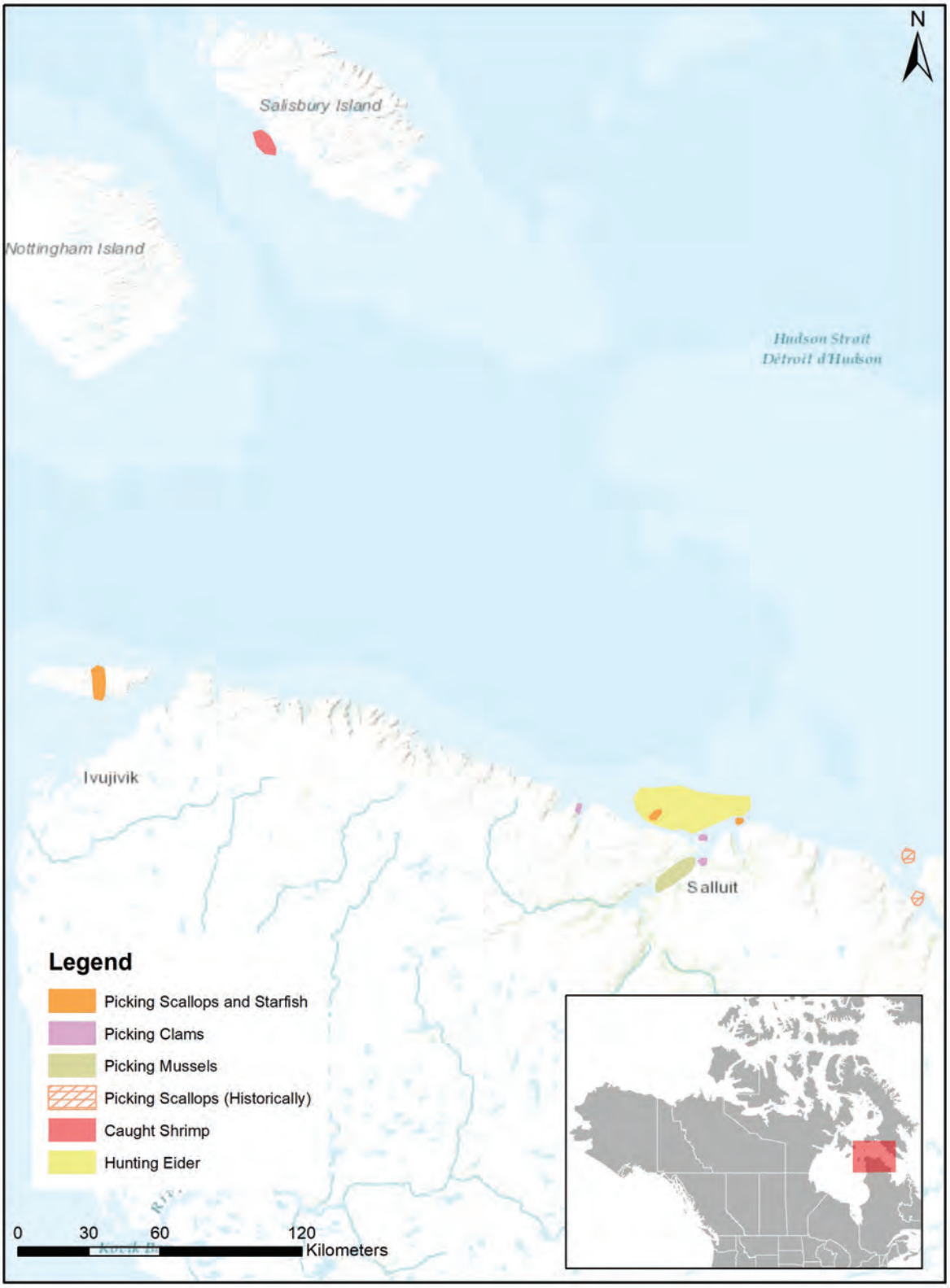

Figure 24. Location of community members' activities during the fall open water time period

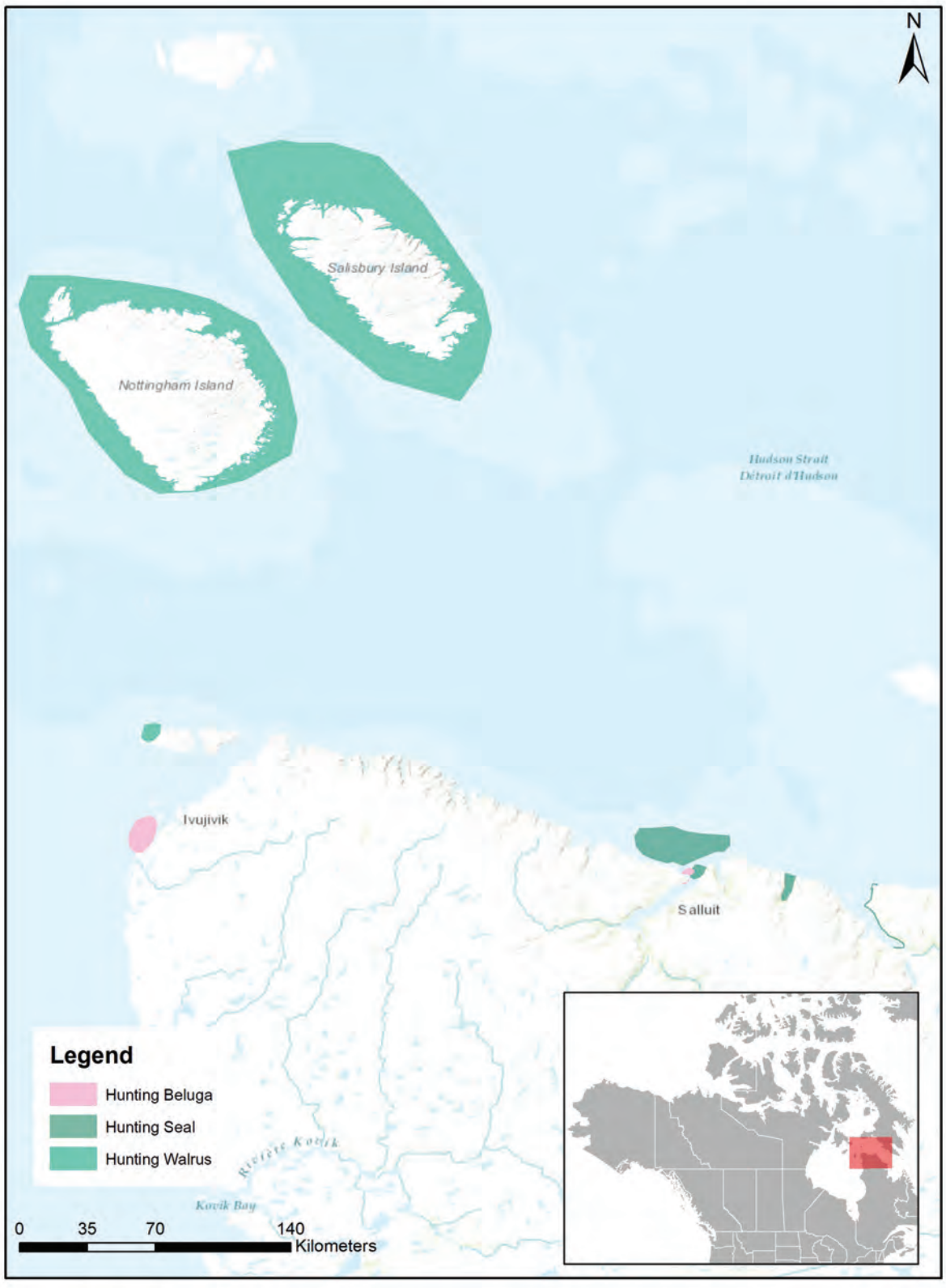

Figure 25. Location of community members' activities during the fall open water time period

