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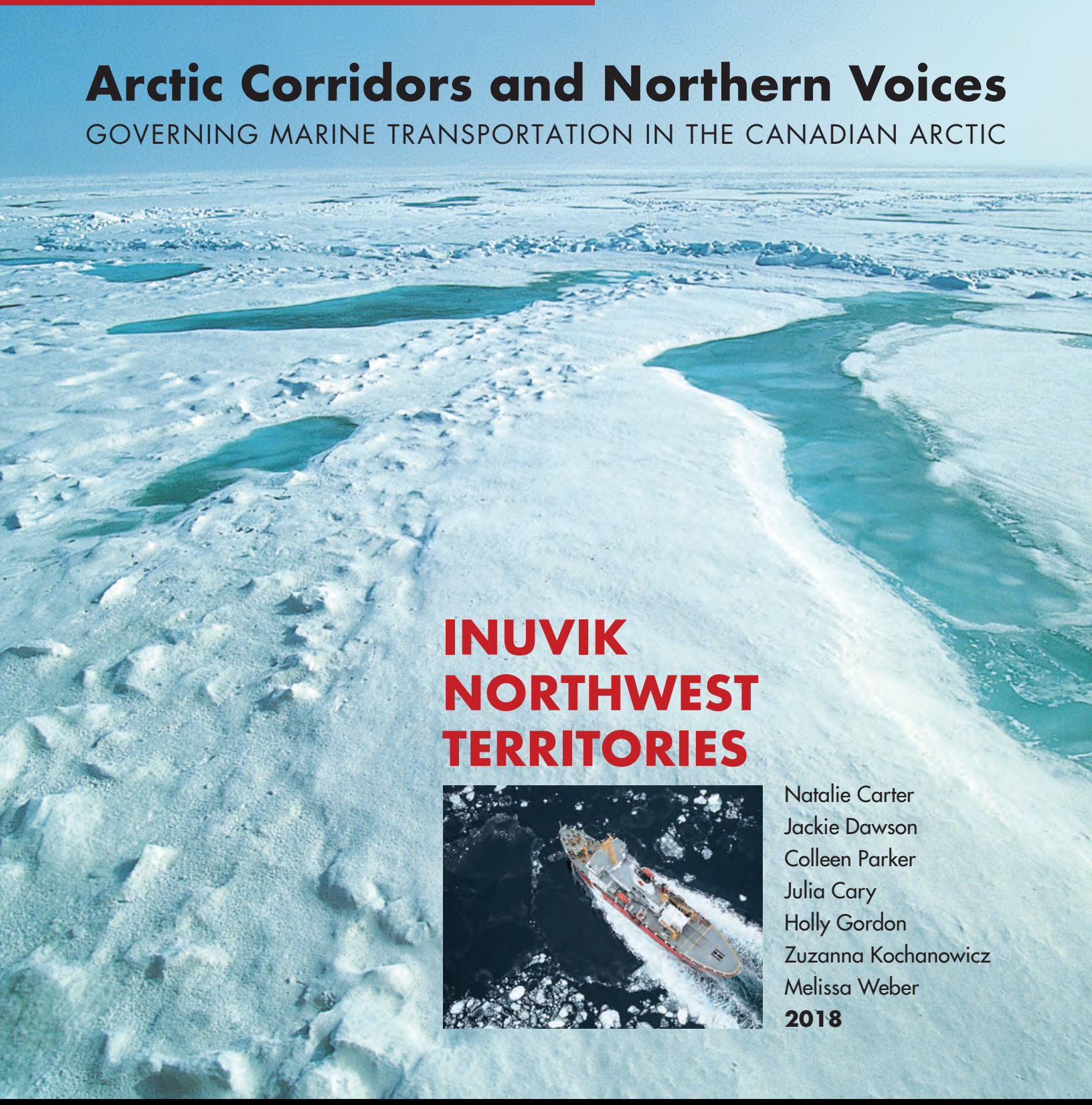
Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC



INUVIK NORTHWEST TERRITORIES

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ARCTIC CORRIDORS RESEARCH

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MEOPAR

OCEANS NORTH

IRVING
Irving Shipbuilding Inc.

WWF

Fisheries and Oceans Canada

Pêches et Océans Canada

EXECUTIVE SUMMARY

Ship traffic in the Canadian Arctic nearly tripled between 1990 and 2015.[1] 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 knowledge and opinions gathered through participatory mapping, focus group discussions, and interviews with Inuvik community members who were identified by local organizations as key knowledge holders. 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 the potential impacts of marine vessels on identified marine use areas and community members; and
- Provide potential strategies regarding management of the Low Impact Shipping Corridors and Arctic marine vessels.

KEY FINDINGS OF THE PROJECT ARE...

- Potential impacts of marine vessels transiting through the Low Impact Shipping Corridors include:
  - contamination of Arctic waters, animals, people, plants, and drinking water by grey-water, ballast water, or oil spills;
  - behavioural changes in wildlife especially whales; and
  - increased expenses and time away incurred by hunters.
- If an accident happened and there was an oil spill, Inuvik has no resources to deal with it.

COMMUNITY-IDENTIFIED RECOMMENDATIONS INCLUDE...

- Marine vessels should avoid harvesting areas, and the Tarium Niryutait Marine Protected Areas especially during calving and whale harvesting times (July and August);
- All ships (including small vessels) should carry Automatic Identification Systems (AIS) and be tracked. The Hunters and Trappers Committee (HTC) should have access to that information;
- Marine mammal observers (MMOs) and environmental monitors recording animals, other ships and small vessels should be on all ships. MMOs and environmental monitors should report directly to the HTC;
- A Canadian Coast Guard check station is needed at the border before entering Canadian waters;
- No greywater should be dumped in the Canadian Arctic. One option for management is land-based holding tanks;
- Ballast water should be sampled and treated before it is released;
- Booms should be deployed during fuel transfers and ships should carry equipment needed for oil spills response; and
- Heavy Fuel Oil (HFO) should not be used.

BACKGROUND

Ship traffic in the Canadian Arctic nearly tripled between 1990 and 2015.[1] 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 Inuvik 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.

