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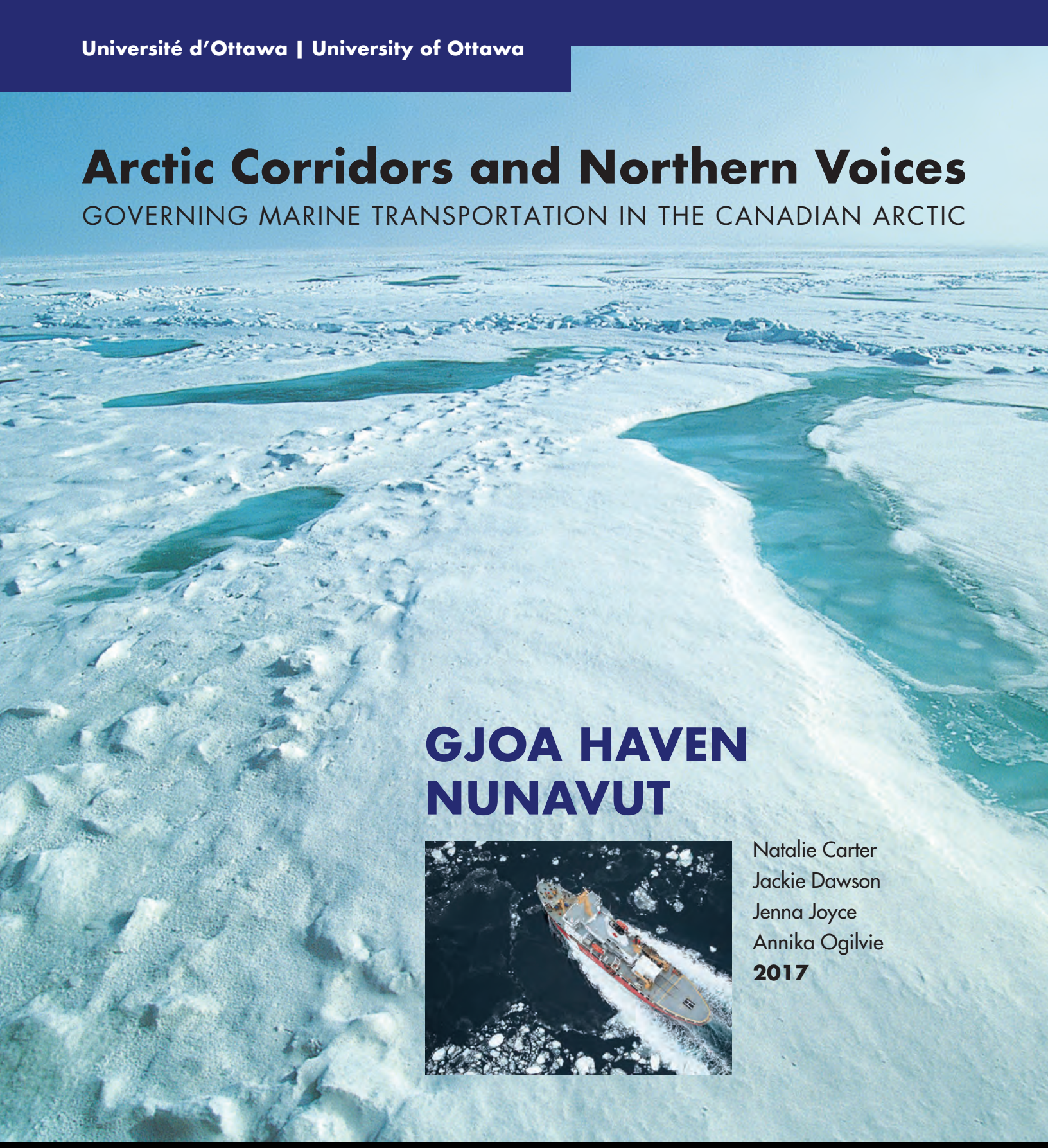
Arctic Corridors and Northern Voices

GOVERNING MARINE TRANSPORTATION IN THE CANADIAN ARCTIC



GJOA HAVEN NUNAVUT

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2017

ARCTIC CORRIDORS RESEARCH

ESPG Environment, Society and Policy Group

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MEOPAR

OCEANS NORTH

IRVING
Irving Shipbuilding Inc.

Fisheries and Oceans Canada
Pêches et Océans Canada

PARTICIPANT BIOGRAPHIES

Willy Aglukkaq is a father and an active hunter who moved to Gjoa Haven from Taloyoak in 1981. He is the former manager of the Gjoa Haven Hunters and Trappers Organization.

Paul Eleehetook is a Gjoa Haven Elder who spent most of his life actively hunting and harvesting.

Sarah Kamimmalik was born and raised in Gjoa Haven. She is a single mother of 6 and has 2 grandchildren. She is the Manager of Transportation and Planning for the Department of Economic Development and Transportation (ED&T), volunteers with the Fire Department, and is 100% pure Inuk.

Jacob Keanik is a husband, and father of 6 children. He is an active hunter, president/chair of the Nattilik Heritage Society, and the Public Works Director for the Hamlet of Gjoa Haven.

Betty Kogvik is a mother and grandmother. She enjoys helping people who need help, and working with youth. She is involved with the Junior Canadian Rangers. Betty works at the continuing care facility in Gjoa Haven.

Sammy Kogvik is a father, grandfather, and uncle. He is an active hunter, Canadian Ranger, volunteer firefighter, search and rescue volunteer, small engine repair mechanic, likes working with youth, and is involved with Junior Canadian Rangers.

Martha Pooyatak is a mother and grandmother, who enjoys spending time on the land in the sunnier months of the year.

James Qitsualik is an active hunter and board member of the Gjoa Haven Hunters and Trappers Organization.