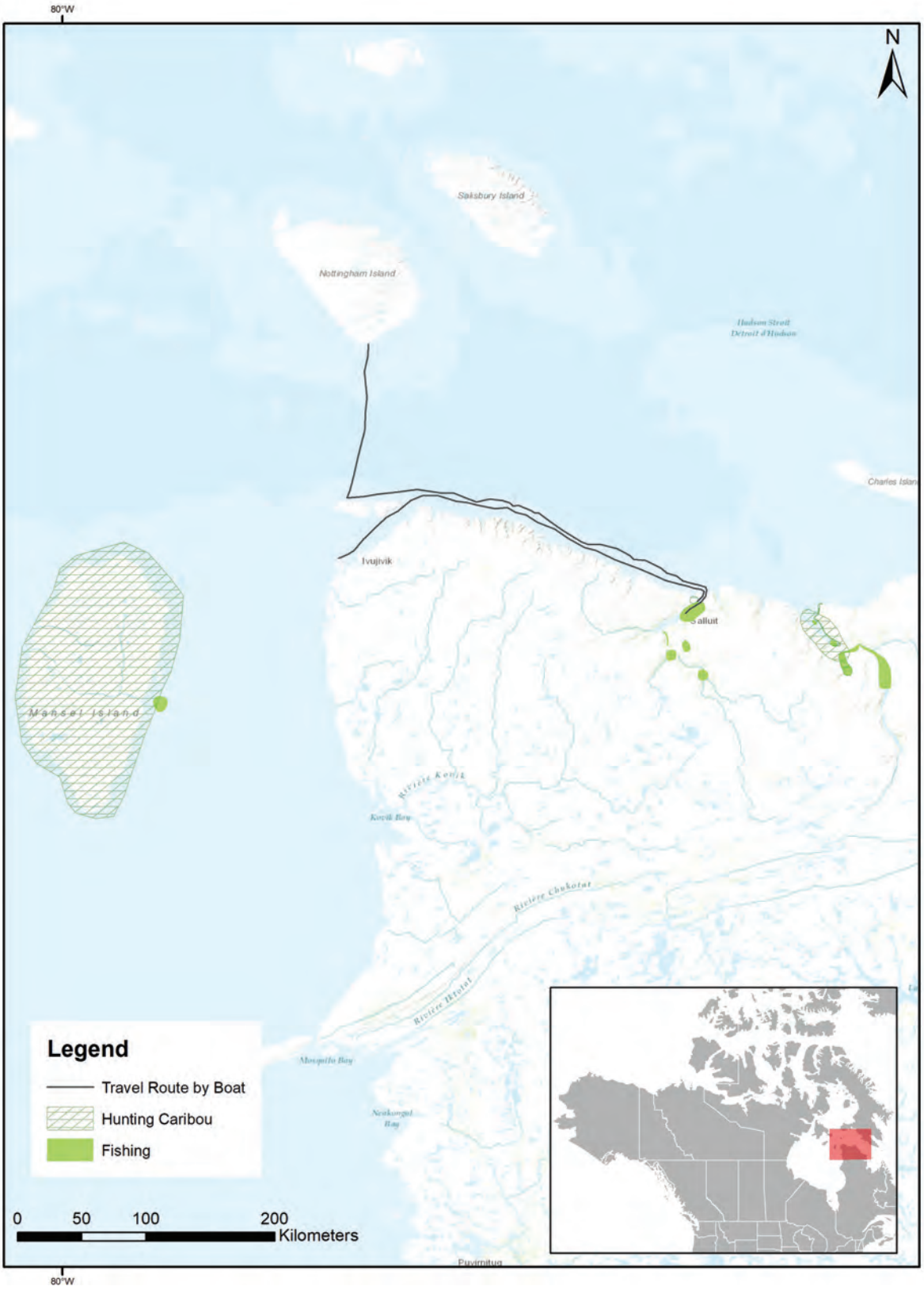

Figure 26. Location of community members' activities during the fall open water time period

Figure 27. Location and behavioural activities of wildlife around the fall open water time period

Figure 28. Location and behavioural activities of wildlife around the fall open water time period

Figure 29. Location and behavioural activities of wildlife around the fall open water time period