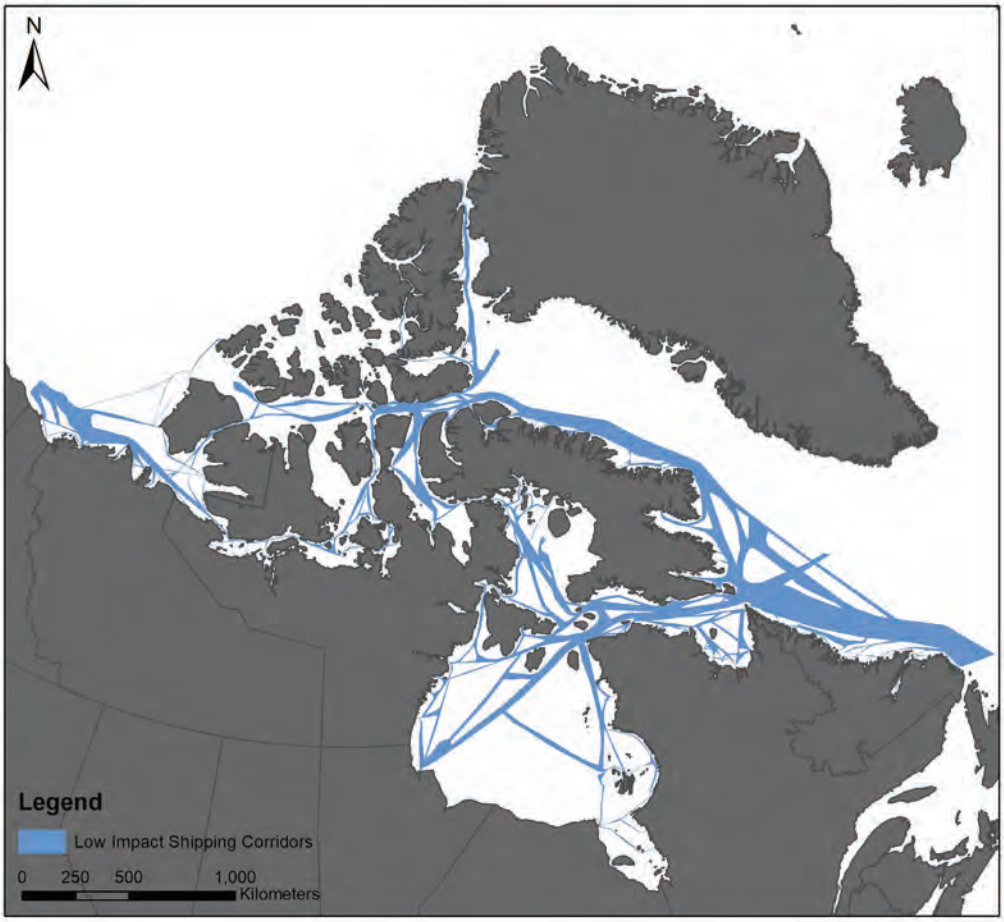


Figure 1. Example of Low Impact Shipping Corridors

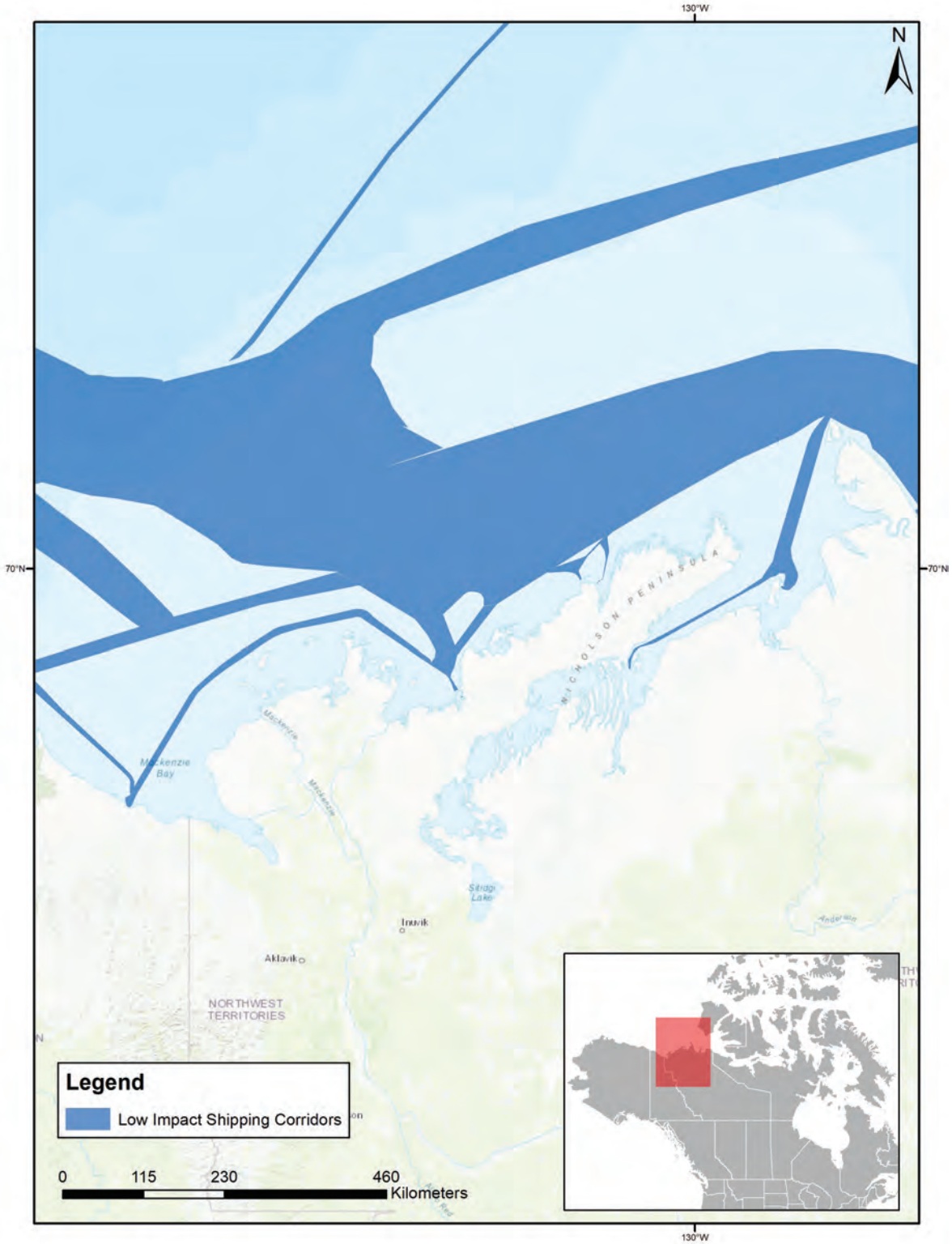


Figure 2. Example of Low Impact Shipping Corridors near Inuvik, Northwest Territories

CHANGE IN SHIPPING ACTIVITY

(1990–2000 ANNUAL AVERAGE COMPARED TO 2011–2015 ANNUAL AVERAGE)

In the Canadian Arctic, when comparing the average annual number of kilometres of shipping activity from 1990-2000 to the annual average from 2011-2015, shipping increases have been predominantly focused in the eastern Arctic, particularly around southwest Baffin Bay (e.g., Pond Inlet, Clyde River, Qikiqtarjuaq, Iqaluit), in the Queen Maud Gulf area (e.g., Cambridge Bay and Gjoa Haven), and northwest Hudson Bay (e.g., Chesterfield Inlet) **(Figure 3)**. 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 Bay, Arctic Bay, Eureka). The Inuvialuit Settlement Region experienced a 6,497 km increase in shipping from 2011-2015 compared to 1990-2000; Inuvik experienced a 1,584 km increase, the third largest increase in the Inuvialuit Settlement Region **(Figure 4)**.[1]

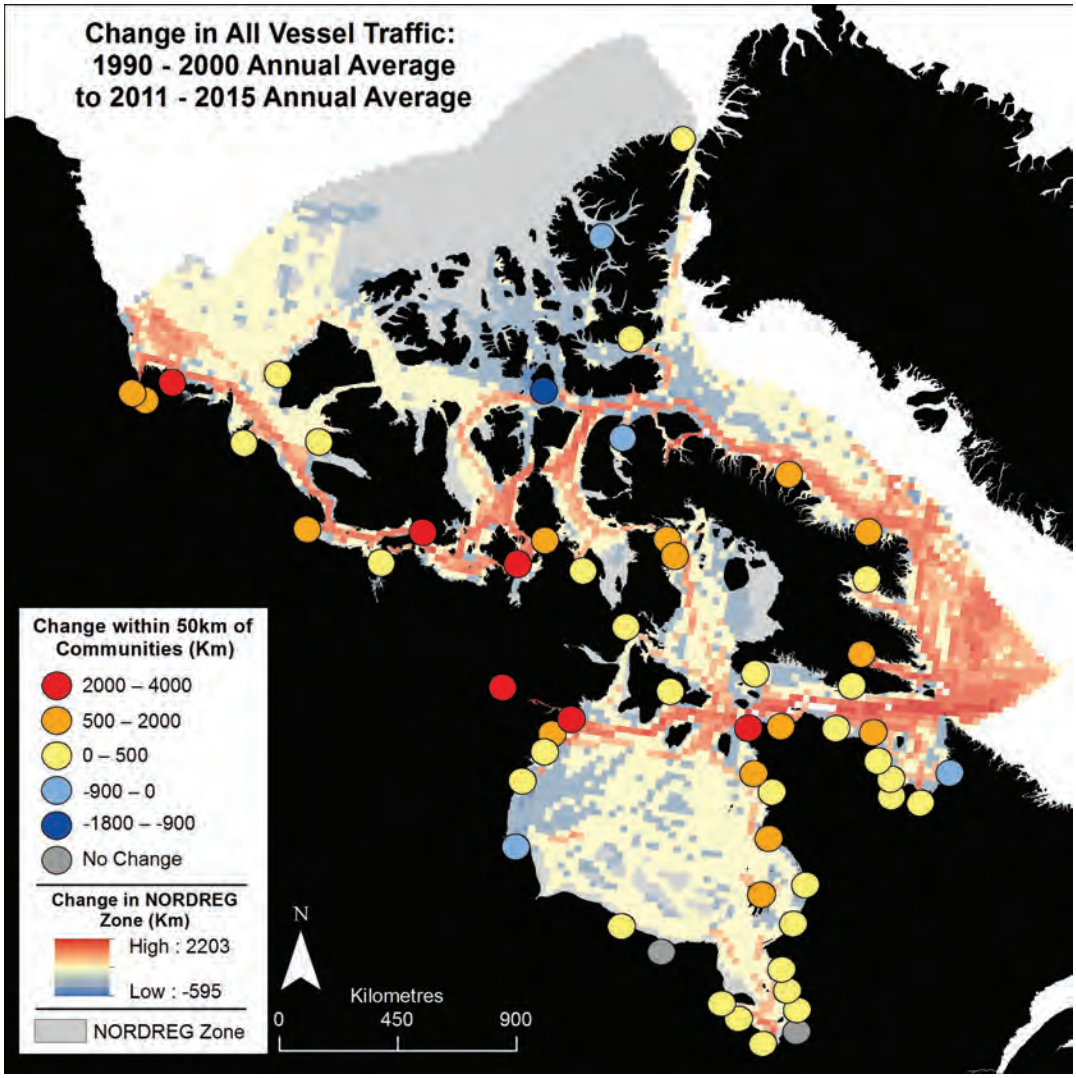


Figure 3. Change in shipping activity (km) in the Canadian Arctic: 1990–2000 annual average compared to 2011–2015 annual average[1]

