

Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC

SACHS HARBOUR NORTHWEST TERRITORIES



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PARTICIPANT BIOGRAPHIES



Vernon Amos

Joe Kudlak was born in Minto Inlet on Victoria Island and lived at Berkley Point, De Salis Bay and Sachs Harbour. He hunted and trapped all through his teenage years. He went to school in Yellowknife. He worked for Parks Canada for 17 summers as a patrolman in Aulavik National Park. He was a sport hunting guide for 15 years.



Ryan Lucas is vice-chair of the Sachs Harbour Community Corporation. He is a facility maintainer for Hamlet and an active harvester. He is also a sergeant with the Canadian Rangers.

Tony Lucas Sr. is a director for the Community Corporation and works for housing as a maintainer.



Darren Nasogaluak has been a full-time hunter and trapper most of his life. He now works for the government as the airport maintainer. He has been on various co-management boards throughout his life within the Inuvialuit Settlement Region (ISR). He continues to try to give his input into conservation.

Kyle Wolki is secretary-treasurer for both the Hunters and Trappers Committee and the Community Corporation. He is an active hunter and fisherman.





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 Sachs Harbour 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, and people due to greywater and ballast water discharge, or oil spills;
 - introduction of invasive species that could devastate the food chain that Inuit depend on daily for food;
 - behavioural changes in wildlife including whales, polar bears, and fish;
 - increased number of whale strikes if more ships are transiting; and
 - fewer successful harvests resulting in decreased food security, and therefore increased dependence on store-bought food and social assistance programs.
- If there was an oil spill, Sachs Harbour has no resources to deal with it.
- Icebreaking could disrupt the caribou migration, and change sea ice conditions resulting in a higher sea state and wave action eroding or freezing polar bear dens, trapping bears inside.
- The area around Sachs Harbour is not adequately charted.

COMMUNITY-IDENTIFIED RECOMMENDATIONS INCLUDE...

- A no-go zone through Prince of Wales Strait;
- Recommended corridors locations for commercial vessels and for all other types of vessels;
- Zones with recommended distances to maintain from shore;
- Areas near Sachs Harbour and Aulavik National Park where charting is needed;
- Strategic locations where oil spill response equipment should be placed;
- Real-time monitoring of greywater, sewage/bilge water, or fuel flushing through mechanical or electronic and human monitoring (environmental monitors with authority equal to that of Department of Fisheries and Oceans (DFO) Fisheries Officers); and
- Ship bows should be equipped with cameras that detect whales, and transmit to DFO.





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 Sachs Harbour 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.