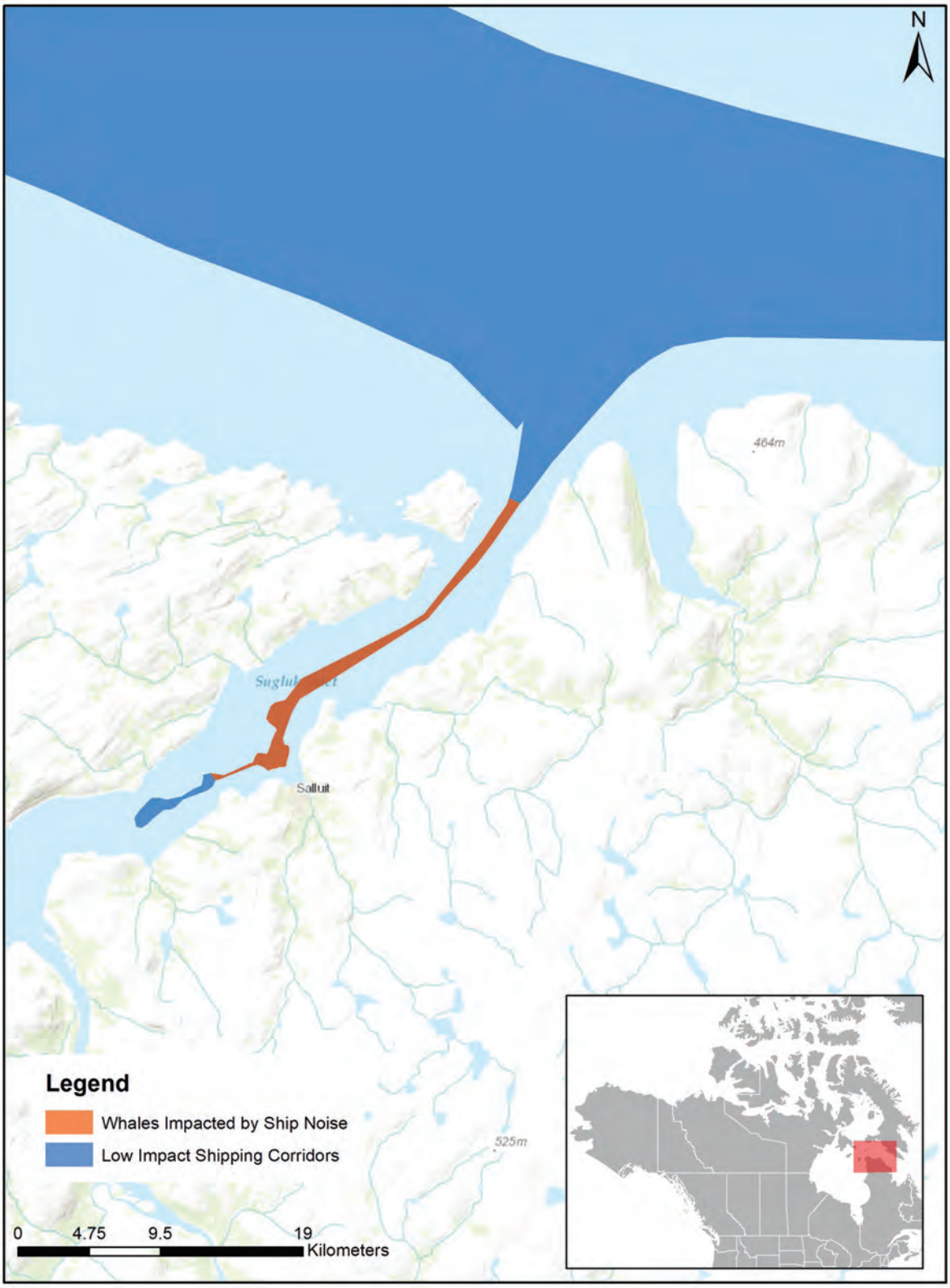

Figure 30. Location and behavioural activities of wildlife around the fall open water time period