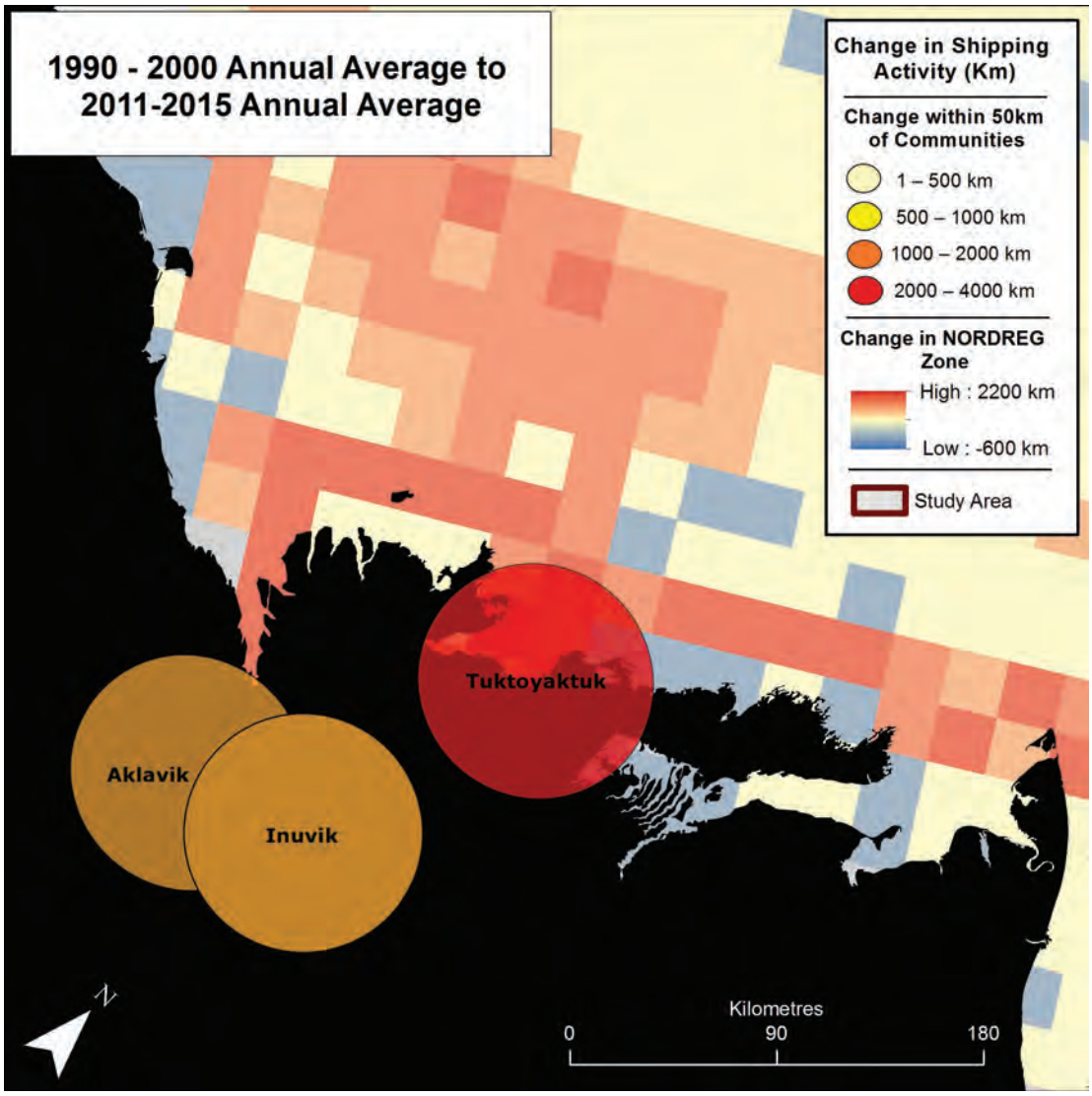


Figure 4. Change in shipping activity (km) near Inuvik, Northwest Territories: 1990–2000 annual average compared to 2011–2015 annual average[1]

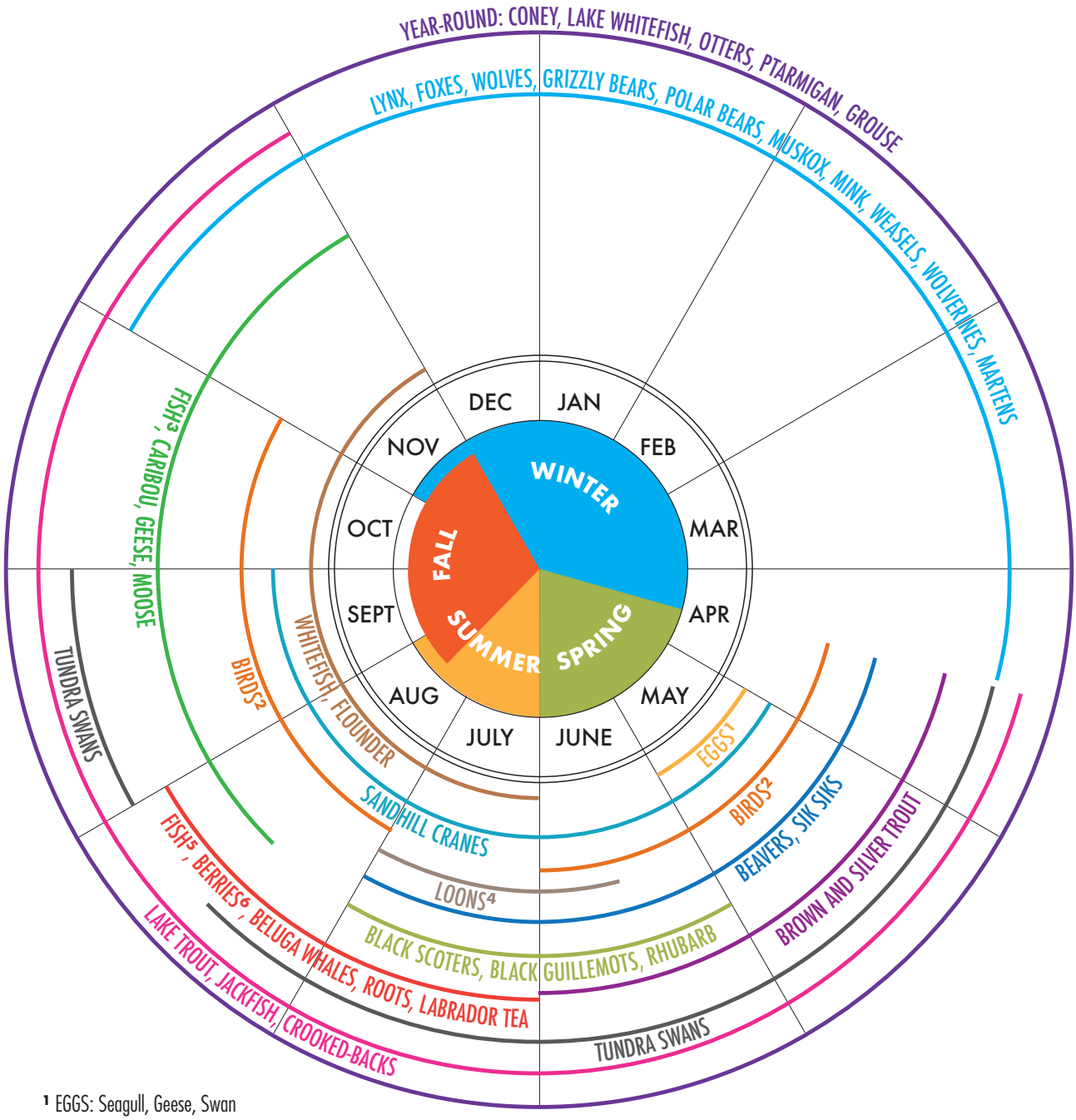
FOUR SEASONS

There are 4 main seasons in Inuvik, Northwest Territories. 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 CONDITION
Spring	Mid-April to end of June	Frozen and sea ice break-up
Summer	End of June to end of August	Open water
Fall	Mid-August to November	Open water to freeze-up
Winter	November to mid-April (as long as there is enough snow to snowmobile)	Sea ice freeze-up and frozen

SEASONAL HARVESTING CYCLE

Harvesting happens according to seasons and follows an annual cycle.



[1] EGGS: Seagull, Geese, Swan

[2] BIRDS: Black Ducks, Mallards, Pintails, Blue Geese, Speckle Bellies, Canada Geese, Eider Ducks, Snow Geese, Brants

[3] FISH: Sculpin, Char, Brown and Silver Trout

[4] LOONS: Pacific, Red-throated, and Common

[5] FISH: Char, Blue Herring, Big-eyed Herring, Salmon (Pink, Chum, and Coho)

[6] BERRIES: Cranberries, Blueberries, Akpiks, Blackberries, Juniper Berries, Currants, Raspberries

Figure 5. Seasonal cycle of harvesting activities near Inuvik, Northwest Territories

MAPS OF CULTURALLY SIGNIFICANT MARINE AREAS

Maps include:

1. Location of marine and terrestrial mammals, birds, and fish;
2. Location of community members' activities as well as camps and burial sites; and
3. Local travel routes and harvesting areas.

Maps will be available at www.arcticcorridors.ca and in Inuvik at Inuvik Hunters and Trappers and Inuvialuit Game Council.