EXECUTIVE SUMMARY

Arctic ship traffic has increased by more than 75% since 2005.[1] Most of that increase happened in Nunavut waters. 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 Gjoa Haven 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
  - gaining supplies and equipment, and more timely delivery of cargo;
  - employment opportunities;
  - positive and negative cross-cultural interactions;
  - threats to security, and exchange of alcohol and drugs;
  - behavioural changes in wildlife, and destruction of animal habitat;
  - increased cost and incidence of dangerous ice conditions for local travel;
  - potential food insecurity and increased dependence on store-bought food; and
  - illegal removal of cultural artifacts.
- Disruption of sea ice formation and break-up by icebreakers and marine vessels is especially disruptive to Inuit and Northerners' ability to use local travel routes, and travel, hunt, and camp safely on ice.
- Existing search and rescue and oil/fuel spills response capacity is not sufficient.

COMMUNITY-IDENTIFIED RECOMMENDATIONS INCLUDE...

- Reduced-speed zones, and no-icebreaking zones;
- Narrower corridors located at minimum distances from shores;
- Key areas where new or improved charting is needed;
- Monitoring and enforcement of ship traffic within and outside the Low Impact Shipping Corridors; and
- Improved communication between vessel operators and the community.

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] Most of that increase happened in Nunavut waters. 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 Gjoa Haven community members' knowledge and extensive year-round use of important marine areas (ecological, socio-cultural, archaeological, and travel routes), the potential impact of shipping on those areas and on community members, and potential management strategies for the Low Impact Shipping Corridors. This report was validated by the research participants.