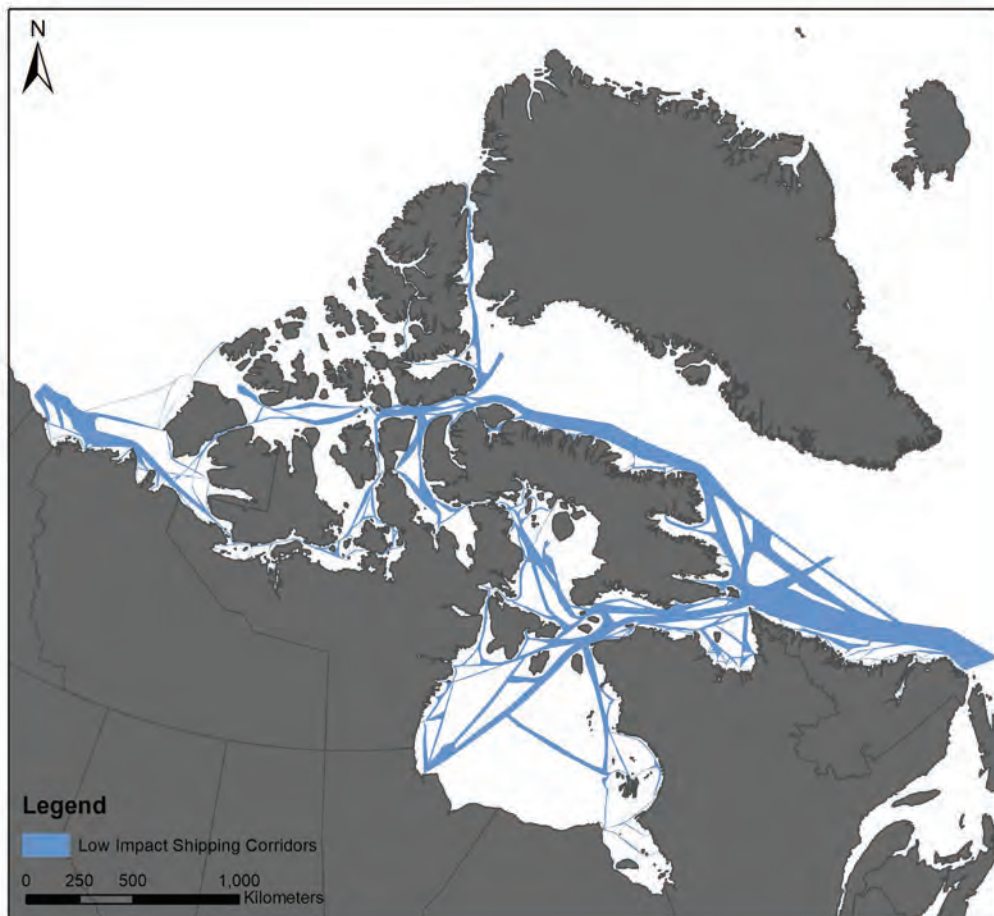


Figure 1. Example of Low Impact Shipping Corridors

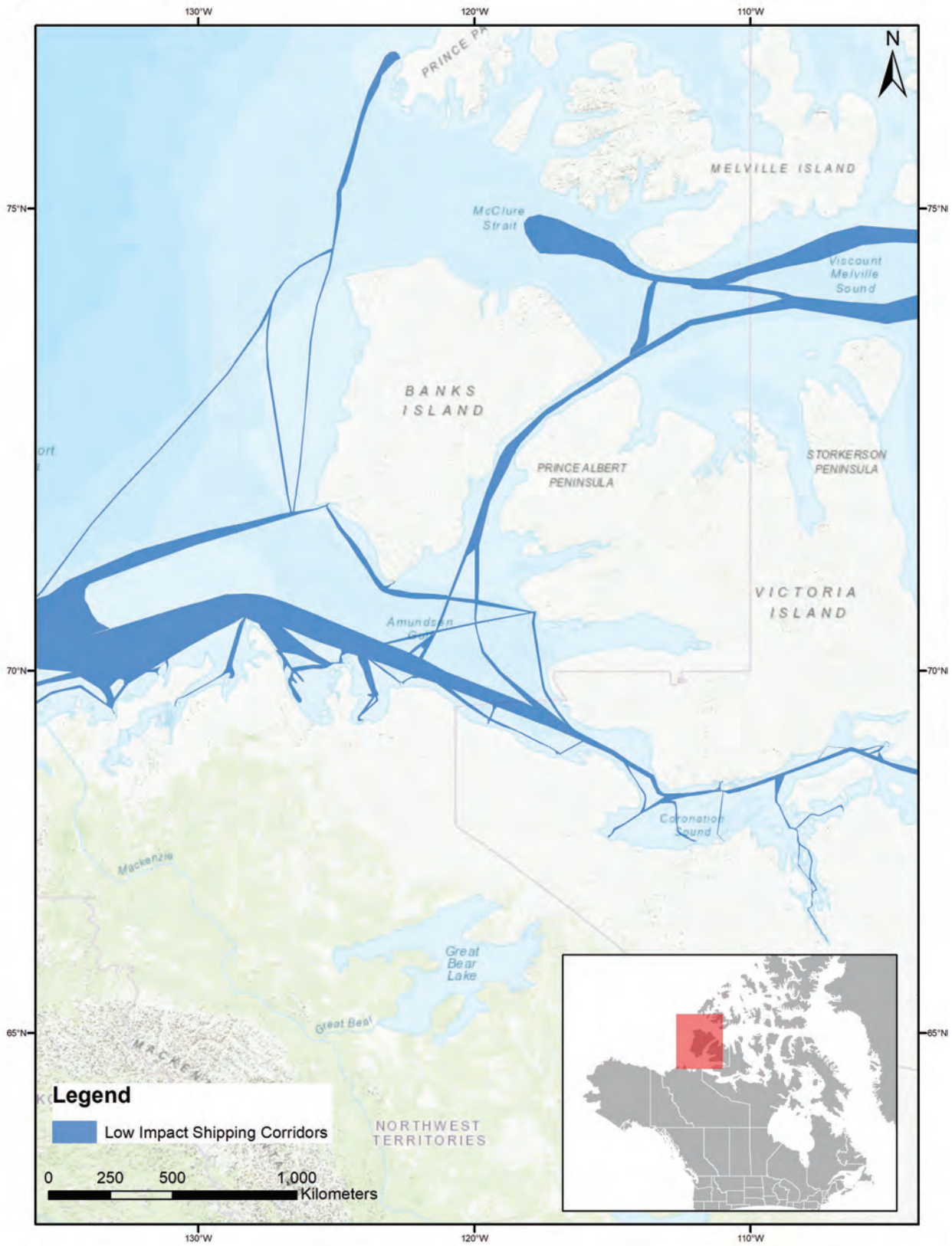


Figure 2. Example of Low Impact Shipping Corridors near Sachs Harbour, Northwest Territories



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; Sachs Harbour experienced a 312 km increase (Figure 4).¹

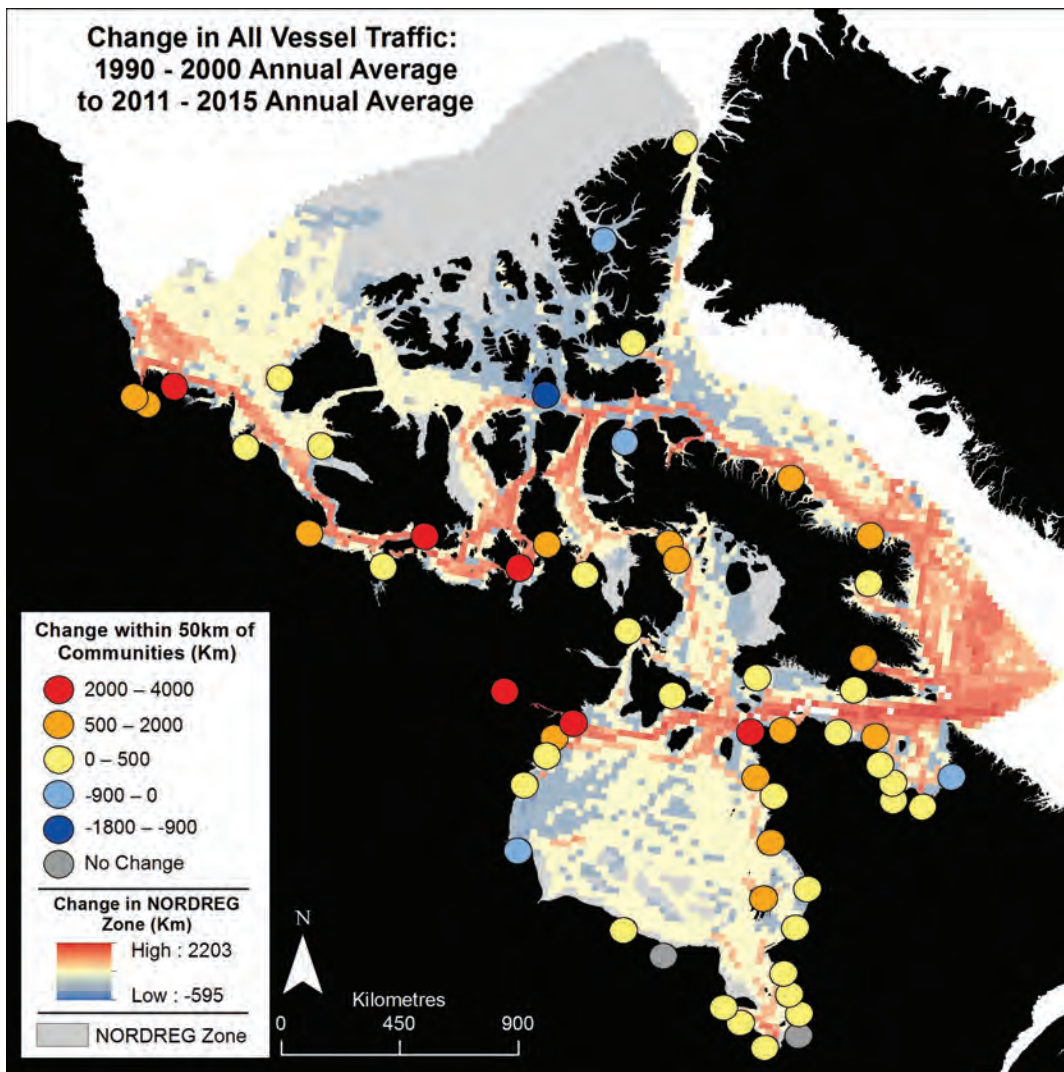


Figure 3. Change in shipping activity (km) in the Canadian Arctic: 1990–2000 annual average compared to 2011–2015 annual average¹