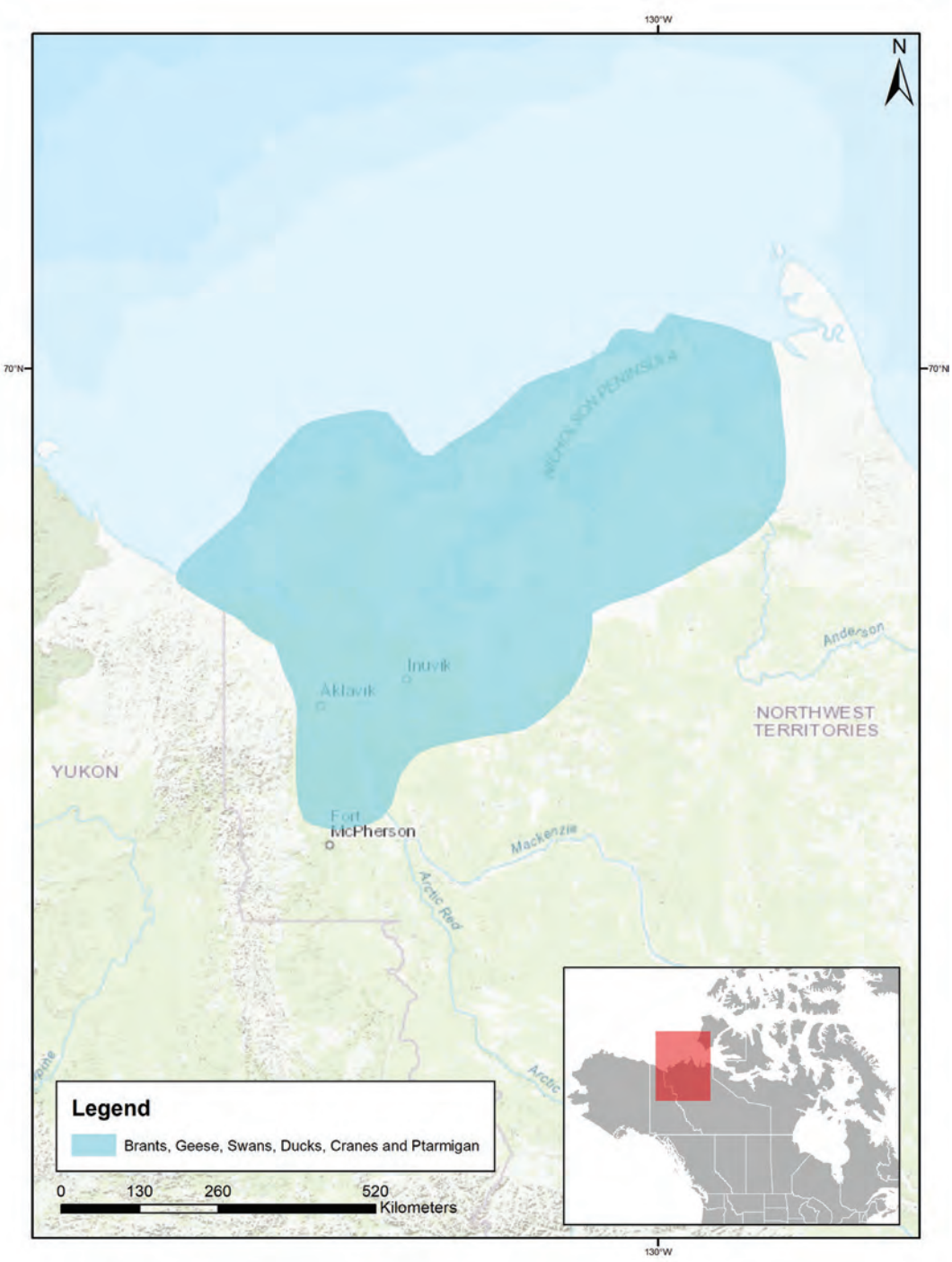


Figure 6. Location of wildlife when the ocean is frozen and around the time of sea ice break-up

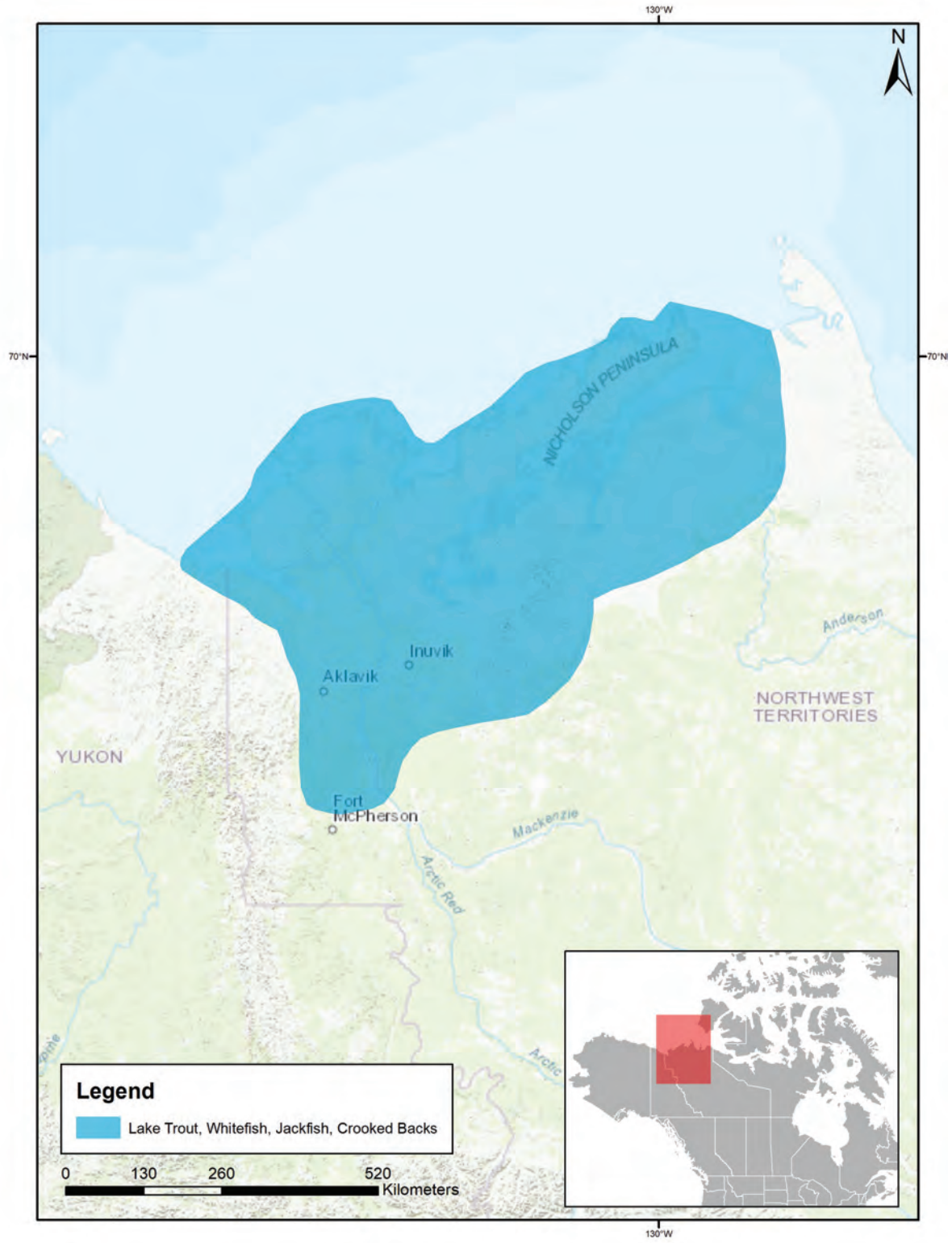


Figure 7. Location of wildlife when the ocean is frozen and around the time of sea ice break-up

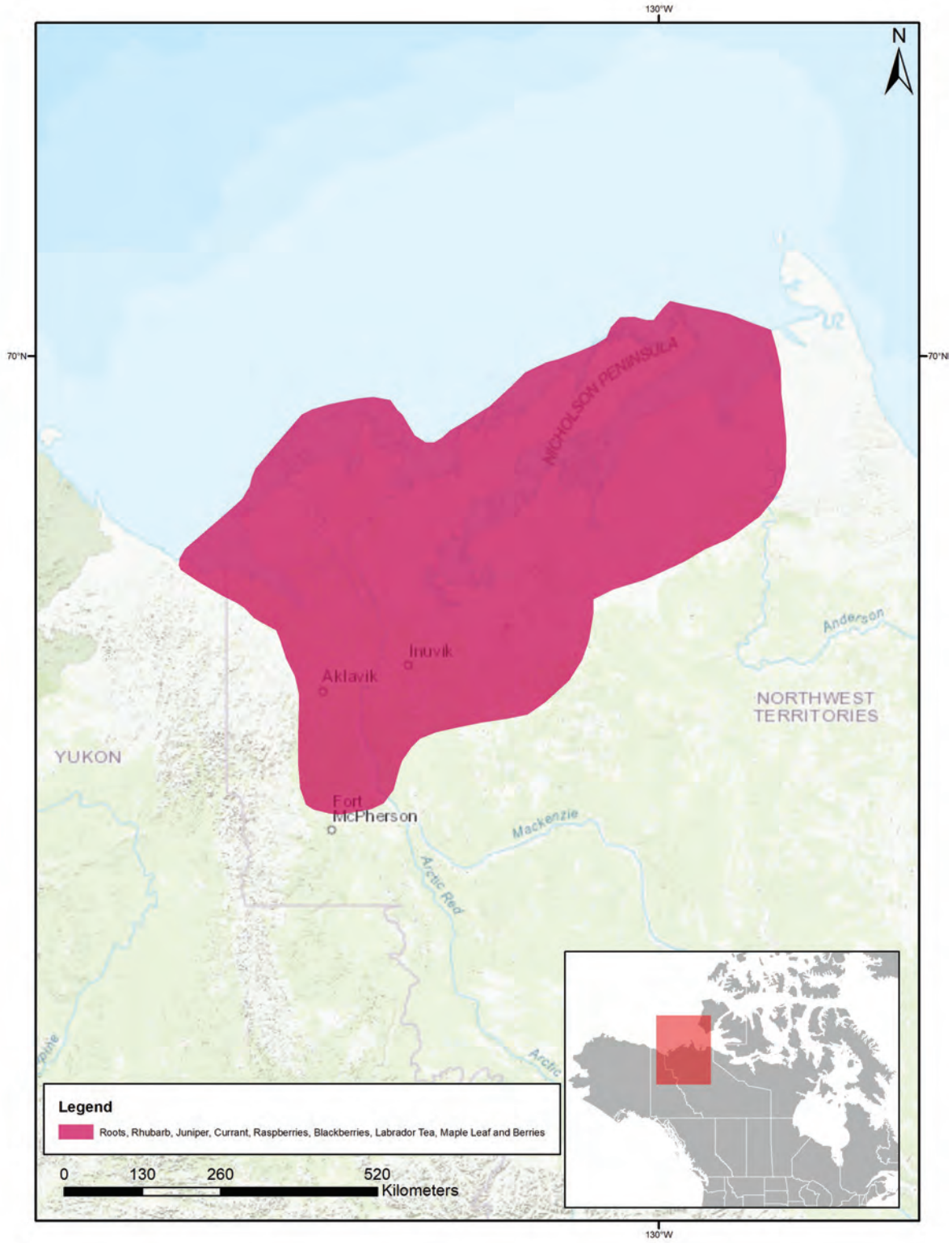


Figure 8. Location of wildlife when the ocean is frozen and around the time of sea ice break-up