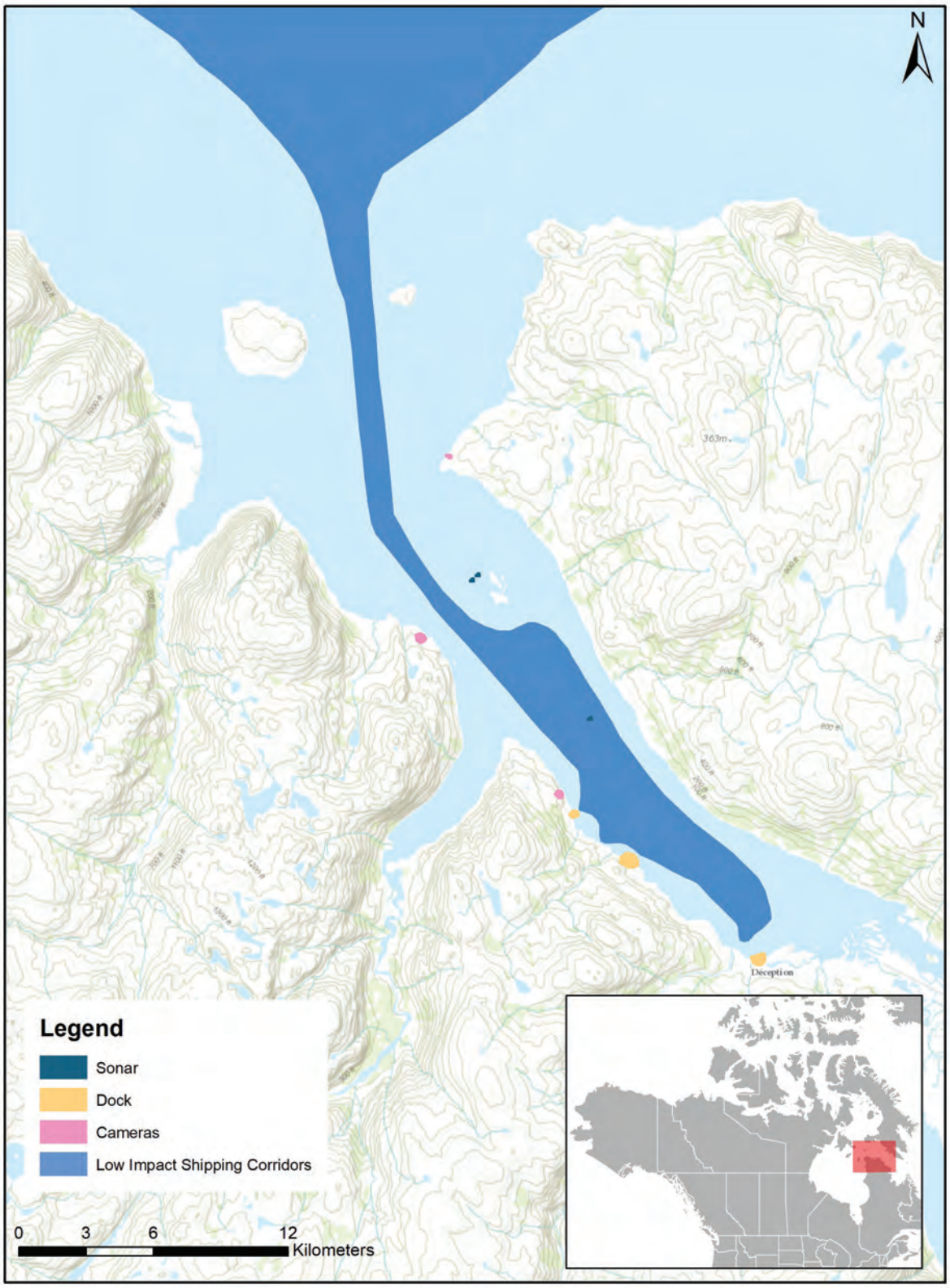

Figure 31. Deception Bay camera locations

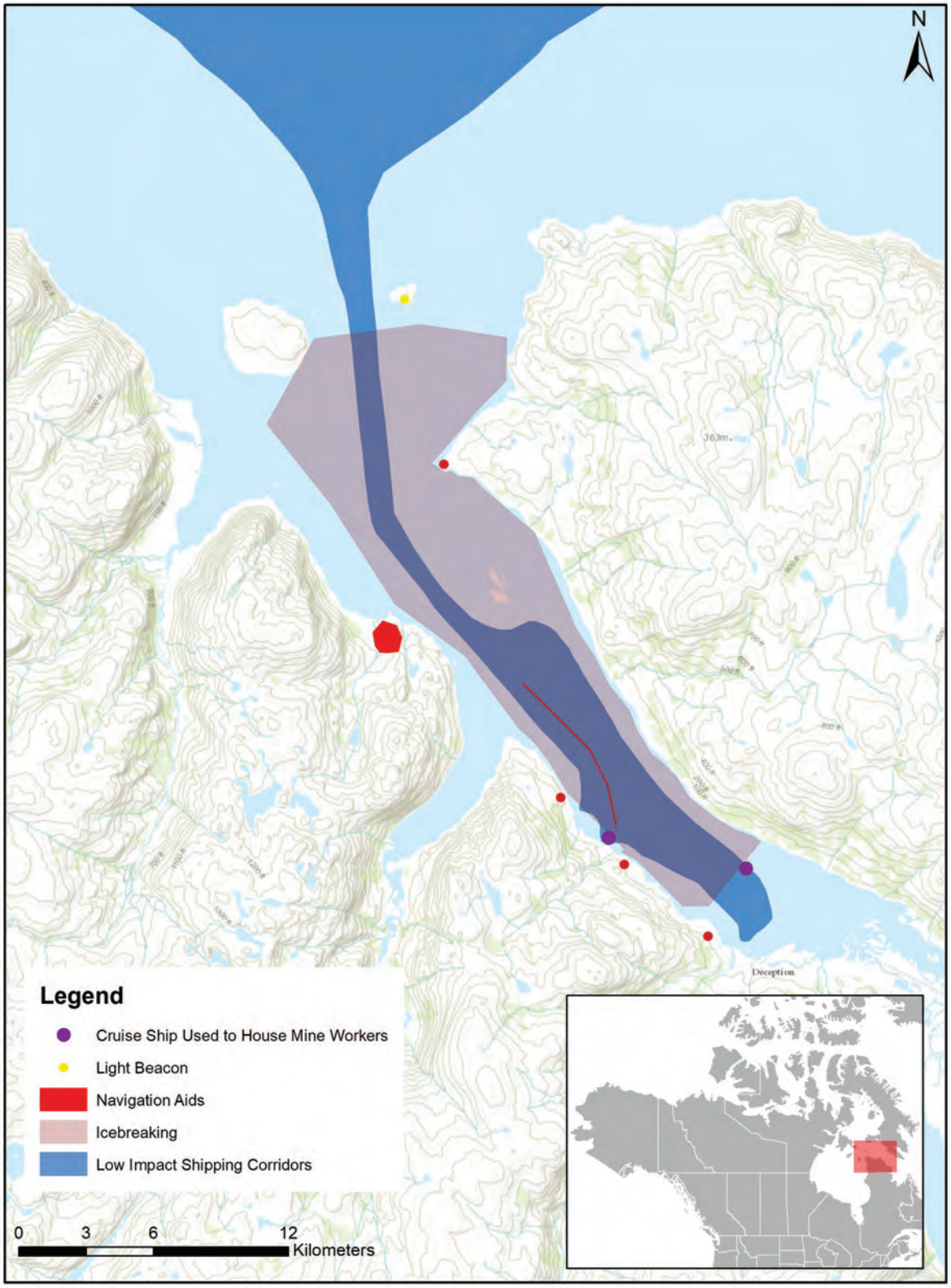

Figure 32. Deception Bay navigation aid locations

POTENTIAL IMPACT OF MARINE VESSELS

Marine vessels using the Low Impact Shipping Corridors may impact the ecology and environment **(Table 1)**, hunting **(Table 2)**, have financial ramifications **(Table 3)**, and impact culture, security and the well-being of community members **(Table 4)**. Related recommendations are provided **(Table 5)**.

Table 1. Potential impact of marine vessels using the Low Impact Shipping Corridors on the ecology and environment

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
Animal disturbance is the biggest concern; vessels may disturb animals and make it more difficult for community members to hunt.	Year-round
All marine animals disappear when ships are nearby and only return when ships are gone.	Summer and Fall
Ships in the bay can be loud, disturbing both land and marine animals.	Year-round
Boats disturb marine mammals in the region with noise and waves.	Spring, Summer, and Fall
Ships in the bay can be very loud, and the whales leave the area when the vessels are near town.	Summer and Fall
Whales retreat from the large vessels.	Spring, Summer, and Fall
The inshore shipping corridors currently overlap with important beluga migration paths, and this may impact whales.	Summer and Fall
The shipping activities around Deception Bay alter ice conditions near travel routes and where seal habitat is.	Winter
Cruise ships go to see the murre colonies which disturbs the birds.	Summer
Large wake destroys bird nesting sites along Deception Bay coast and Charles Island shores.	Summer and Fall
Broken ice causes destruction of shoreline bird nesting sites.	Winter and Spring
Ship wake in the bays disturbs marine invertebrates.	Summer and Fall
The marine invertebrates in areas where there is heavy shipping traffic and are contaminated, and are then no longer good for consumption.	Year-round
Big ships can cause pollution near where scallops are harvested which can make people sick.	Summer and Fall
Foreign vessels exchanging ballast water is a concern with introducing non-native species into bays.	Summer and Fall

Table 1 (continued). Potential impact of marine vessels using the Low Impact Shipping Corridors on the ecology and environment

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
There is a concern with vessels dumping material into the water and causing pollution.	Year-round
There are concerns with old mining sites leaking pollution into the bay.	Year-round
The mines and the associated activities cause pollution to run into the bay via the rivers.	Year-round
Fuel lines used for ships can pop open and cause spills leading to pollution.	Summer and Fall
The community has seen ships collide in the area when boat-to-boat communication is not good.	Summer and Fall
When ships are in the area they can have collisions with each other.	Summer
Icebreaking breaks ice, but it freezes over again.	Winter

Table 2. Potential impact of marine vessels using the Low Impact Shipping Corridors on hunting

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
Deception Bay and Sugluk Bay are the most sensitive areas because that is where people hunt and gather food.	Year-round
Offshore ships/corridors could push the animals towards the shore where hunters are, making hunting easier.	Summer
Hunters stay near the coastline and ships in the deeper water do not influence them.	Summer and Fall
Large wakes can disturb hunters in boats.	Summer and Fall
Ice vibration caused by ships breaking the ice disturbs hunters' focus.	Winter
Icebreaking near hunting areas affects travel routes.	Winter
Icebreaking can prevent hunters from reaching areas for a short period of time.	Winter
When icebreaking happens, and community members are not informed, hunters can fall through the ice.	Winter
Ships can leak gas into the bays which prevents communities from harvesting marine animals in the region for many months.	Year-round

Table 3. Potential financial impact of marine vessels using the Low Impact Shipping Corridors

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
Ships bring in fuel, food, and cheap goods to town which is important to the community.	Year-round
Ships come to the mine which employs people.	Year-round
Cruise ships and other passengers can buy local crafts and carvings.	Summer and Fall
Cruise ships have been used in the area to house mining workers.	Summer and Fall
Ill-adapted foreign vessels in Arctic waters may be at higher risk of accidents, in terms of passenger safety and spills.	Year-round
Big ships can be dangerous for inexperienced boaters who do not know to stay a safe distance away as to not have a crash or accident.	Spring, Summer, and Fall

Table 4. Potential impact of marine vessels using the Low Impact Shipping Corridors on culture, security and well-being

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
Animal disturbance is the biggest concern. Safety is important, but the experienced hunters know how to act around the large vessels and so safety is not a concern.	Year-round
Cultural food security is a concern if ships disturb and or contaminate animals.	Year-round
Ship wakes can damage cabins on the shoreline.	Spring, Summer, and Fall
Large wakes can damage boats on the shore.	Summer and Fall
Large ships can suck in small boats that get too close.	Summer and Fall
Ships pose a risk for inexperienced boaters that are unaware of the safety precautions that need to be taken when traveling around large vessels.	Spring, Summer, and Fall

MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

Maps include:

- Reduced-speed zones
- Locations for spill equipment zones
- No-wake and limited-wake zones
- Preferred location of Low Impact Shipping Corridors