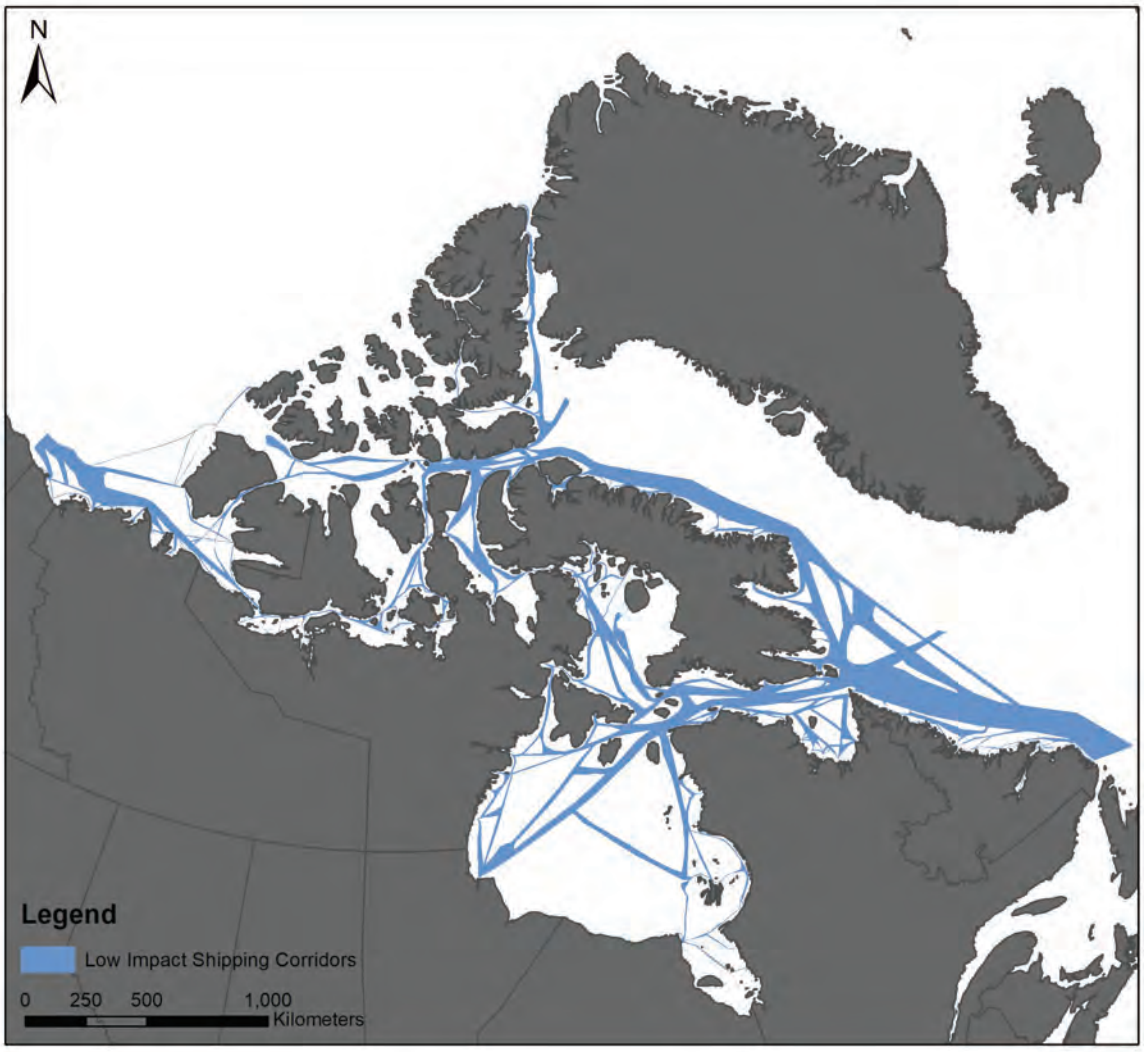


Figure 1. Example of Low Impact Shipping Corridors

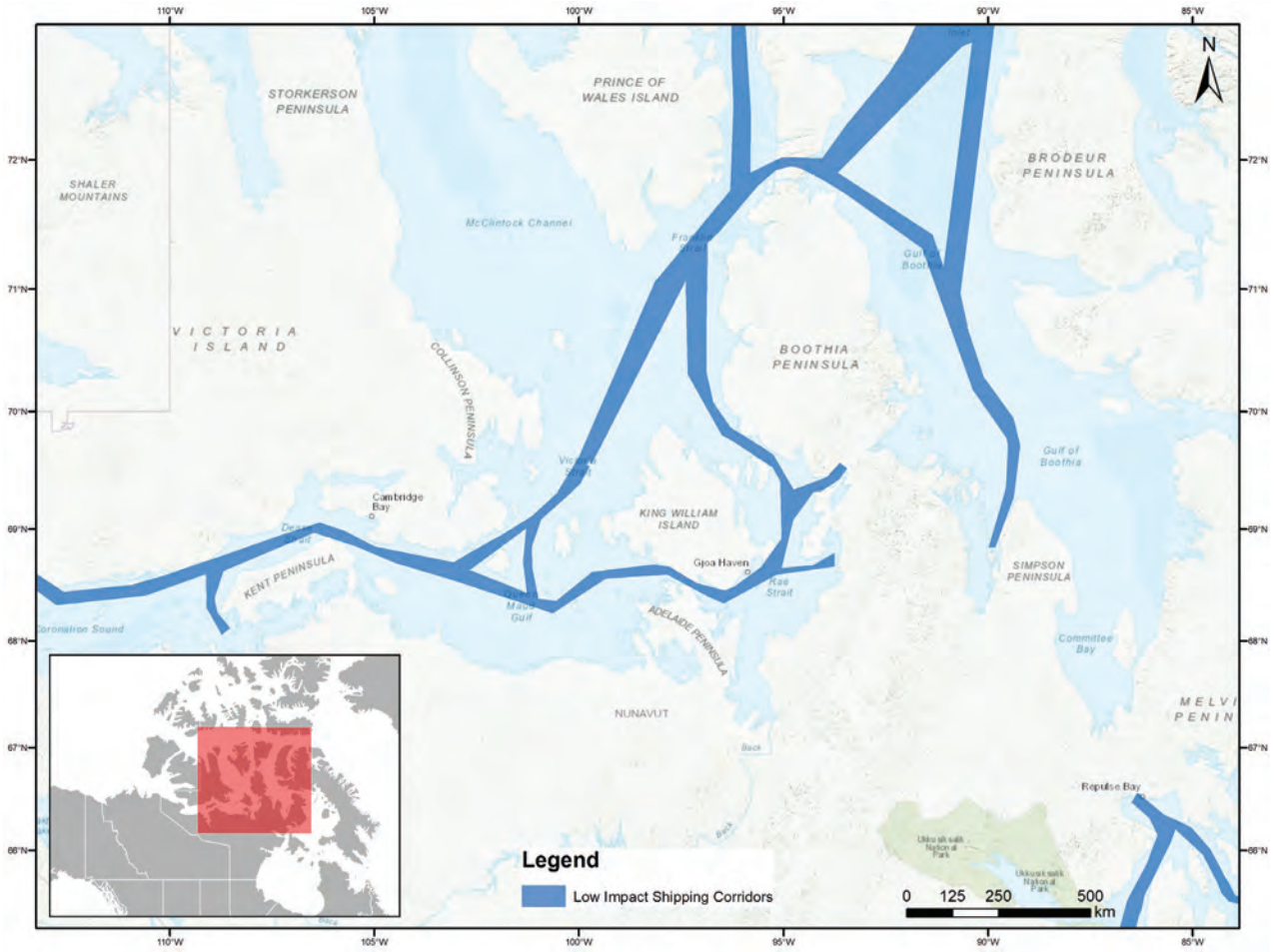
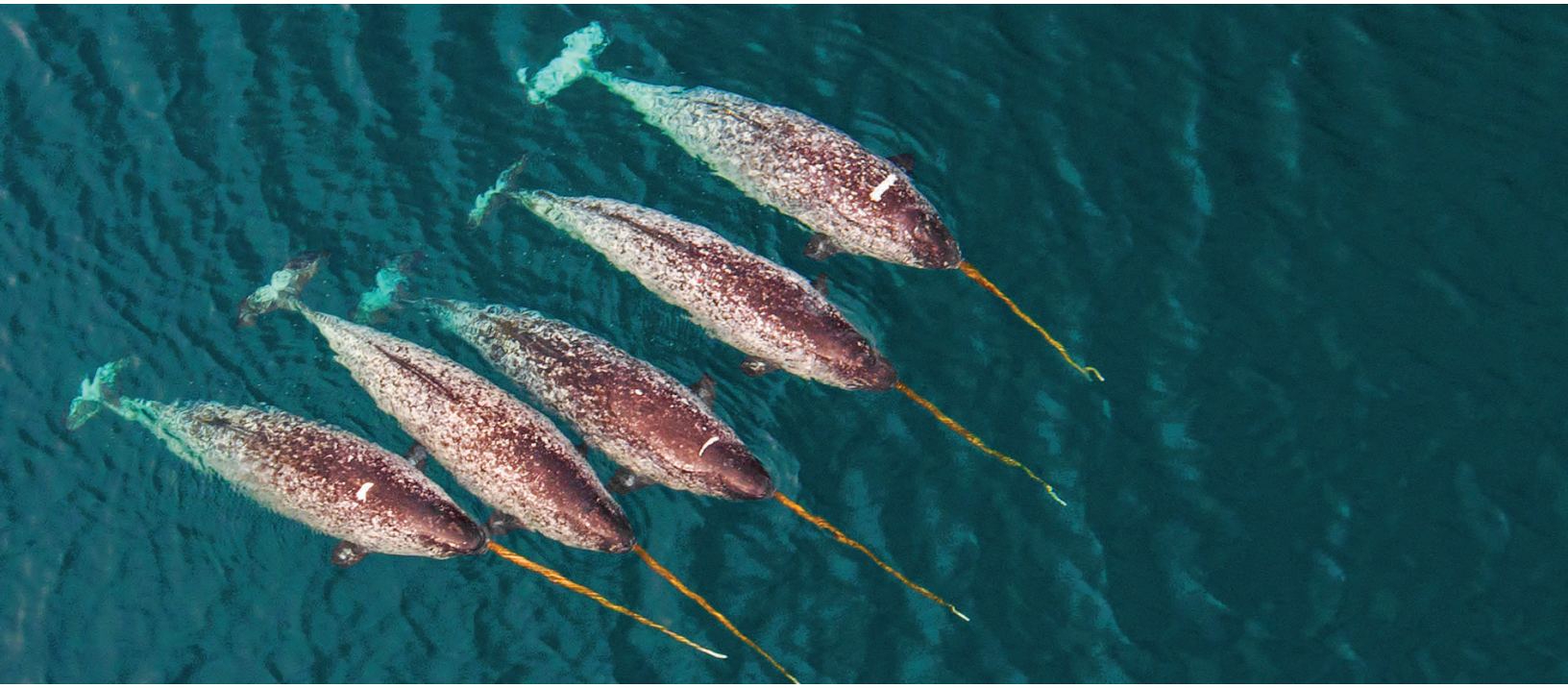