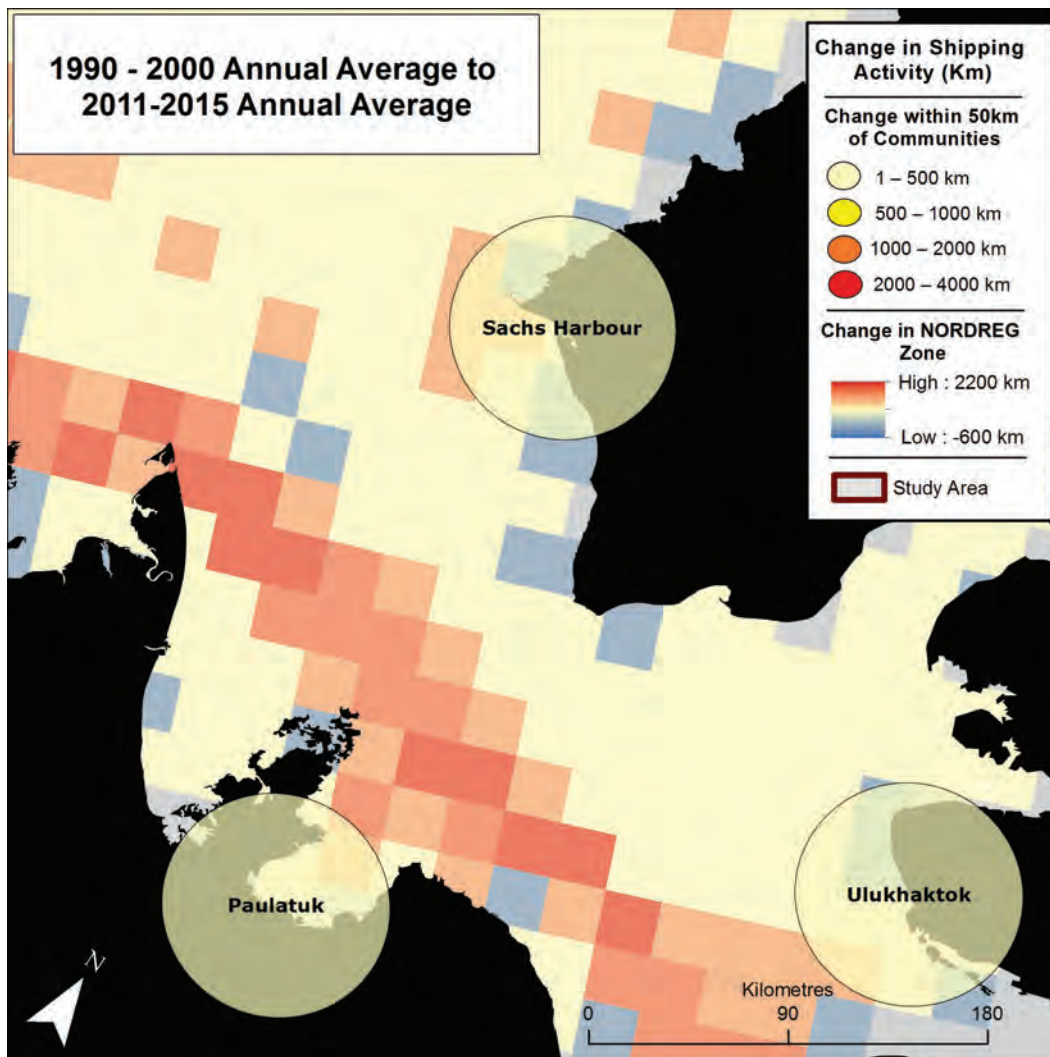


Figure 4. Change in shipping activity (km) near Sachs Harbour, Northwest Territories: 1990-2000 annual average compared to 2011-2015 annual average¹

FOUR SEASONS

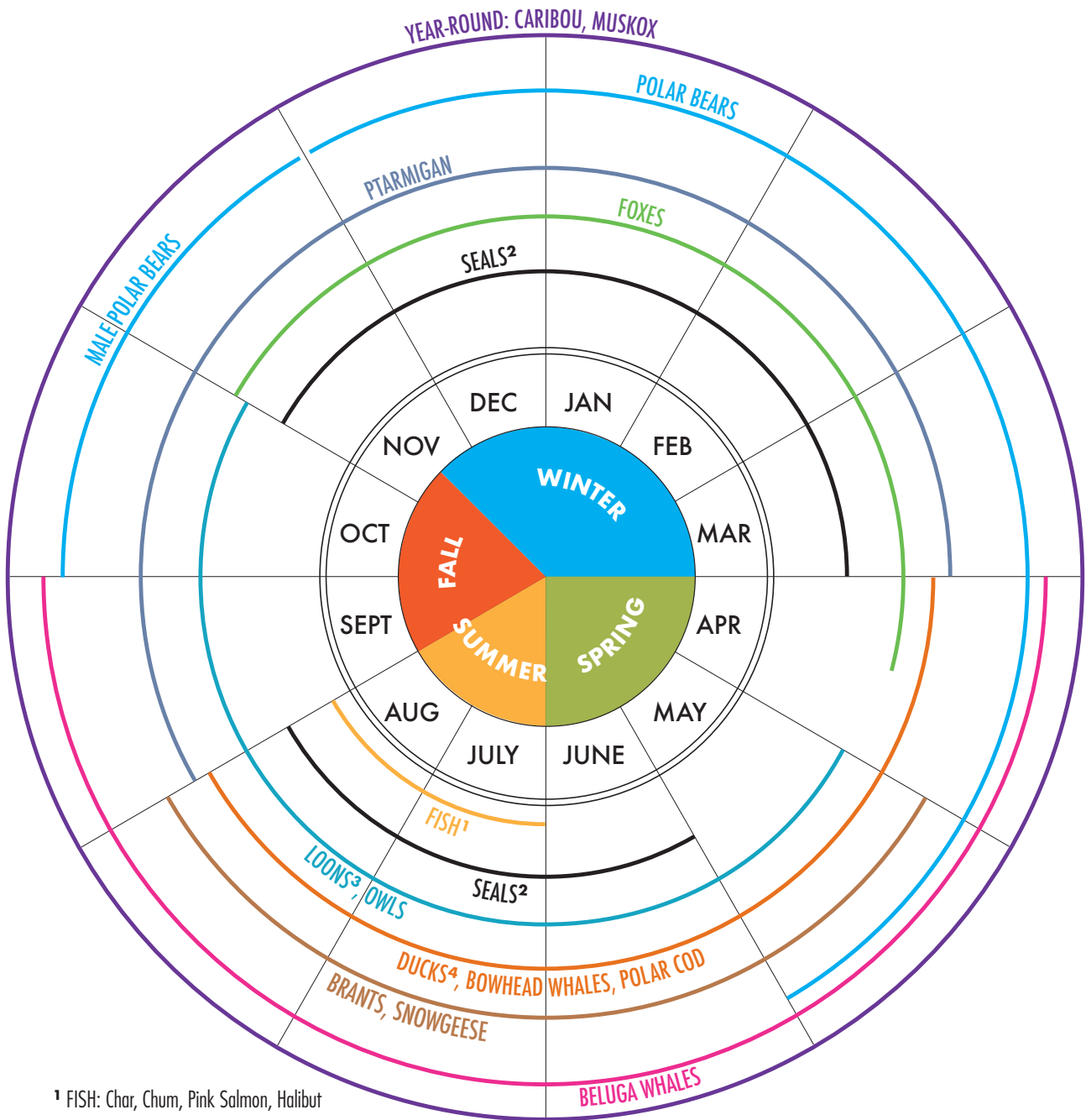
There are 4 main seasons in Sachs Harbour, Northwest Territories. The seasons are weather and ice dependent; therefore, the months each season happens in can be different each year. However, in general the seasons are:

SEASON	MONTHS IN WHICH THEY HAPPEN	OCEAN CONDITION
Spring	April to end of June	Frozen and sea ice break-up
Summer	July and August	Open water
Fall	September to mid-November	Open water
Winter	Mid-November to end of March	Freeze-up and frozen sea ice



SEASONAL HARVESTING CYCLE

Harvesting happens according to seasons and follows an annual cycle.