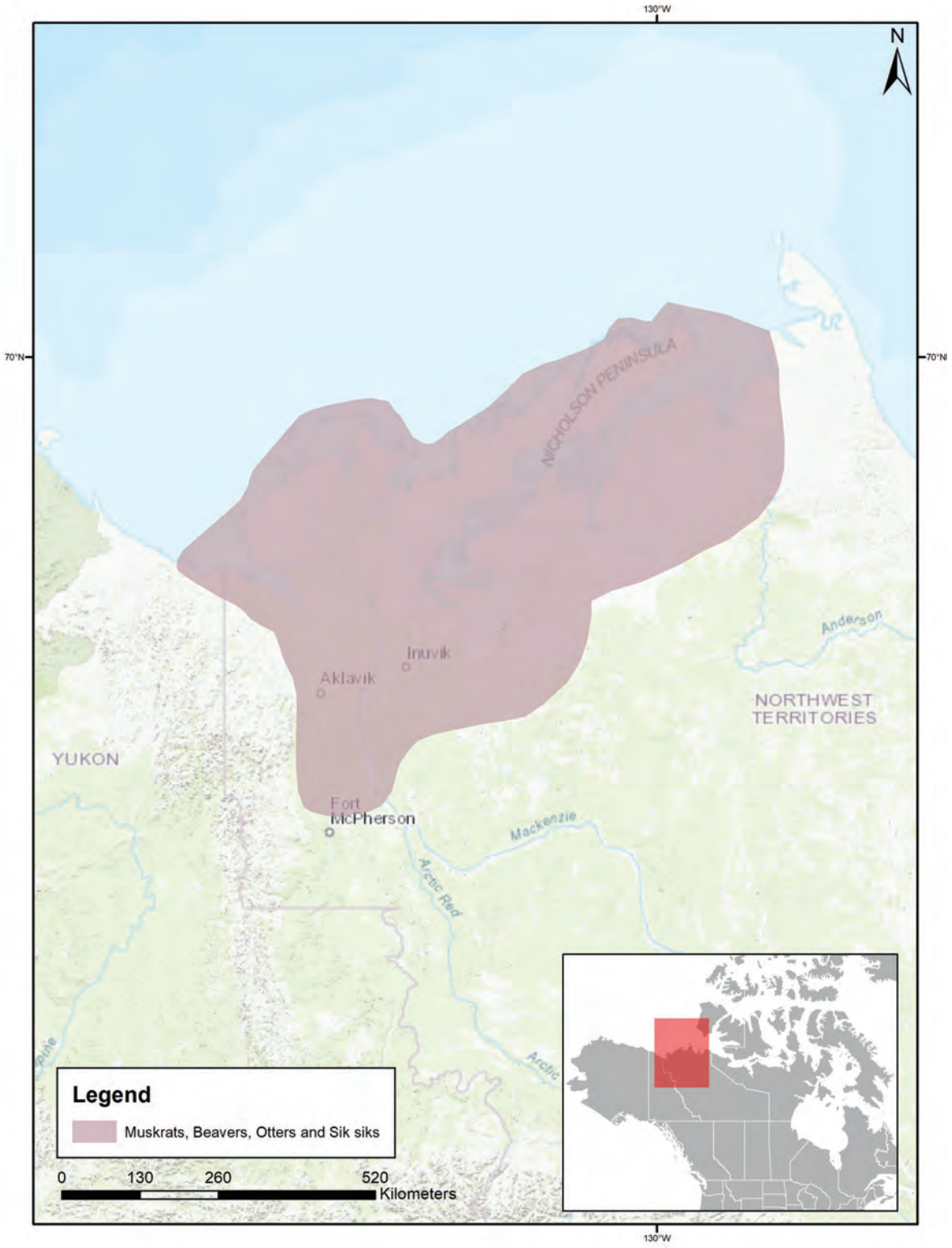


Figure 9. Location of wildlife when the ocean is frozen and around the time of sea ice break-up