Figure 2. Example of Low Impact Shipping Corridors near Gjoa Haven, Nunavut



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). Gjoa Haven experienced a 2,073 km increase in shipping from 2011-2015 compared to 1990-2000 – the second largest increase in the Kitikmeot region **(Figure 4)**.

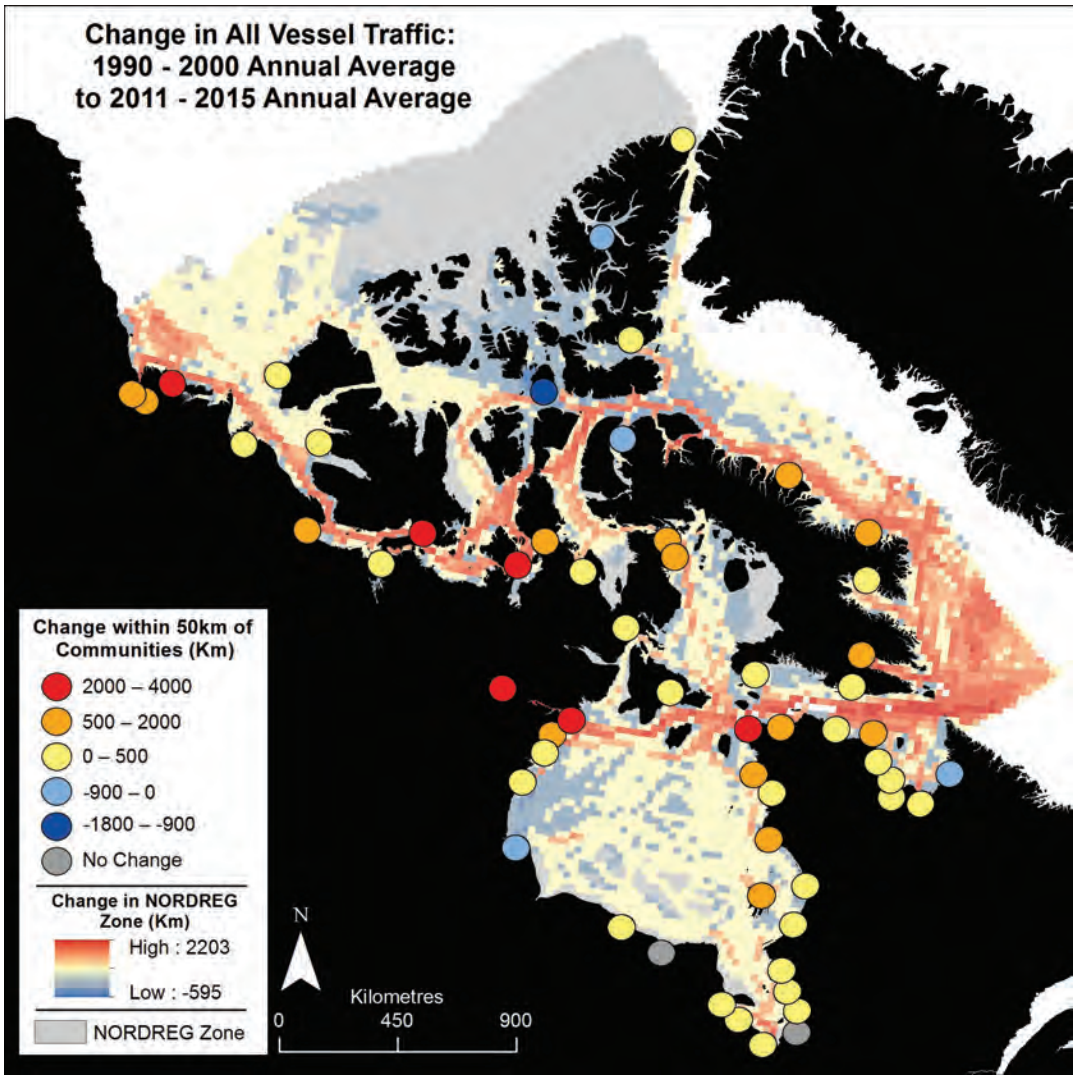


Figure 3. Change in shipping activity (km) in the Canadian Arctic: 1990–2000 annual average compared to 2011–2015 annual average[1]