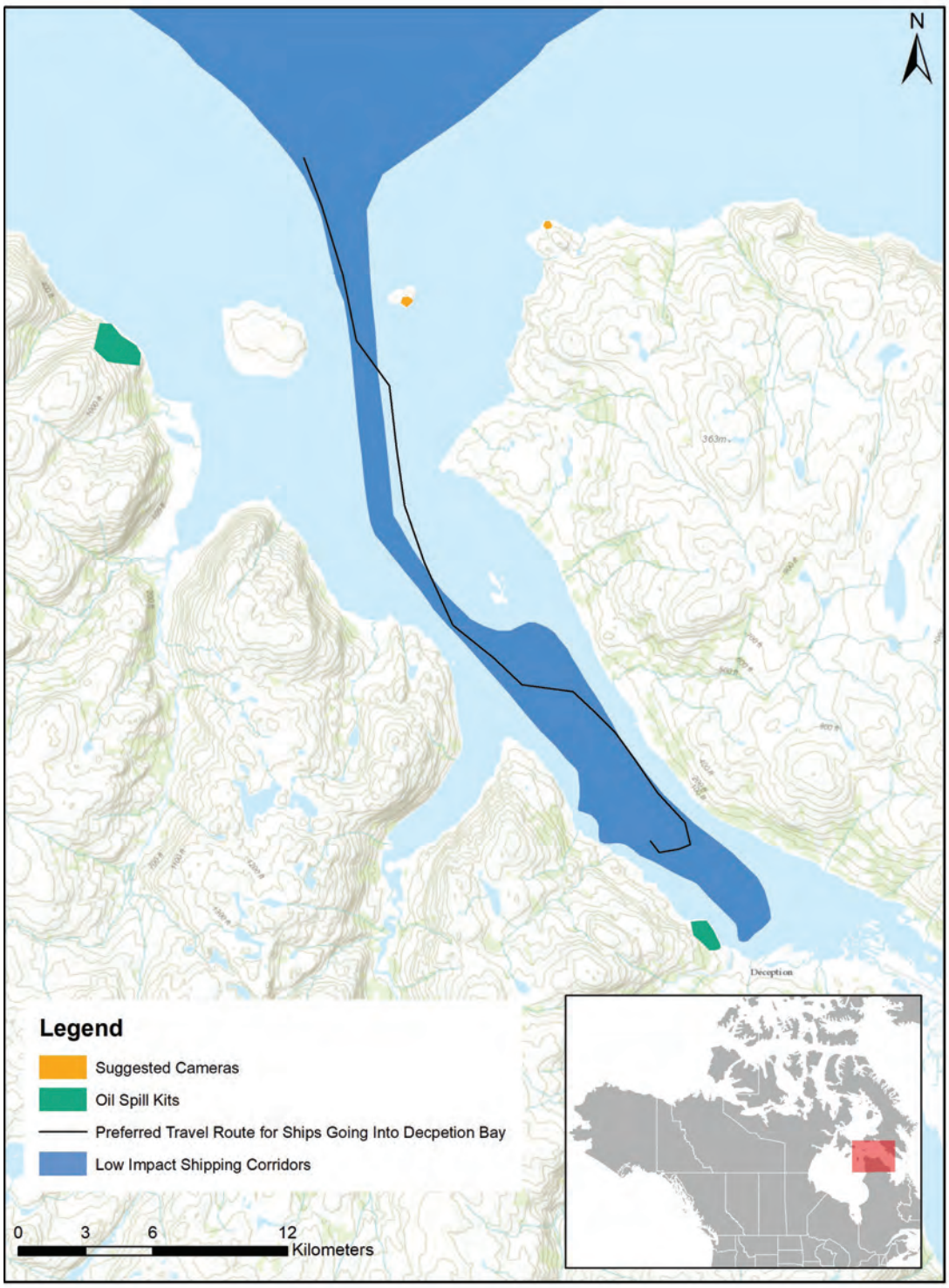

Figure 33. Recommendations for Deception Bay

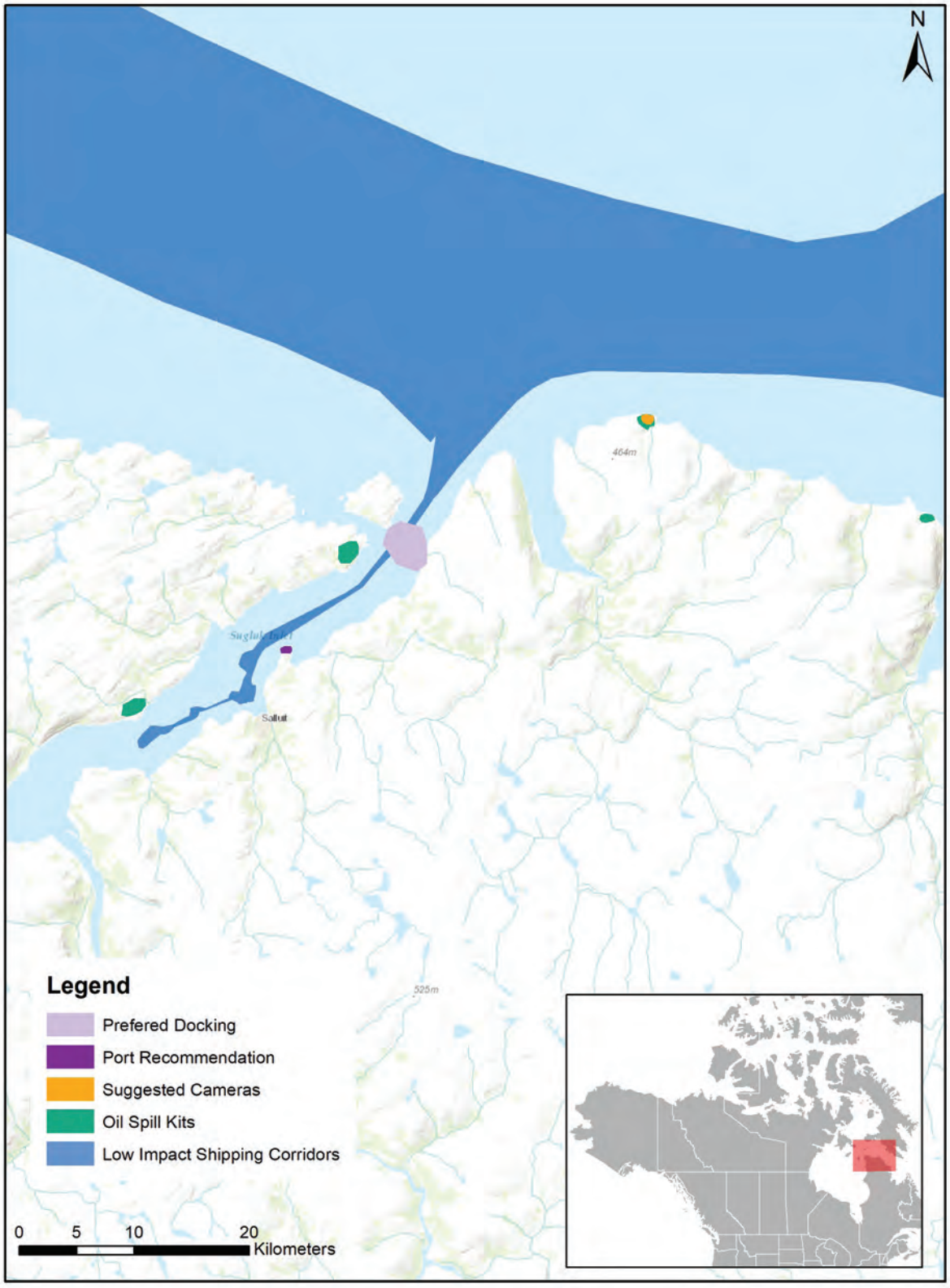

Figure 34. Recommendations for Sugluk Bay

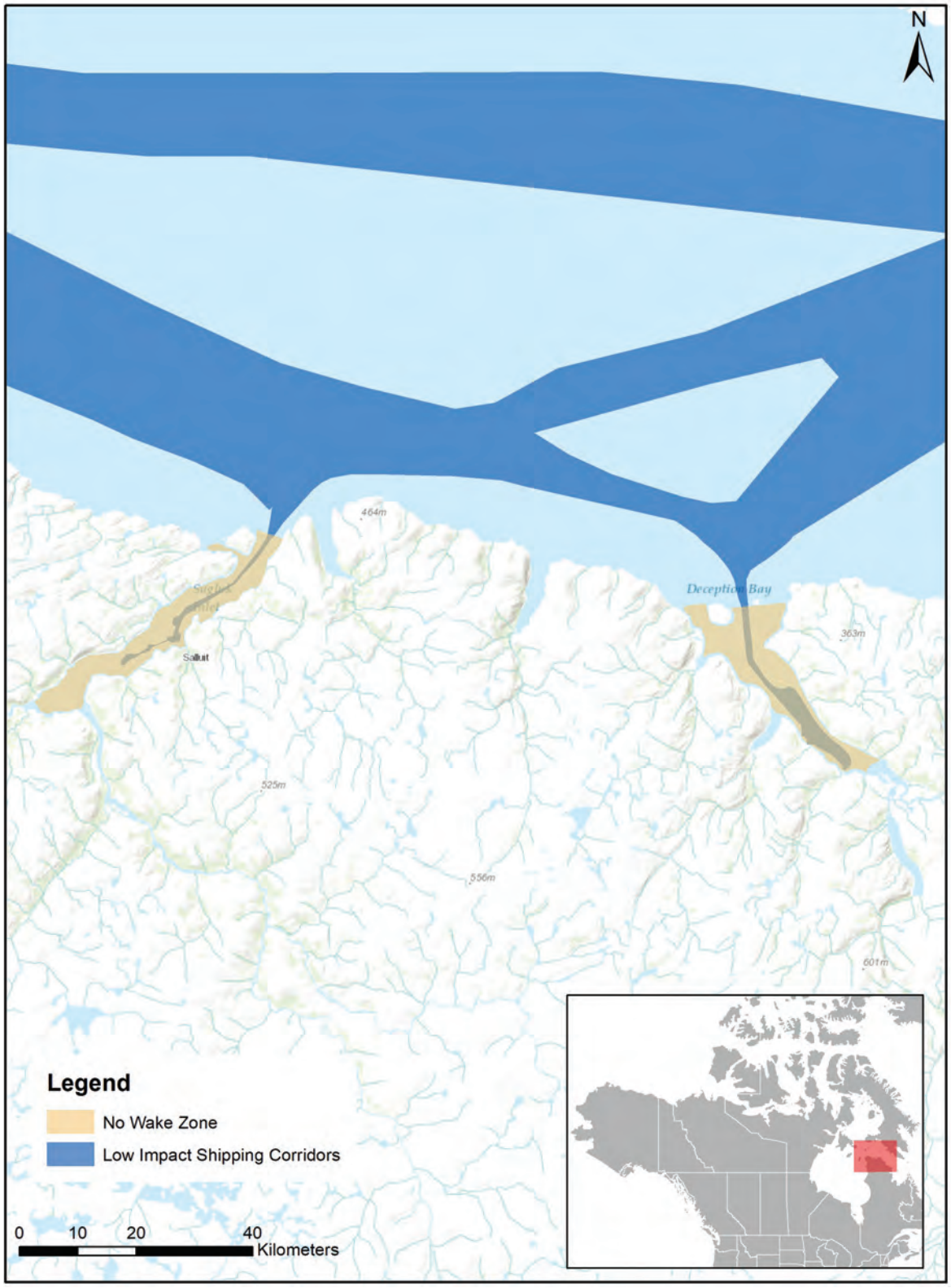

Figure 35. Recommendations for no-wake zones

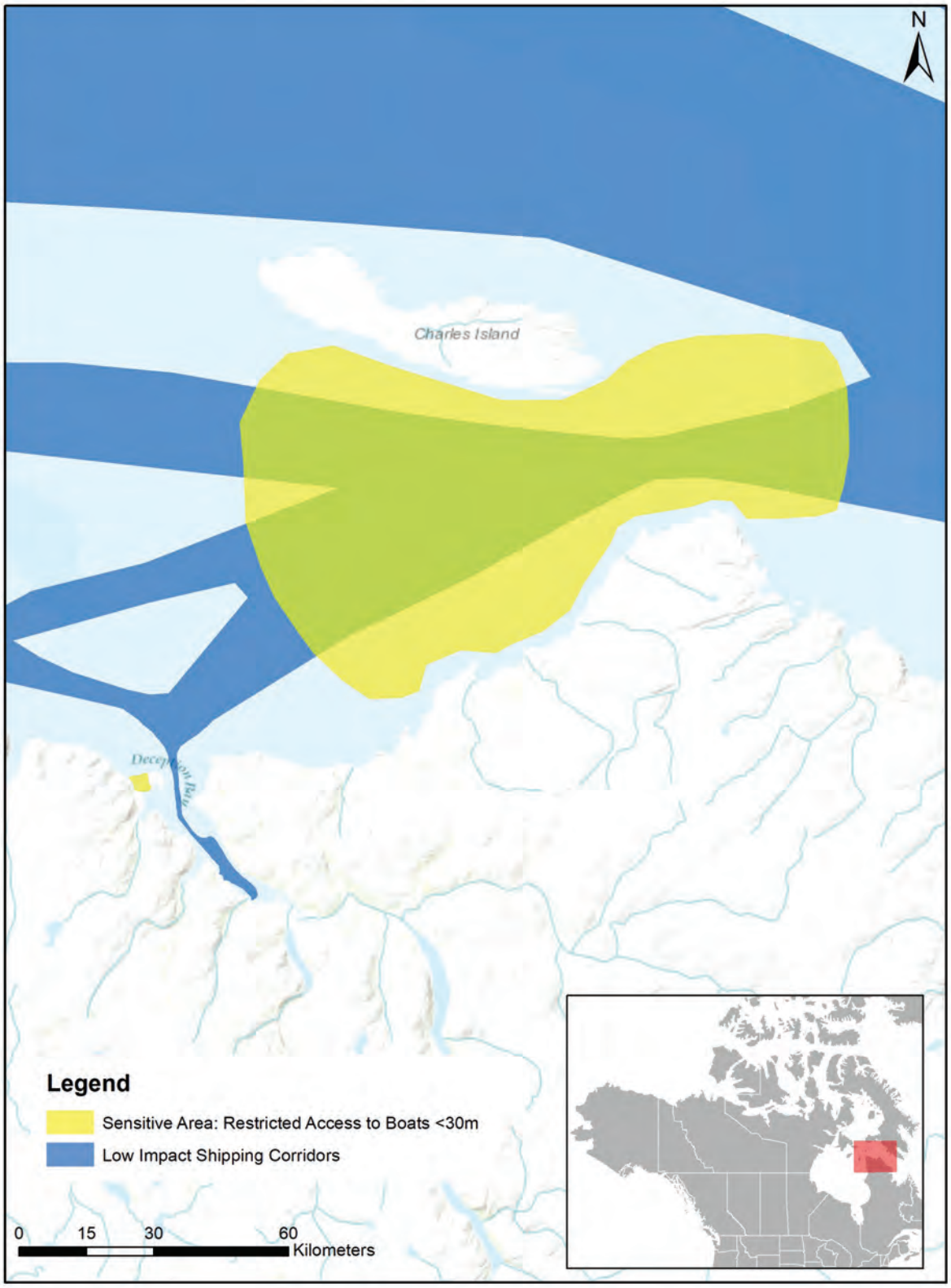

Figure 36. Recommendations for restricted access to sensitive area

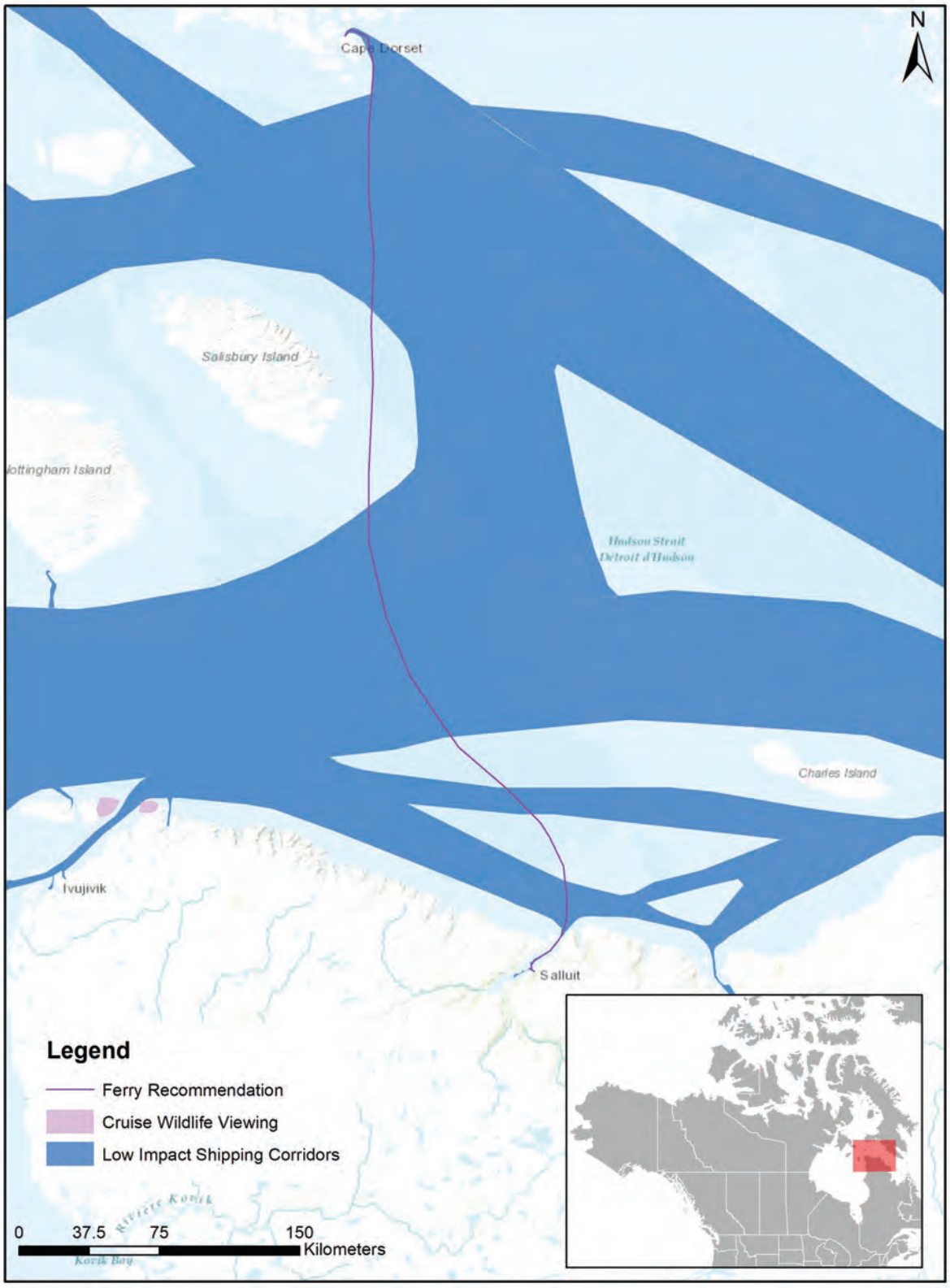

Figure 37. Recommendations for ferry and wildlife viewing

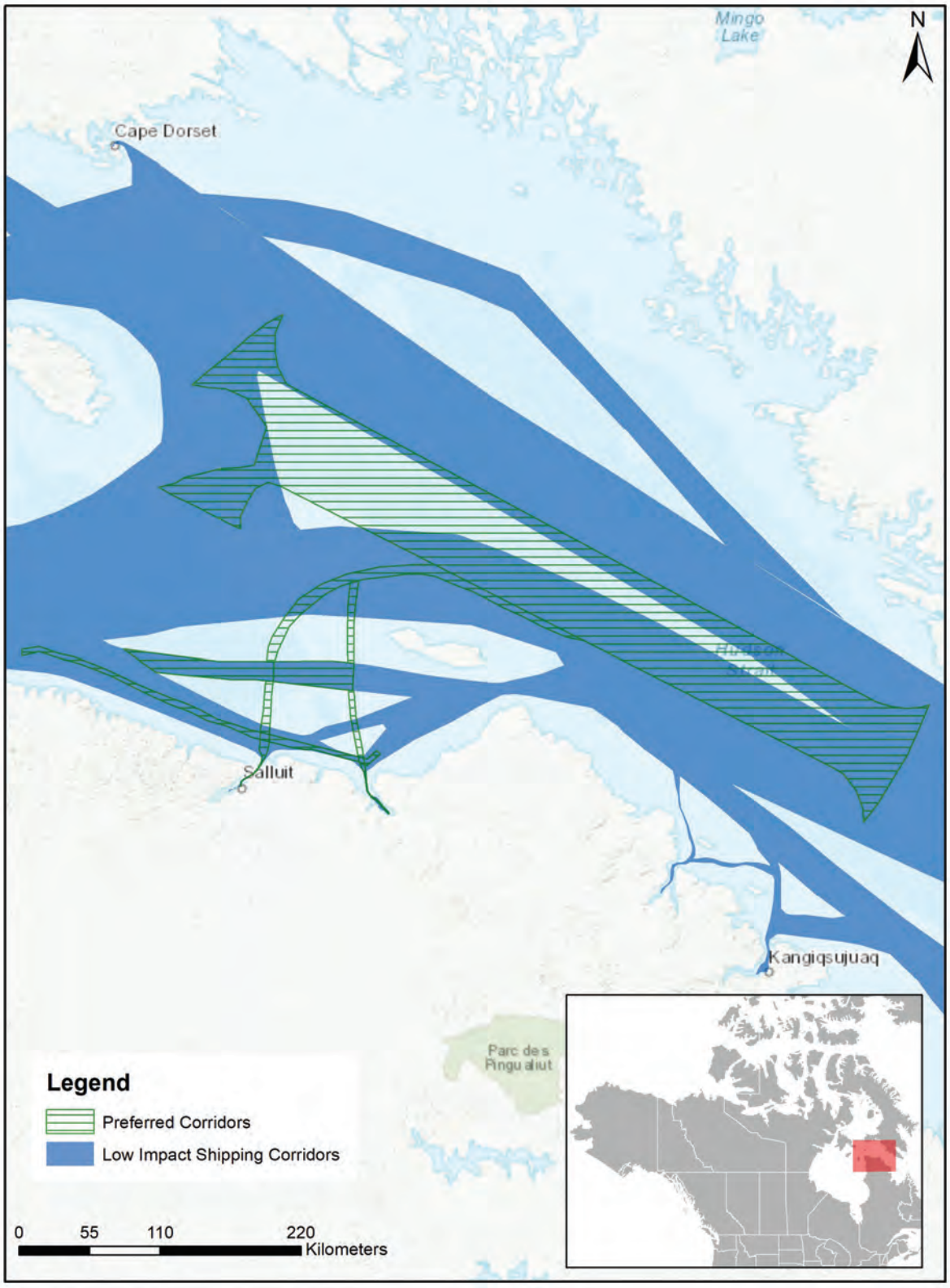

Figure 38. Recommendations for Low Impact Shipping Corridors

Table 5. Summary of recommendations for the Low Impact Shipping Corridors

WHAT COMMUNITY MEMBERS LIKED ABOUT THE CURRENT CORRIDOR LOCATIONS
The Low Impact Shipping Corridors in the middle of Hudson Strait look good and are likely to be low impact (Figure 38).
RECOMMENDATIONS TO MINIMIZE IMPACTS FROM VESSELS USING THE CORRIDORS
The offshore Low Impact Shipping Corridors should be one wide corridor in the middle of Hudson Strait. (Figure 38).
The nearshore Low Impact Shipping Corridors should be further offshore, approximately 25 km, to minimize interactions with animals (Figure 38).
The nearshore (within 25 km) Low Impact Shipping Corridors should be narrow, similar to the size of the corridor in Digges Sound (Figure 38).
Salluit currently lacks the equipment and training required to respond to local oil spills.
Spill kits should be located at the head and mouth of Deception Bay and Sugluk Inlet (Figure 33).
Spill kits should be located at all offloading zones in Deception Bay and Sugluk Inlet (Figures 33 & 34).
A mobile spill kit should be located on the Search and Rescue barge in Sugluk Inlet to enable quick responses in other areas without kits.