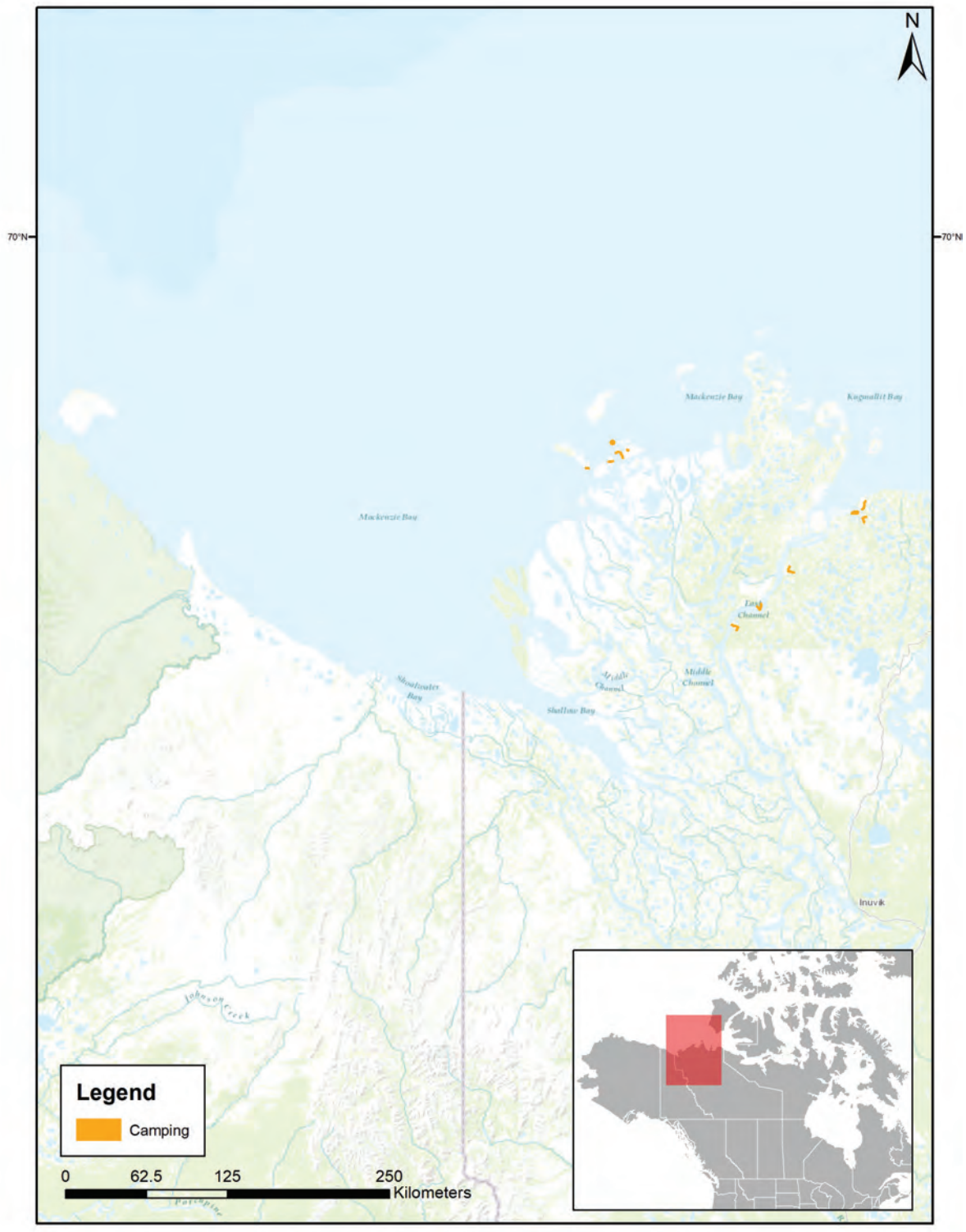


Figure 10. Location of community members' activities during open water

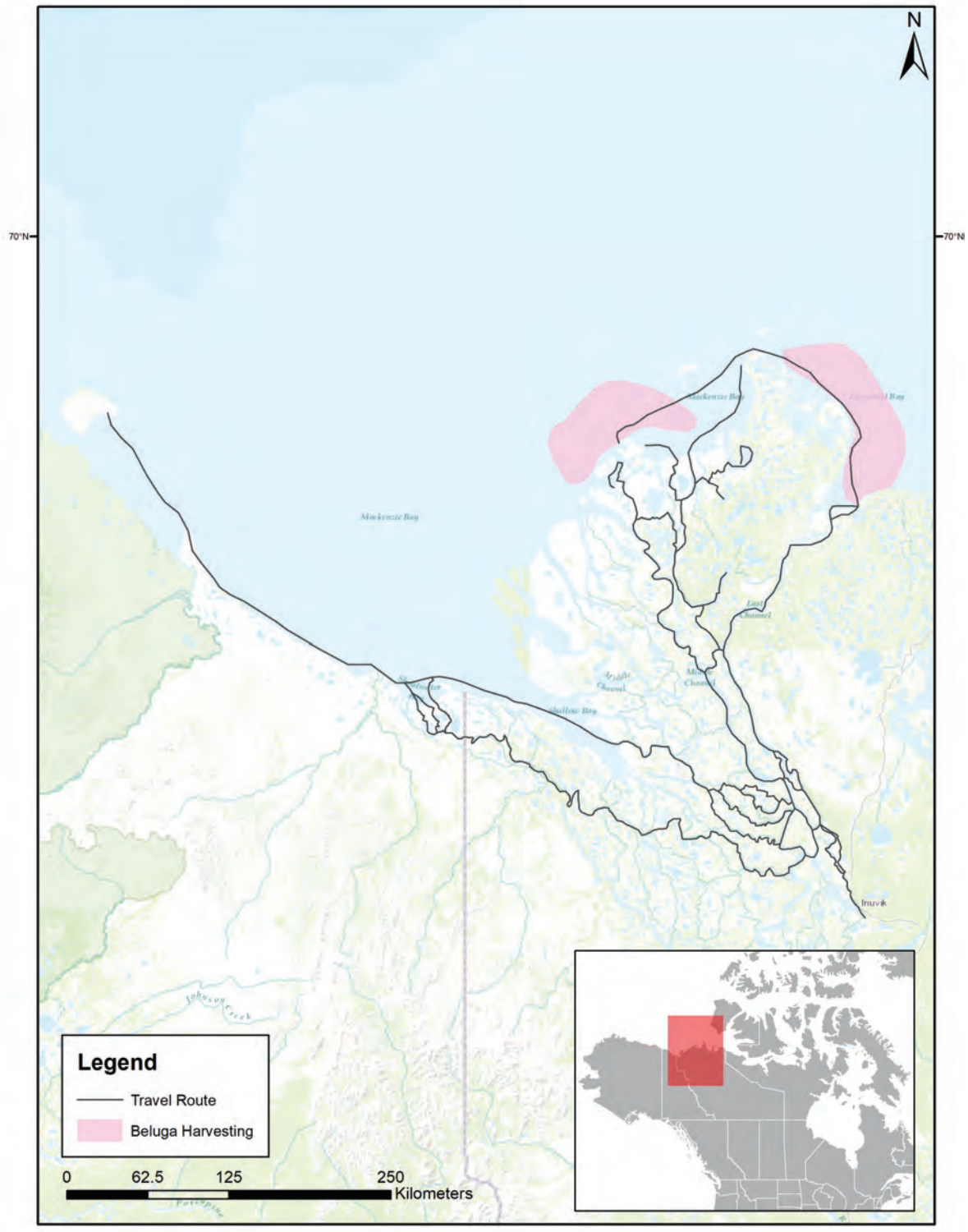


Figure 11. Location of community members' activities during open water

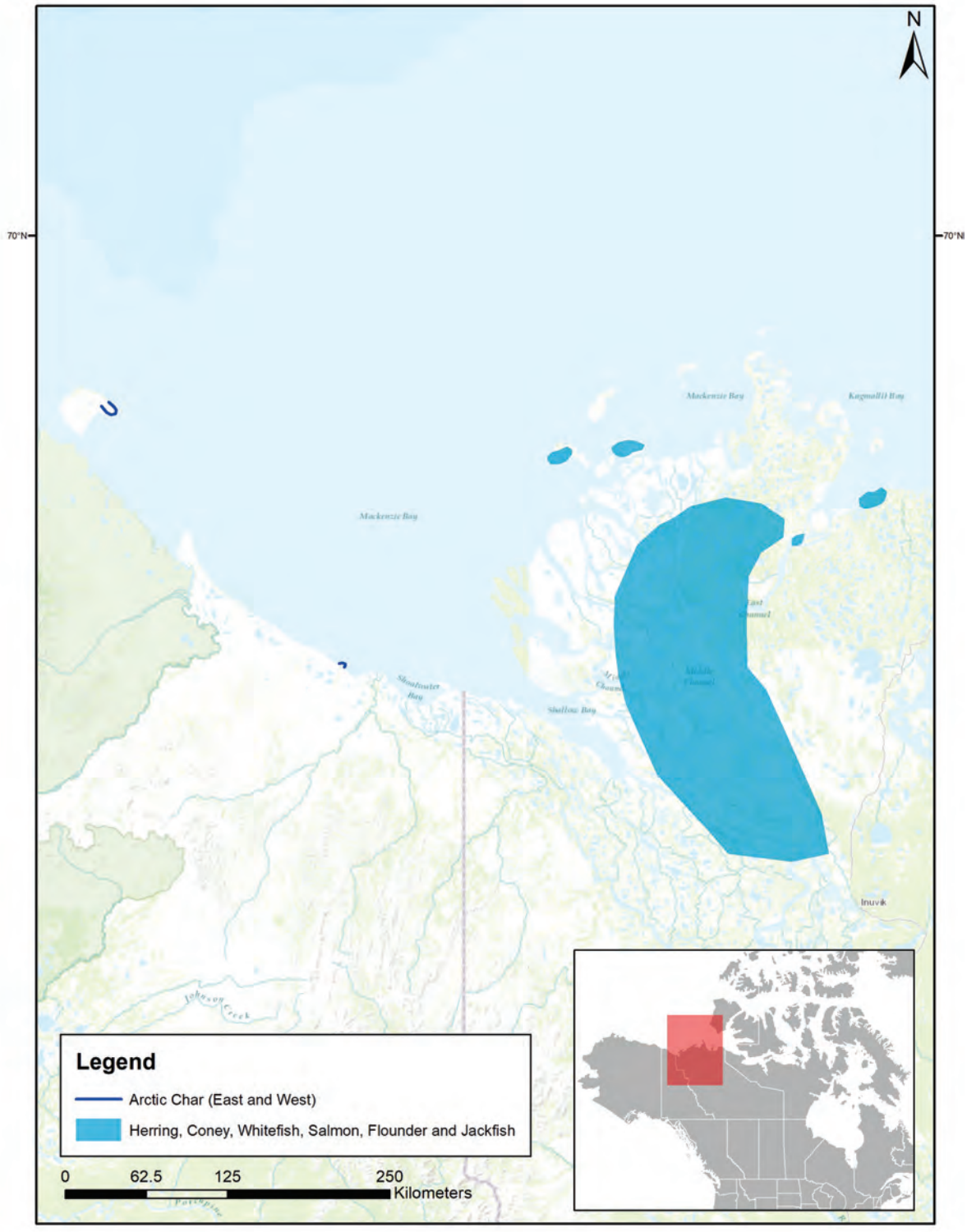


Figure 12. Location of wildlife during open water

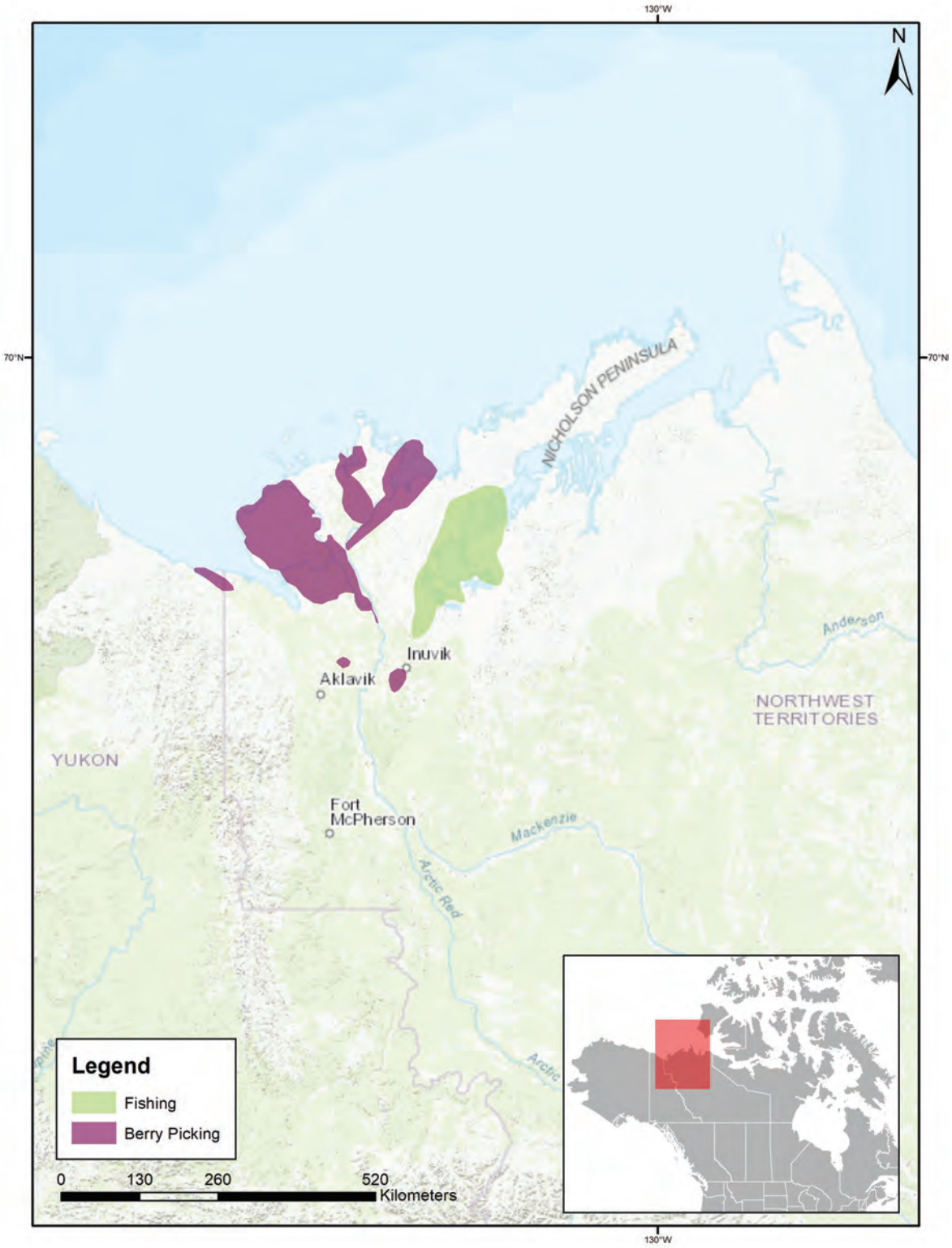


Figure 13. Location of community members' activities during open water

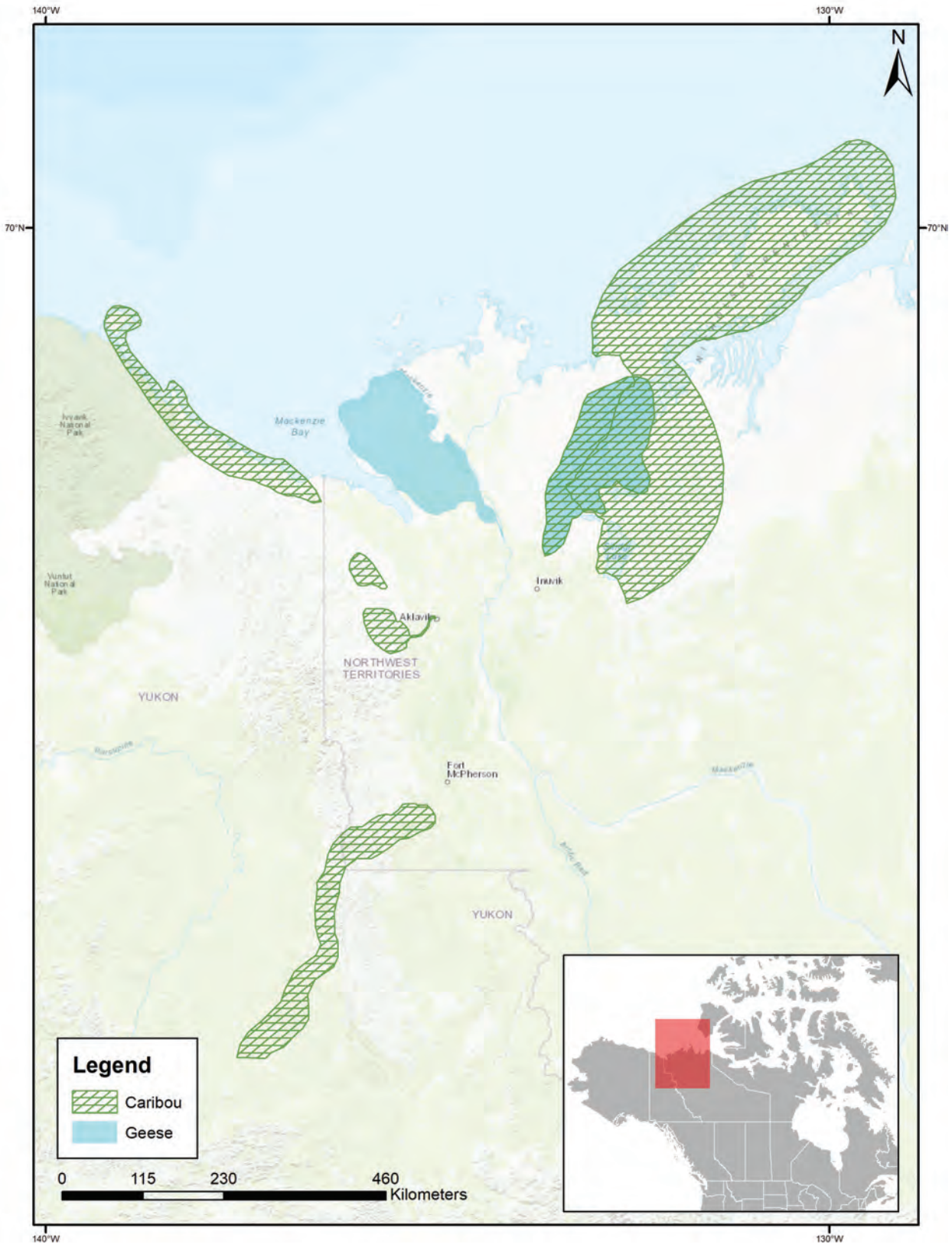


Figure 14. Location of wildlife during open water

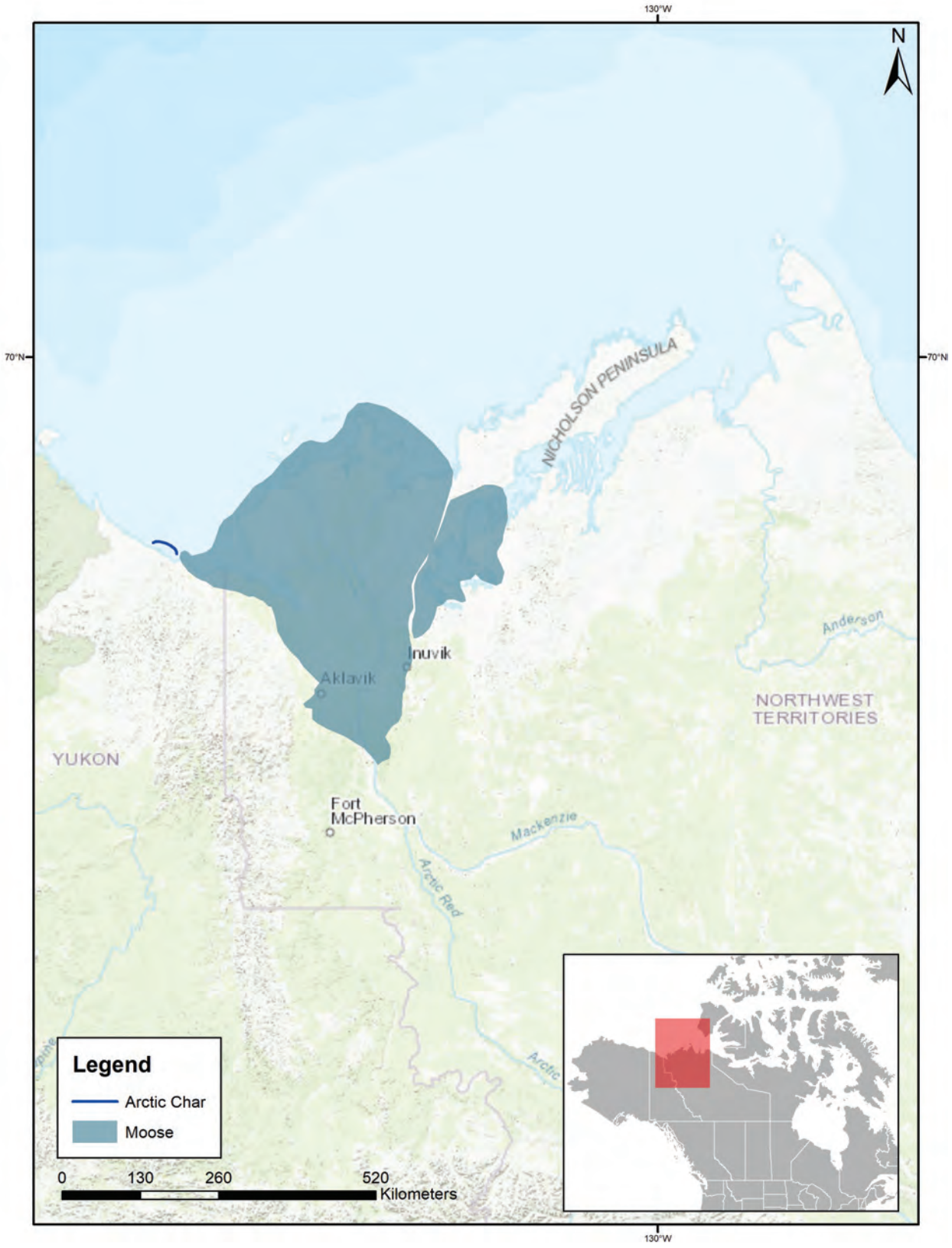


Figure 15. Location of wildlife during open water

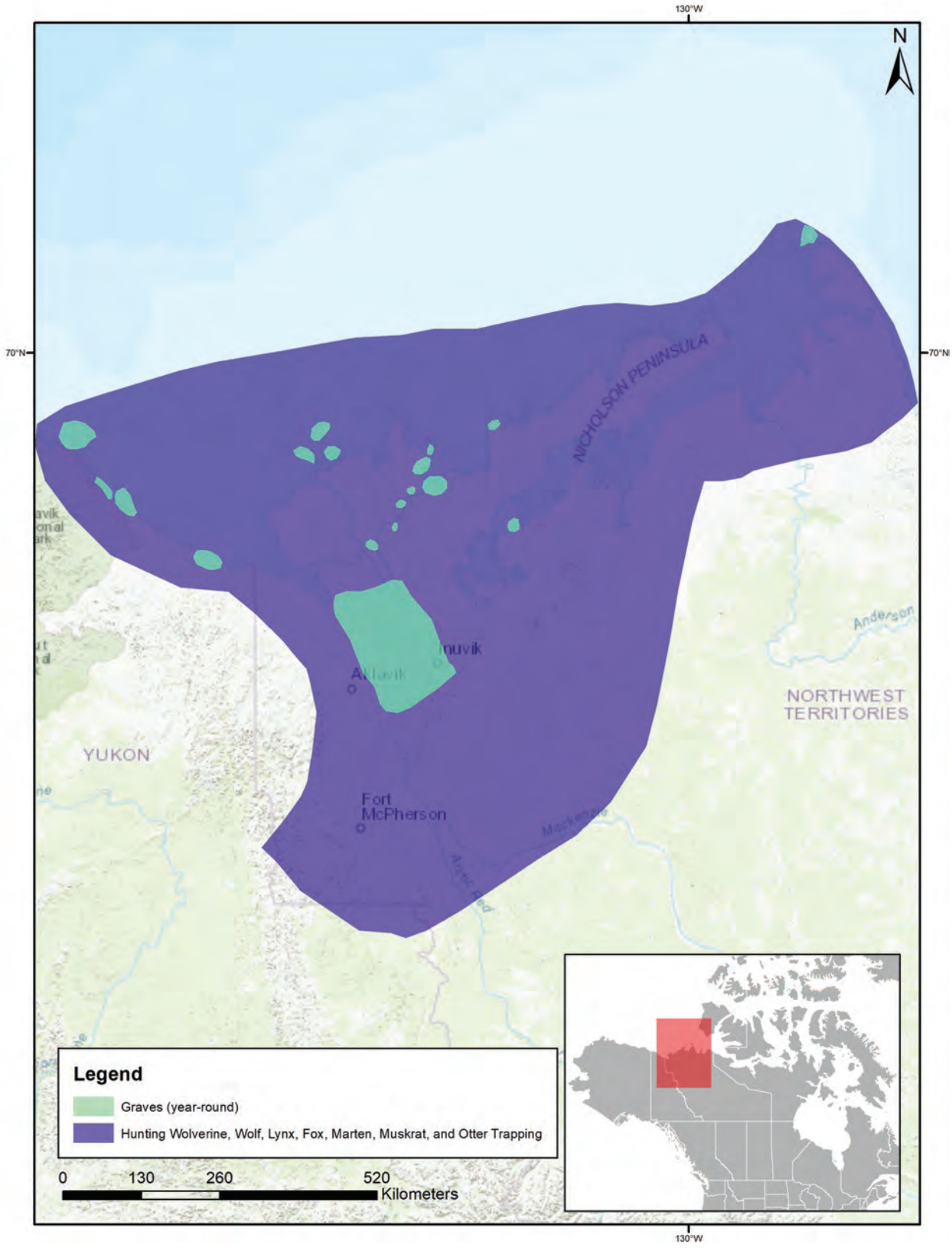


Figure 16. Location of community members' activities around the time of sea ice freeze-up and when the ocean is frozen

POTENTIAL IMPACT OF MARINE VESSELS

Marine vessels using the Low Impact Shipping Corridors may impact the environment, wildlife, and community members **(Table 1)**. Related recommendations are provided **(Table 2)**.

Table 1. Potential impact of marine vessels using the Low Impact Shipping Corridors on the environment, wildlife, and community members

POTENTIAL IMPACT OF MARINE VESSELS
"Our food is in the water so we want to protect the water. That's what we eat: our whales, our fish, our birds. Shipping will impact our way of life."
Greywater is a big concern. • Wind and currents will spread greywater, which will enter the food chain (marine mammals and land animals). Plants will be impacted. People will become sick. • Drinking water may be affected. The exchange between freshwater and ocean water in the lakes could lead to contamination from greywater.
Contamination from greywater, ballast water, or an oil spill would: • have lifelong impacts on animals, fish, birds and plants. It could make the animals, fish, and birds sick and in turn make people sick. An oil spill would contaminate the water which would contaminate the animals; • impact calving grounds and nurturing grounds – whale calves would die; and • make fresh water no longer safe for people to drink. People would have to leave whale hunting grounds and go to town to get water or travel further inland to freshwater lakes which costs money and takes time.
Whales are not as big or as fat as they used to be mainly due to stress. Whales have to use more energy to move away from ships. This stress could also be combined with changes in the environment as new species move in.
Noise from shipping could drive whales away. Long ago, people were not allowed to drop rocks in the water or walk on the rocks or whistle because the noise would scare away whales. People from Inuvik would have fewer successful hunts and spend more money and time trying to hunt if they have to travel further out from their camps.
Inuvik does not have the resources to deal with an oil spill. People are not against development, but Inuvik is not ready.
Not knowing who is going by local camping areas in small vessels is scary. It could be someone wanting to save the ocean, but who also might interfere with local harvesting (e.g., Greenpeace has shown up a few times). Some Small Vessel Operators (SVO) are not prepared and have been cared for by community members. Seeing a dead SVO would be traumatic for everyone. SVOs may be carrying sickness that might spread to local residents and the hospital is very far away (i.e. 4 hours). It is hard to reach emergency help when people do not have communication equipment at the camp.