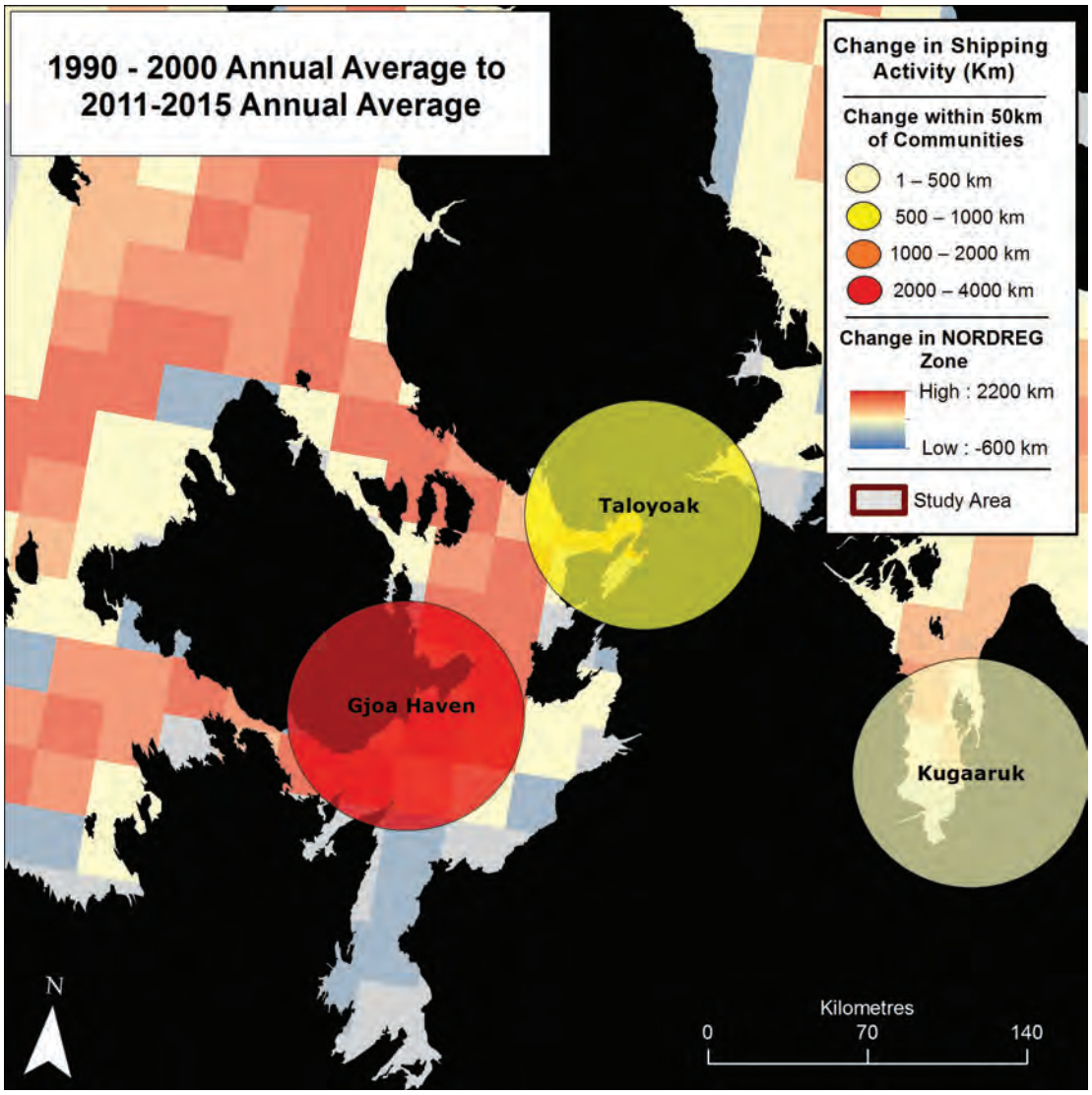


Figure 4. Change in shipping activity (km) near Gjoa Haven, Nunavut: 1990–2000 annual average compared to 2011–2015 annual average[1]

SIX SEASONS

There are 6 main seasons in Gjoa Haven, Nunavut. The seasons and weather are 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
Start of Spring	April	Frozen
Spring to early Summer	May and June	Break-up (in June)
Summer	July to beginning of August	Open water
Late Summer	August	Open water
Early Fall to late Fall	September and October	Freeze-up (in October)
Winter	November through March	Frozen

SEASONAL HARVESTING CYCLE

Harvesting happens according to seasons and follows an annual cycle.