¹ FISH: Char, Chum, Pink Salmon, Halibut

² SEALS: Bearded and Ringed

³ LOONS: Pacific, Yellow-billed, Common, and Red-throated

⁴ DUCKS: Eider, Long-tailed (people referred to Long-tailed ducks by the old, no longer used name of Oldsquaw), and Mergansers

Figure 5. Seasonal cycle of harvesting activities in and near Sach's Harbour, Northwest Territories



MAPS OF CULTURALLY SIGNIFICANT MARINE AREAS

Maps include:

1. Location of terrestrial and marine mammals, fish, and birds;
2. Local of travel routes and harvesting areas;
3. Location of polynyas; and
4. Location of culturally significant areas including camps, caches, and historic sites.

Maps will be available at www.arcticcorridors.ca and in Sachs Harbour at the Sachs Harbour Hunters and Trappers and Sachs Harbour Community Corporation office.



Figure 6. Location of community members' activities 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 community members' activities during open water



Figure 9. Location of wildlife during open water

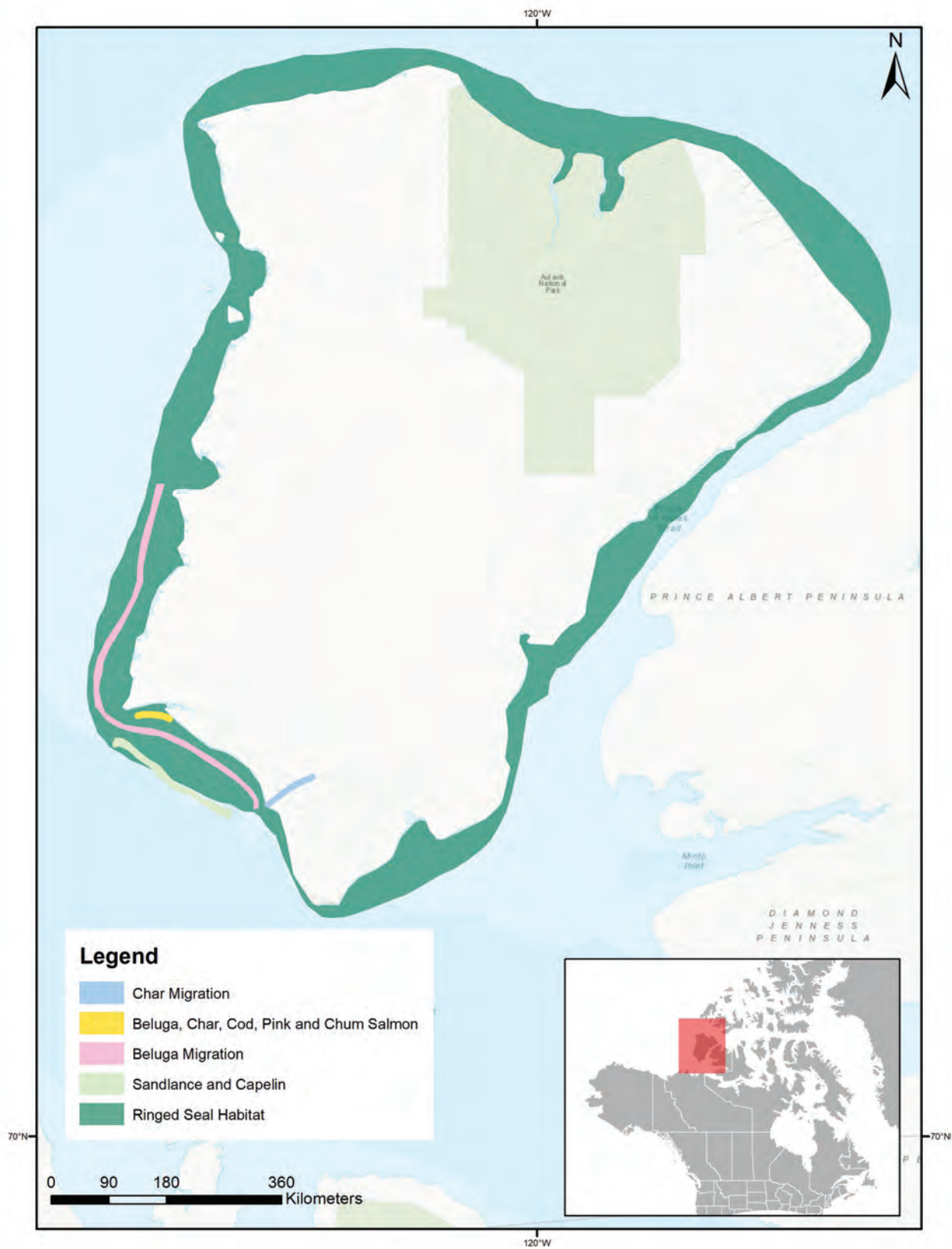


Figure 10. Location of wildlife during open water

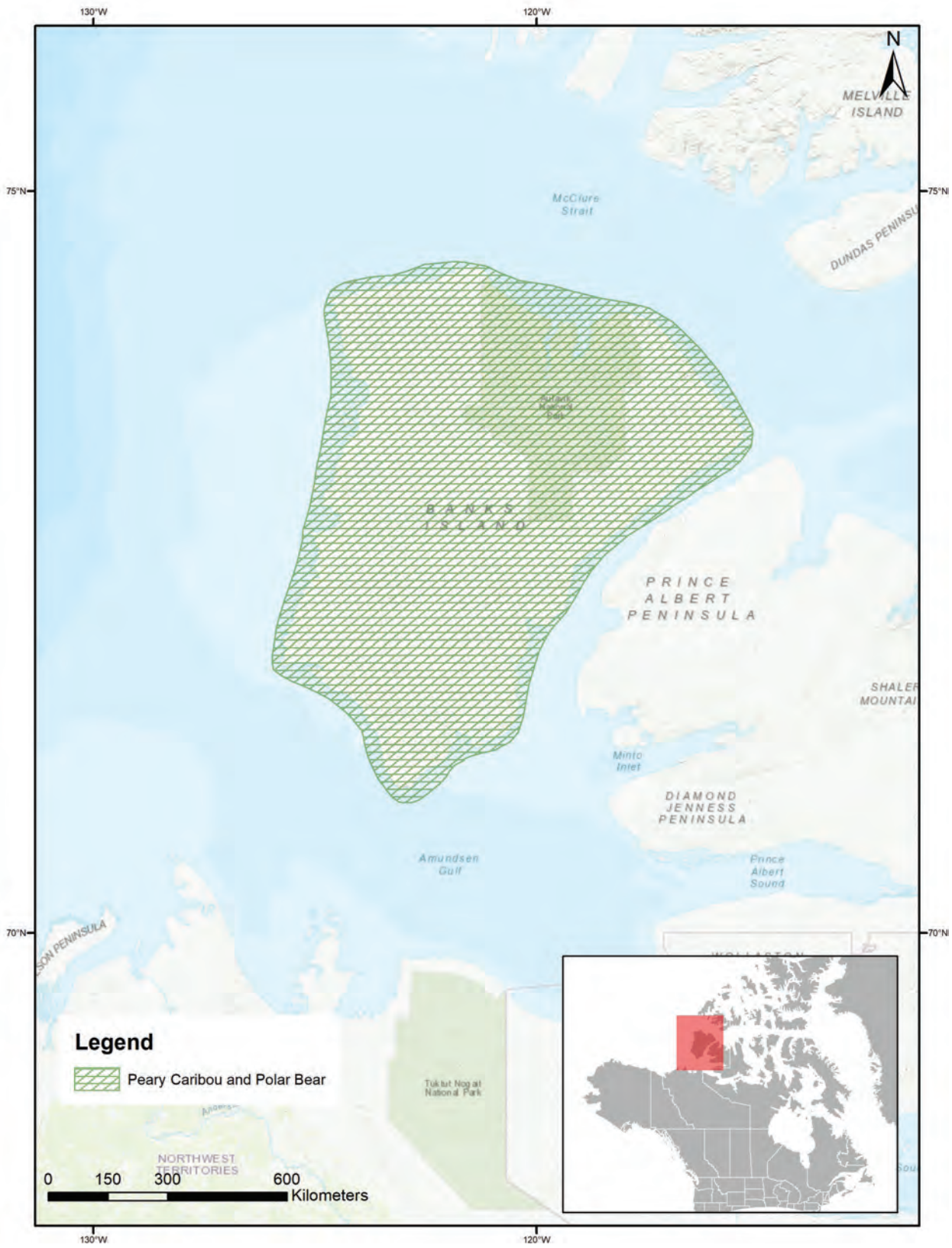


Figure 11. Location of wildlife during open water

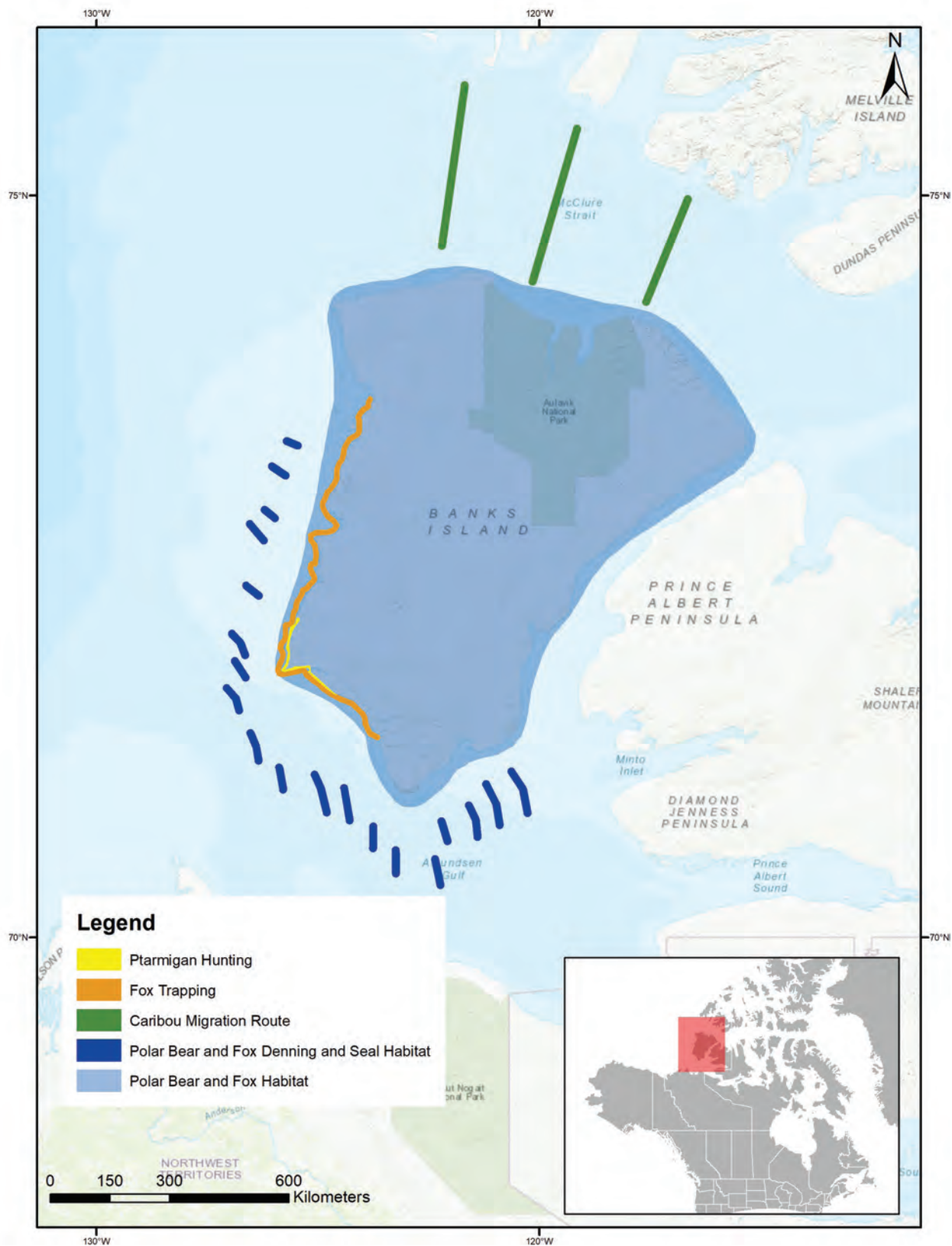


Figure 12. Location of community members' activities and wildlife around the time of sea ice freeze-up and when ocean is frozen



Figure 13. Location of polynyas around the time of sea ice freeze-up and when ocean is frozen