Table 2. Recommendations for the Low Impact Shipping Corridors

RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS
The current Low Impact Shipping Corridor locations are fine as long as the Marine Protected Areas (MPA) and buffer zones are avoided as follows: • Marine vessels should avoid harvesting areas (see Figures 6 to 16). Vessels should stay further out from the Tarium Niryutait Marine Protected Areas (TNMPA) especially during calving and whale harvesting times (June, July, and August); and • Fisheries and Oceans Canada (DFO) and Fisheries Joint Management Committee (FJMC) should extend the TNMPA buffer zone beyond the current 5 miles during the beluga harvesting season in July and August. The buffer zone extension should be determined by the Western Arctic MPA Steering Committee and community feedback from Tuktoyaktuk, Inuvik and Aklavik.
Conduct re-fueling at Distant Early Warning (DEW) line only in mid-August or later to avoid the whaling season.
All ships (including small vessels) should carry Automatic Identification Systems (AIS). All ships (including small vessels) should be tracked and the Hunters and Trappers Committee (HTC) should have access to that information. Community members need to know about ships coming into the Inuvialuit Settlement Region (ISR) before they come in. Voyage plans should be shared with the HTC in advance.
Tugs, barges and Coast Guard vessels should carry a marine mammal observer (MMO) and an environmental monitor. MMOs should record animal sightings as well as the presence of other ships and small vessels. MMOs and environmental monitors should continue reporting directly to the HTC. They should structure their employment contract (through DFO, FJMC) so they feel free to report everything they see and do not have to worry about potential repercussions (for instance getting fired).
Small Vehicle Operators (SVO) should stop in at the visitor centre or Royal Canadian Mounted Police (RCMP) office at point of departure to make sure they have the proper supplies and to share their planned route. That trip plan should be shared with the HTC. The HTC should in turn share it with the whale monitor at Kendall Island.
Coordinate more with all 6 Inuvialuit communities to create a united front on shared issues rather than each community working in their own self-interest.
Tugs and barges on the Mackenzie River should slow down in small channels and near harvesting areas to reduce wake.
A check station at the border upon entering Canadian waters is needed. The Canadian Coast Guard should set up border control and inform the HTC about vessels coming across the Northwest Passage from the East.

RECOMMENDATIONS FOR MARINE VESSEL MANAGEMENT

- Suggestions for greywater are:
  1. No greywater should be dumped in the Canadian Arctic. Whatever companies bring in, they should take out.
  2. Land-based holding tanks should be strategically placed along the coast or support vessels should be available that can offload greywater. Greywater could then be trucked away or recycled; and
  3. Provide comments to Environmental Impact Screening Committee (EISC) applications recommending no dumping of greywater in Beaufort waters through the EISC screening process.