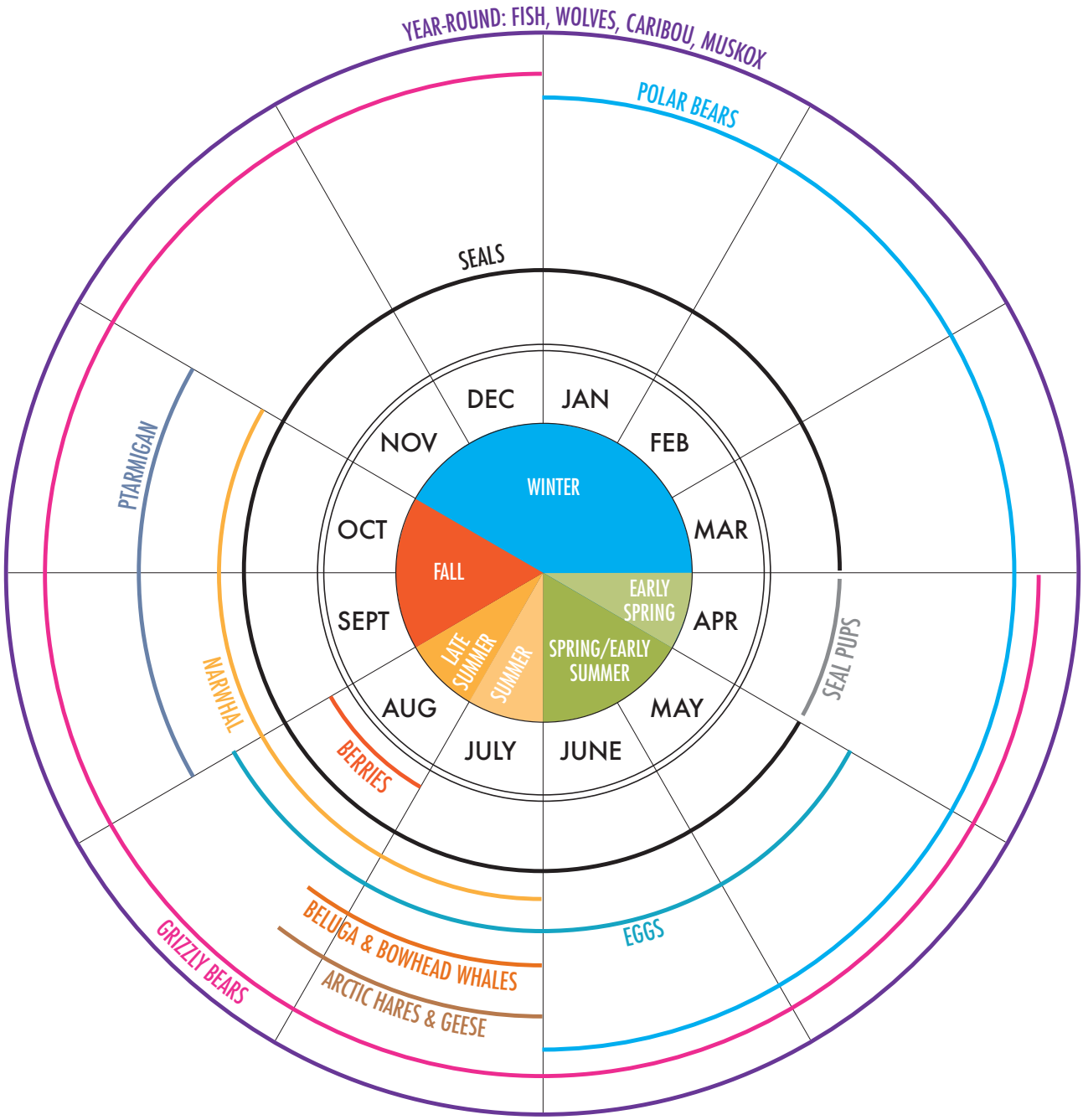


Figure 5. Seasonal cycle of harvesting activities near Gjoa Haven, Nunavut

MAPS OF CULTURALLY SIGNIFICANT MARINE USE AREAS

Maps include:

1. Location and behavioural activities of terrestrial and marine mammals, fish, and birds;
2. Location of community members' activities, camps, cabins, and local travel routes; and
3. Significant marine features such as dangerous areas and summer ice.

Maps will be available at www.arcticcorridors.ca and in Gjoa Haven at the Hunters and Trappers Organization and Qiqirtaq High School.

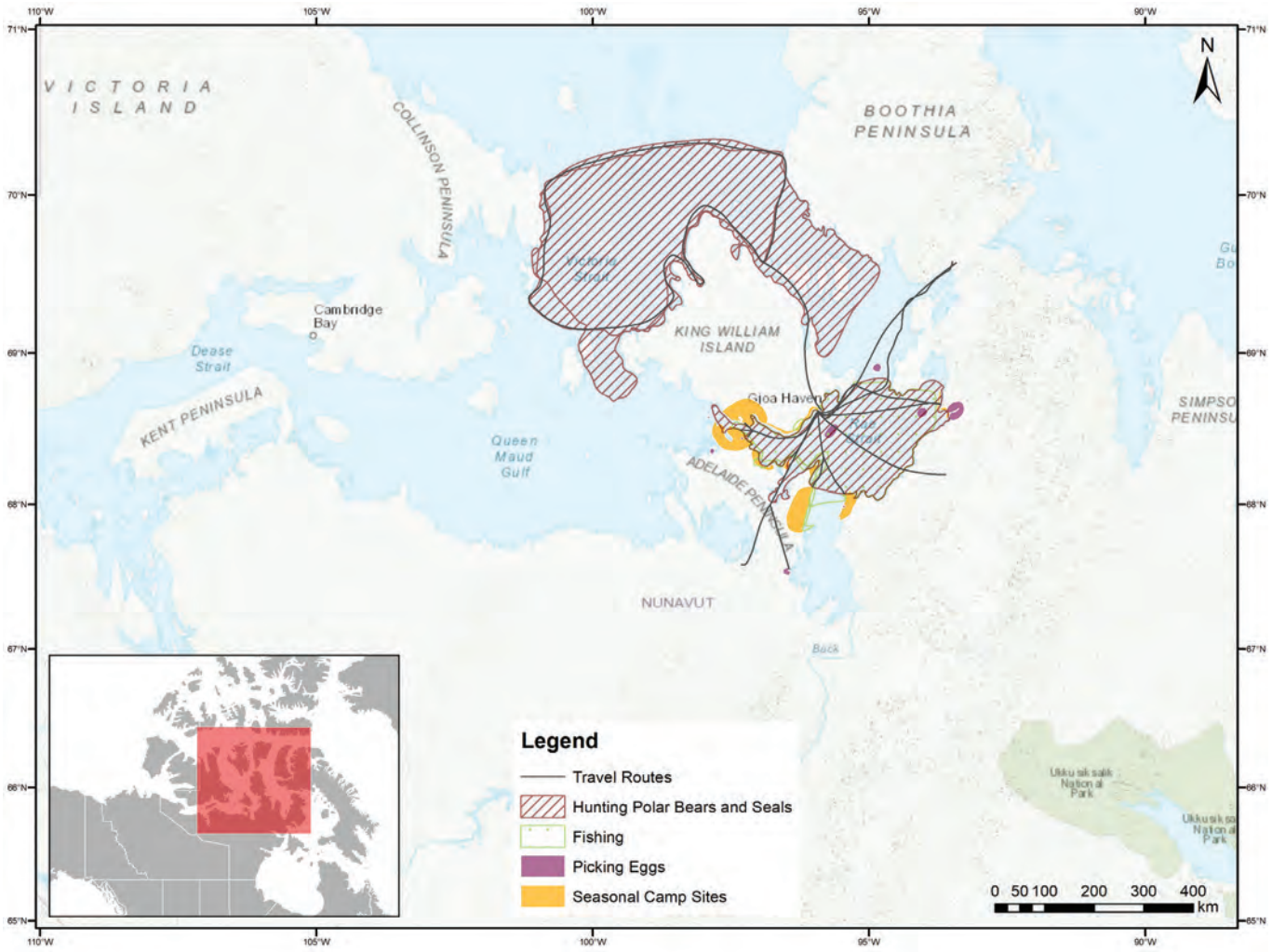


Figure 6. Location of community members' activities around time of sea ice break-up