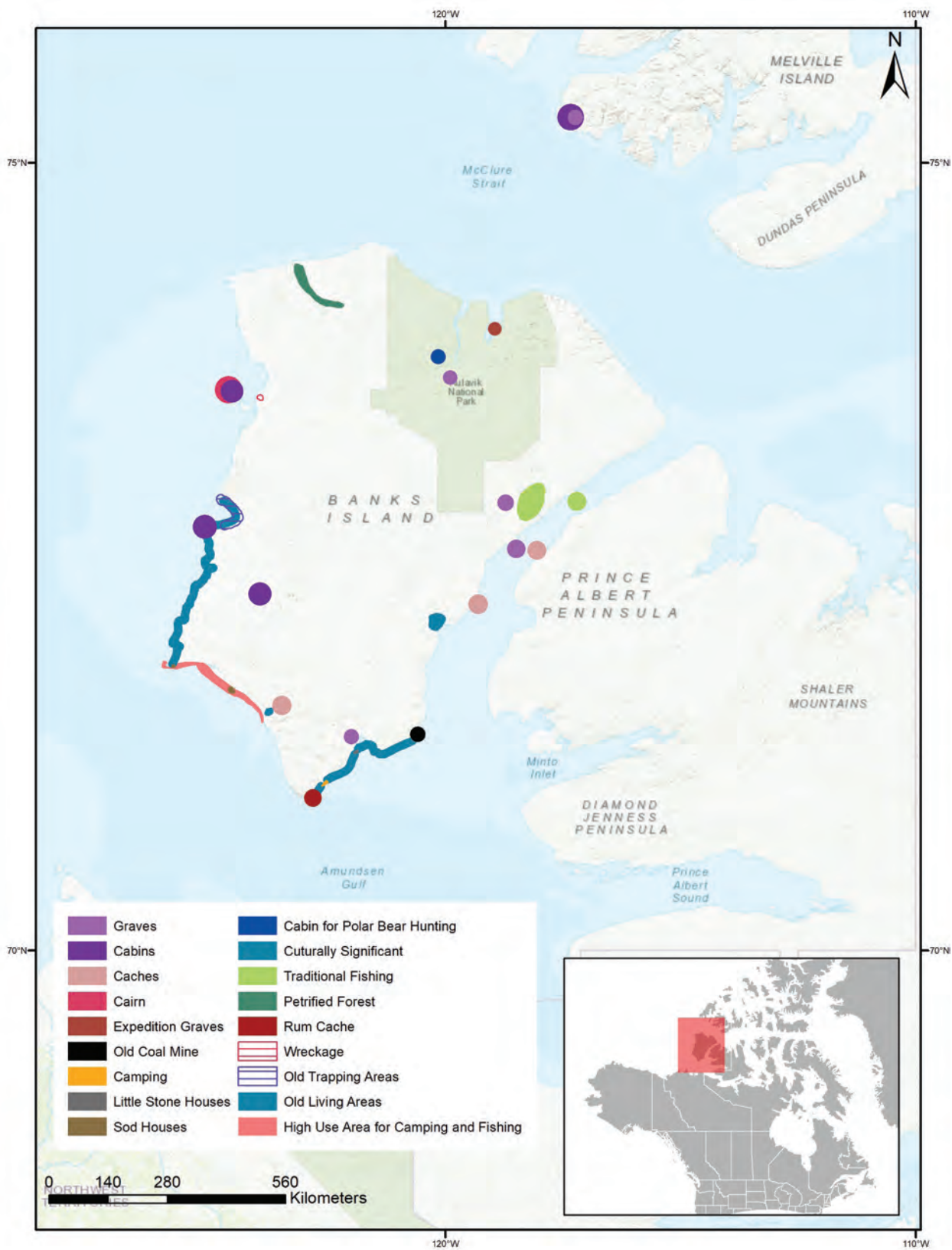


Figure 14. Location of year-round culturally significant areas



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 impacts of marine vessels using the Low Impact Shipping Corridors on the environment, wildlife, and community members

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
Black smoke, ship noise including idling engines, icebreaker noise, and helicopter noise (associated with cruise ships and icebreaking reconnaissance) drive away whales, polar bears, and seals (an important food source for polar bears). Polar bears were not seen for one month after a ship went through the Amundsen Gulf. Seals were seen because they grow accustomed to things that do not physically hurt them.	Year-round
The number of whale strikes may increase if more ships are transiting. There is a higher risk of strikes in whale feeding aggregates.	Summer
Shipping will change the migration patterns of fish and animals including polar bears. The polar bear migrations would change between the High Arctic islands and Banks Island. Polar bears follow leads in the ice and if there are ships creating leads, polar bears would follow the leads then might get stranded in a place where there are no seals.	Year-round
Greywater, dumping of sewage, and containers falling into the ocean would cause problems in the future such as scaring away animals from those areas. There is no way to clean up if there is dumping. There may also be mercury from ship waste in beluga whales – which people then eat.	Summer
So far, the ships coming through have been of high quality but not all countries follow the same standards. Ships should be seaworthy and not leave a slick.	Year-round





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

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN
<p>If there is icebreaking when polar bears are denning (November to April), waves may erode or freeze polar bear dens. With less sea ice from icebreaking, the sea state and wave action would be higher, resulting in icing of the whole shoreline which could trap polar bears in their dens. Icebreaking would disturb caribou migrating and crossing from Victoria Island. Wave action from icebreakers might freeze seal breathing holes.</p>	November to April
<p>Ballast water from ships may introduce invasive species, including parasites, which could devastate the food chain. Invasive species, once established, cannot be gotten rid of – especially now that the water is warmer (e.g., Zebra mussels).</p>	Summer
<p>Any oil spill between Nelson Head and Sachs Harbour would devastate peoples' way of life and would mean the end of hunting because animals would flee, be contaminated, or die from contamination. Everyone in town prefers country food. Some people only subsistence hunt and others supplement their income by hunting polar bears. People would have to go on income support and would lose their financial independence. If there are fewer successful harvests, there would be less to share so those who rely on others would also have less country food. People would be forced to eat store-bought food which is expensive, and often poor quality (i.e., expired, freeze-dried, spoiled, wilted, or rotten). People would leave town.</p>	Year-round
<p>If an accident happened and there was an oil spill, Sachs Harbour has no resources to deal with it and no spill response plan. Community first responders are just for municipal emergencies. There is no Canadian Coast Guard Auxiliary. Royal Canadian Mounted Police (RCMP) and Canadian Rangers are not equipped for marine search and rescue.</p>	Year-round
<p>With climate change, year-round shipping may happen. When icebreaking, which included reconnaissance by a helicopter, was done near Nelson Head, no polar bears were seen. Normally people would be guaranteed to see one. The Hunters and Trappers Committee (HTC) was not notified of the icebreaking. Icebreakers go wherever they want despite saying they will avoid hunting areas. Polar bears might get used to open areas from icebreaking and move away from their usual habitat.</p>	Winter
<p>The area around Sachs Harbour is not charted. Marine Transportation Services (MTS, formerly NTCL) just follows the same route every year.</p>	Year-round
<p>Concerns about cruise ships include:</p> <ul style="list-style-type: none"> • groundings – because there is no charting for this area; • garbage washing ashore after cruise ships pass, as happened in Ulukhaktok; • invasions of privacy such as passengers walking into yards, touching or taking personal property, taking pictures of people, and risk of passengers being bitten by dogs; • a lack of notice that ships are coming so community members do not have time to prepare; and • unaccompanied passengers taking artifacts from the land. <p>At the same time, there is very little economic benefit to the community.</p>	Summer