- Ballast water should be sampled for contaminants and invasive species and treated (through the territorial water survey and federal Water Survey of Canada) before it is released. Gauges should measure the amount of ballast water transported so that additional water is not added en route. Ballast water dumping should be reported to the HTC, Inuvialuit Game Council (IGC), Inuvialuit Regional Corporation (IRC), and all co-management boards.
- Boom should be deployed to do fuel transfers and when anchored. Ships should have equipment onboard to deal with oil spills from their own ship.
- No use of Heavy Fuel Oil (HFO).
- Establish a water quality monitoring program for the TNMPA to check for contamination from increased shipping (sampling at the beginning of July and end of August). Results should be re-ported to the HTC within a reasonable time frame of the whaling season (i.e., same calendar year).

The Inuvialuit depend on these lands and waters for food. The community wants them there, unspoiled and pristine, for the next generation. They want these recommendations to be taken seriously and for the Hunters and Trappers Committee to be told about which recommendations are implemented. The results of this work should be shared with Inuvialuit Game Council (IGC), Inuvialuit Regional Corporation (IRC), Fisheries Joint Management Committee (FJMC), Wildlife Management Advisory Council – North Slope WMAC(NS), Wildlife Management Advisory Council – Northwest Territories WMAC(NWT), Transport Canada (TC), Canadian Coast Guard (CCG), and Fisheries and Oceans Canada (DFO).

CONCLUSION

The number of marine vessels in Canadian Arctic waters continues to grow.[1] At the same time, the Northwest Passage is receiving unprecedented international attention related to sovereignty, interest from tourism operators, and the immense cost savings that a commercially navigable Arctic route would present. Inuvik, located inland on the Mackenzie River, has experienced a moderate increase in marine vessel activity in recent decades.[1] However, the marine areas that are most significant to community members' subsistence harvesting and livelihood activities, are located in Mackenzie Bay in the Northwest Passage – exactly where ship traffic has increased. The Kendall Island Migratory Bird Sanctuary and the Tarium Niryutait Marine Protected Area (TNMPA) are located in this area. This area is particularly important to the Beaufort Sea beluga whale stock that travels to the Mackenzie Estuary during the summer months. These whales come to this area for feeding, rearing calves, moulting, socializing, and for energetics (i.e., thermal advantage). The TNMPA has traditionally been used by the Inuvialuit and is important from a cultural, subsistence and economic perspective. The TNMPA protects harvesting traditions central to the Inuvialuit culture in the communities of Aklavik, Inuvik and Tuktoyaktuk.[2] Given community members' concerns about marine vessel traffic and its implications for the ecology, environment, and Inuit way of life, the perspectives of Inuvik 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.

[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.

[2] Beaufort Sea Partnership Initiatives: Tarium Niryutait Marine Protected Area 2018. http://www.beaufortseapartnership.ca/initiatives/tarium-niryutait-marine-protected-area/

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