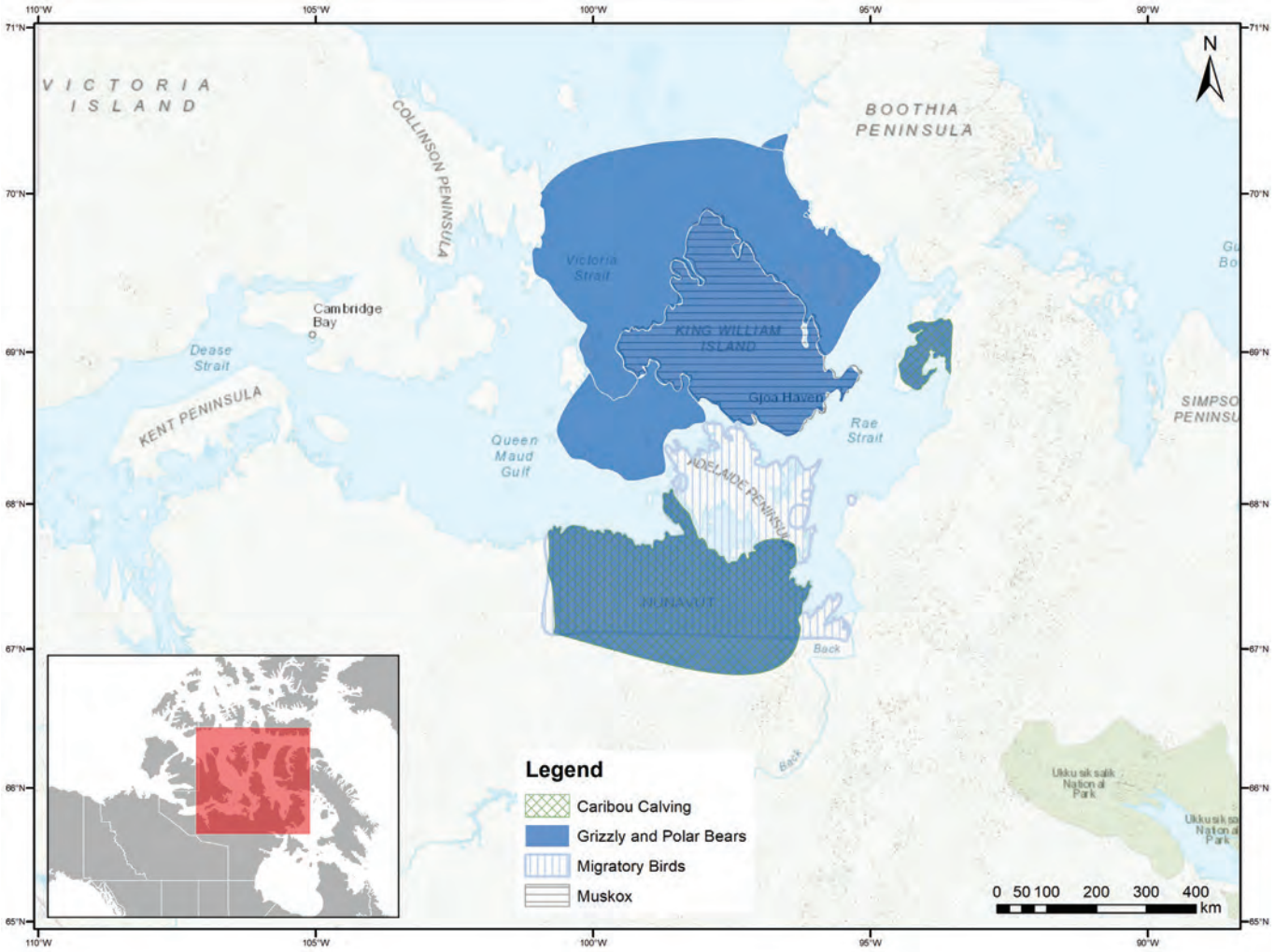


Figure 7. Location and behavioural activities of wildlife around time of sea ice break-up