Community members should be provided with training for emergency spill kit response.
Community members should be provided with personal protective equipment for spill responses.
The offshore Low Impact Shipping Corridors as they are currently located are preferred for large vessels (Figure 38).
All boats should stay within the Low Impact Shipping Corridors to reduce impacts on wildlife.
Improved communication between the community and the ships during icebreaking is needed.
Improved and open communication between the community and ships to allow the selling of goods to ship passengers is needed.
More hiring of local Inuit to monitor ships is needed to ensure that regulations are being followed.
This study reflects the area around Salluit. The neighboring communities of Ivujivik, Kangiqsujuaq, and Cape Dorset should be consulted as well.

Table 5 (continued). Summary of recommendations for the Low Impact Shipping Corridors

RECOMMENDATIONS TO MINIMIZE IMPACTS FROM VESSELS USING THE CORRIDORS
Community members would like to know how these recommendations are being integrated into the Low Impact Shipping Corridors.
Community members would like these recommendations to be shared with regional Nunavik organizations that are involved with planning and wildlife.
Caution should be taken while traveling between Charles Island and the mainland in summer and fall or until such time that the Low Impact Shipping Corridors can be moved to the far side of the island entirely (Figure 36).
Large vessels (>30m) should avoid traveling between Charles Island and the mainland due to the sensitive nature of this region and the importance to the community.