Table 2. Recommendations for marine vessel management and Low Impact Shipping Corridors

RECOMMENDATIONS FOR MARINE VESSEL MANAGEMENT

Move the corridors more into the middle of the Amundsen Gulf (as opposed to hugging the coast line of the mainland). This will ensure that any emergency that may happen will have less impact on the species that are relied upon in the Inuvialuit Settlement Region (ISR) and beyond (Figure 15).

No use of the Prince of Wales Strait at any time by any ships (Figure 15). This is because ships transiting the Strait would be at a high risk of hitting Princess Royal Island and having an emergency. Commercial traffic should use M'Clure Strait more than Amundsen Gulf (Figure 15). Recreational traffic such as private yachts and small vessels can use Amundsen Gulf and can hug the coastline (Figure 15).

Stay at least 10 kilometres (5.4 nautical miles) off the coast from Nelson Head to Sachs Harbour. This is because there are rougher seas closer to shore, and there are granite bluffs near Nelson Head (Figure 17), so shipping would be more dangerous.

Adequate charting should be done before commercial traffic and large cruise ships are allowed. Channels near the community of Sachs Harbour should be charted as a priority and the coastal waters of Aulavik National Park as a point of interest for cruise ships. Having M'Clure Strait and the Amundsen Gulf charted would be ideal. The only charts for this area are from when the HMS Investigator went from Princess Royal Island and around the west coast of Banks Island (in approximately 1848).

Oils spill response and rescue equipment and capacity should be provided. This includes:

- a boat that can weather high seas to do spill response or rescue;
- drones for searching in case of emergency, which can carry a phone or radio;
- placing spill containers, capable boats, hovercraft or air boats in 4 key areas (Figure 16) covering the areas used by the community of Sachs Harbour:
 - 1) Sachs Harbour;
 - 2) Gore Island;
 - 3) Northeast corner of Banks Island; and
 - 4) Mould Bay on Prince Patrick Island (second bay from southern coast at the High Arctic Weather Station (HAWS) site);
- training for oil spill response, recovery, and containment for community first responders; and
- a yearly budget for meaningful management of a spill response unit (trained community members with appropriate equipment such as booms, containment equipment, skimmers, etc).

If an oil spill happens, dispersants should not be used. This is because droplets of oil will descend to the ocean floor, bottom-feeding animals will eat it, and oil will enter the food chain. It is more acceptable to burn oil spilled in the Inuvialuit Settlement Region.

Disposal of greywater and bilge water, or fuel flushing, should be reported including date and time. An environmental monitor with the same authority as a Department of Fisheries and Oceans Canada (DFO) Officer should be on onboard the vessel – at a minimum when transiting Inuvialuit Settlement Region water, and ideally for the entire transit. An independent ice expert should pilot the vessel in ISR waters for large commercial craft. Find and implement ways to ensure the person onboard is not intimidated on the ship due to their role and by being outnumbered.



Table 2 (continued). Recommendations for marine vessel management and Low Impact Shipping Corridors

RECOMMENDATIONS FOR MARINE VESSEL MANAGEMENT

Conduct non-human (i.e., mechanical, electronic) tracking of bilge water including how many times the bilge pump is activated, volume pumped, how much fuel is on board for transit, how much fuel is left at the end of transit, and a scanner on the bottom of ships to check that hulls are clean of invasive species. The tracker should continuously report in real time to DFO, and shutting it off should be detectable.

An environmental monitor from the Western Arctic should be onboard foreign ships and cruise ships. Ship operators/monitors should provide a report to the Hunters and Trappers Committee and the Community Corporation at the end of each season.

Ship bows should be equipped with cameras that detect whales and transmit the feed to DFO.





MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

Maps include:

1. A no-go zone;
2. Preferred corridors locations for commercial traffic and recreational traffic, respectively;
3. Priority areas for charting and oil spills equipment placement; and
4. Zones with recommended distances to maintain from shore.