A dock should be built in Sugluk Inlet to ease the transport of goods, fuel, and people in Salluit.
If a dock is built, a mooring fee should be charged for boats in the bay, facilitating additional income for Salluit.
A ferry should be created to facilitate exchange of goods, services, and people among the communities of Salluit and Cape Dorset. Charting should be done to determine the ferry route.
A single icebreaking route in and out of Deception Bay should be maintained in winter as to lessen the transportation burden of hunters trying to cross the ice via ice bridges.
Fuel tankers should use brightly coloured fuel lines so that hunters can easily avoid fuel lines in the water.
Cameras should be placed to monitor the waterways around Salluit and Deception Bay which would help in Search and Rescue missions and increase community capacity to monitor ship activity throughout the region.
There should be a minimum distance that vessels must be offshore for the dumping of ballast water as is done in other regions (e.g., 11 km in Nunatsiavut).
Baseline data on marine invertebrates and fish are needed to track how vessels may be bringing new species to the region.
More charting is needed in the area for sea depth and ice floe patterns.
Hunters should be allowed to sell fish and meat to passengers on boats.
Research is needed to investigate what fisheries may be commercially viable and how these may be affected by vessel travel in the region.

CONCLUSION

The number of marine vessels in Canadian Arctic waters continues to grow overall.[1] The community of Salluit has extensive experience with shipping traffic in relation to the mining activities that utilize Deception Bay for exporting nickel ore and importing supplies. Mining activities have occurred in this region for over 50 years, with boat traffic to Deception Bay in support of this work happening throughout this time. This includes regular icebreaking in some seasons that is negotiated with the community in terms of timing, and how the community is informed of ice breaking within the Deception Bay region. Therefore, the community of Salluit is familiar with the types of vessel activities that occur in the region, and how large ships can affect the wildlife and communities. The coastal areas around Salluit, including Deception Bay, are important hunting areas for both marine and terrestrial country foods. This includes important wildlife corridors between the Hudson Bay-Foxe Basin region and the Davis Strait-Labrador Sea area. Given that many community members continue to hunt on the land for country foods there is a strong desire to conserve wildlife and the environment to support the Inuit way of life. Combining scientific and Inuit Knowledge in the plan for marine vessels to be as low impact as possible is a welcomed approach by the community. Ensuring that Inuit and northern perspectives are considered in the ongoing development of the Low Impact Shipping Corridors is critical to ensuring that ships using these waterways have minimal impact on the wildlife and environment that are integral to the Inuit way of life.

[1] Dawson J., Pizzolato, L., Howell, S.E.L., Copland, L., & Johnston, M.E. (2018). Temporal and Spatial Patterns of Ship Traffic in the Canadian Arctic from 1990 to 2015. *Arctic 71* (1):15-26. https://doi.org/10.14430/arctic4698.

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