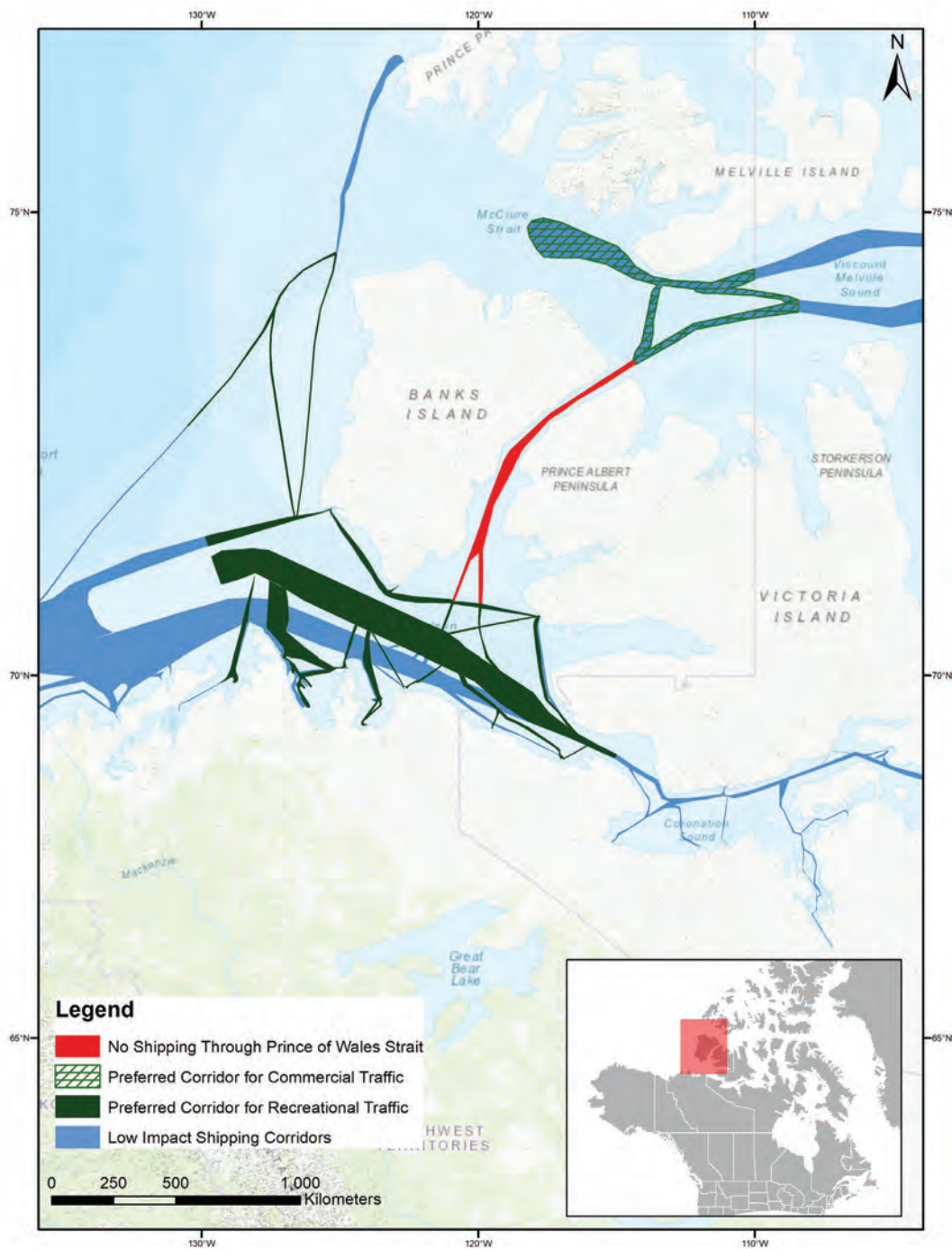


Figure 15. Recommendations for Low Impact Shipping Corridors

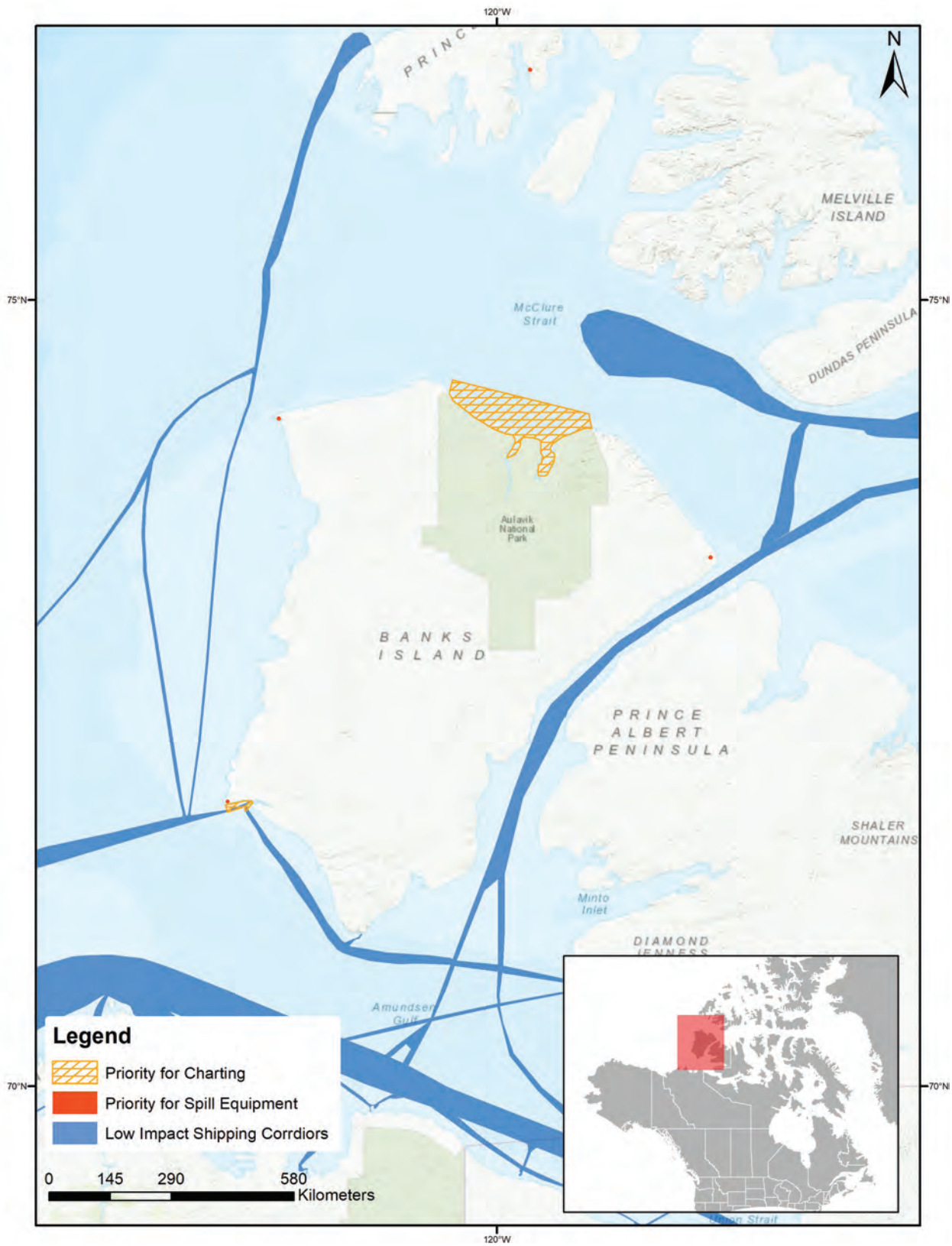


Figure 16. Recommendations for Low Impact Shipping Corridors



Figure 17. Recommendations for Low Impact Shipping Corridors

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. Sachs Harbour, population 103, is the Northwest Territories' northernmost community, and is the only outpost on Banks Island. The island is home to a large portion of the world's muskox, plus Aulavik National Park, the epic Thomsen River, bird sanctuaries, and the famed HMS Investigator shipwreck.^{2,3} Cape Bathurst Polynya, a polynya located near nearby Cape Kellet, is a feeding ground for white and bowhead whales in spring and early summer, is critical to migratory sea ducks that stage and feed in early spring, and has high densities of seals and polar bears throughout the winter.⁴ The polynya is also very important to community members' subsistence harvesting and livelihood activities. The marine areas that are most significant to community members' subsistence harvesting and livelihood activities, are located in the Amundsen Gulf, in the Northwest Passage – exactly where ship traffic has increased. Given community members' concerns about marine vessel traffic and its implications for the ecology, environment,

and Inuvialuit way of life, the perspectives of Sachs Harbour community members and all communities, should be a fundamental consideration during the implementation and management of 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 Statistics Canada, Census Profile, 2016 Census

³ <http://spectacularnwt.com/destinations/western-arctic-communities/sachs-harbour>.

⁴ Canadian Geographic: Canada's Polynyas. Meltofte, H. (ed.) 2013. Arctic Biodiversity Assessment. Status and trends in Arctic biodiversity. Conservation of Arctic Flora and Fauna, Akureyri. <http://maps.canadiangeographic.ca/canadas-polynyas/>.