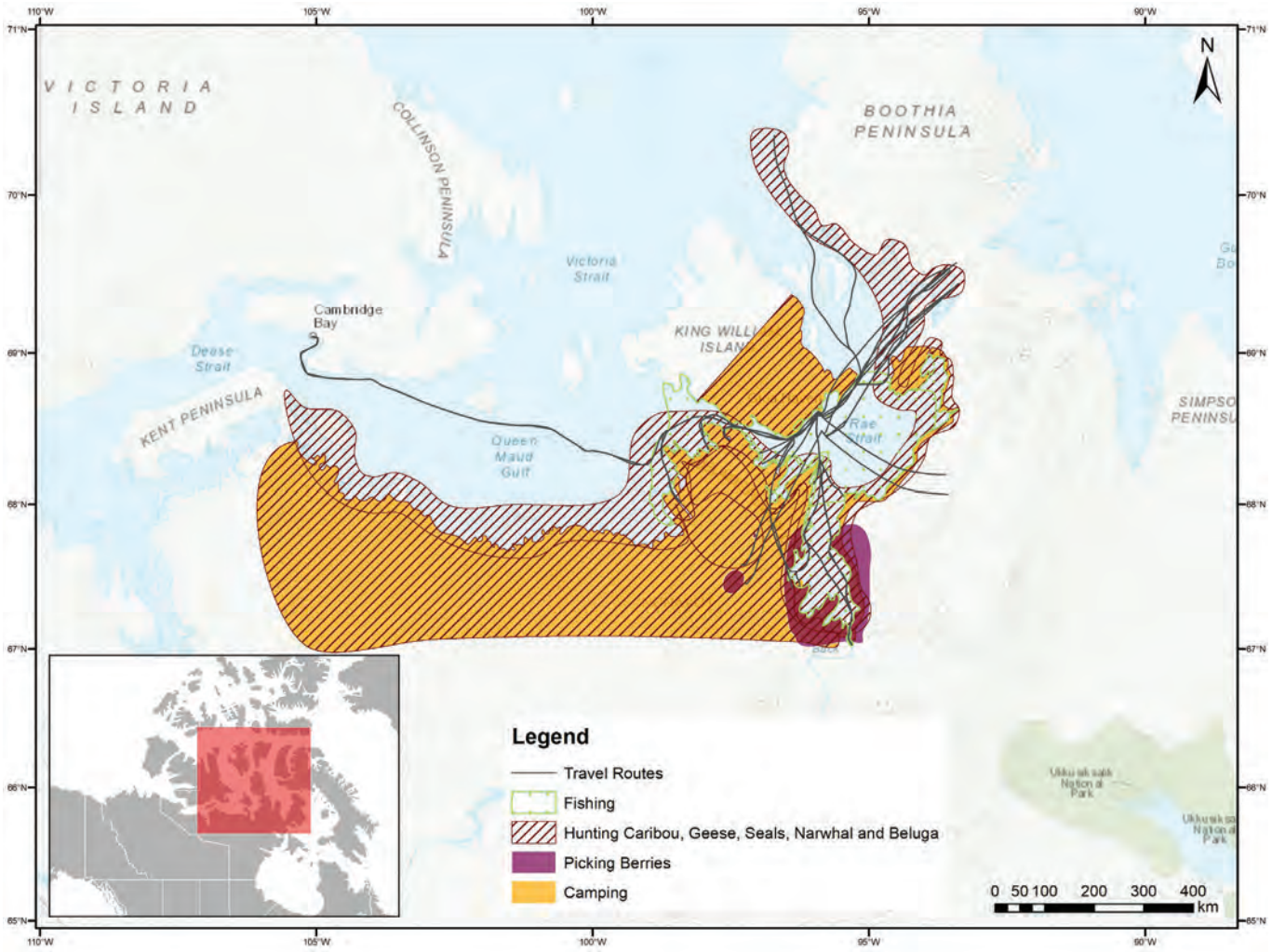


Figure 8. Location of community members' activities during open water

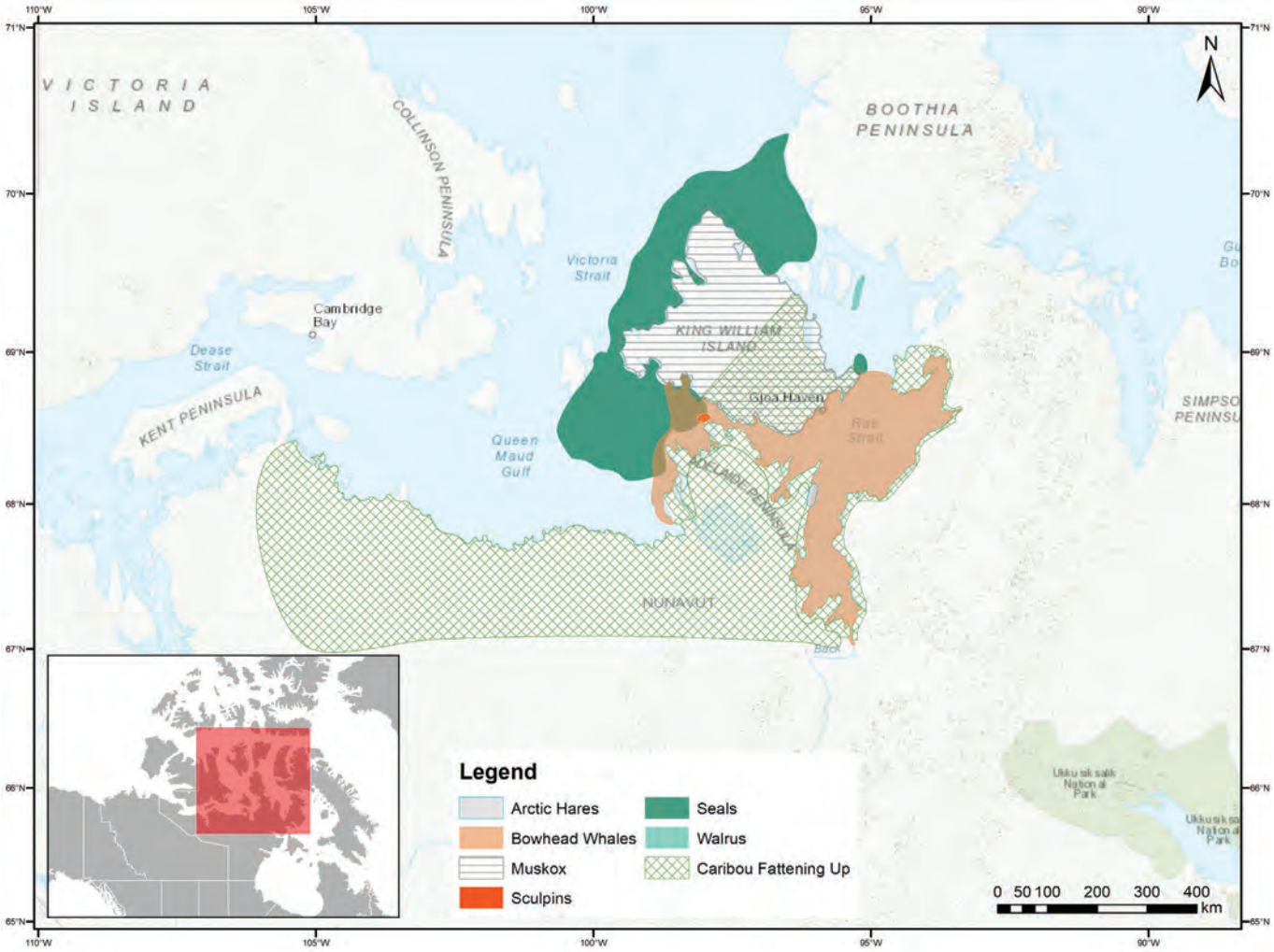


Figure 9. Location and behavioral activities of wildlife during open water

Simpson Strait is Gjoa Haven residents' only route to the main seal and caribou hunting grounds in the islands southwest of Gjoa Haven.

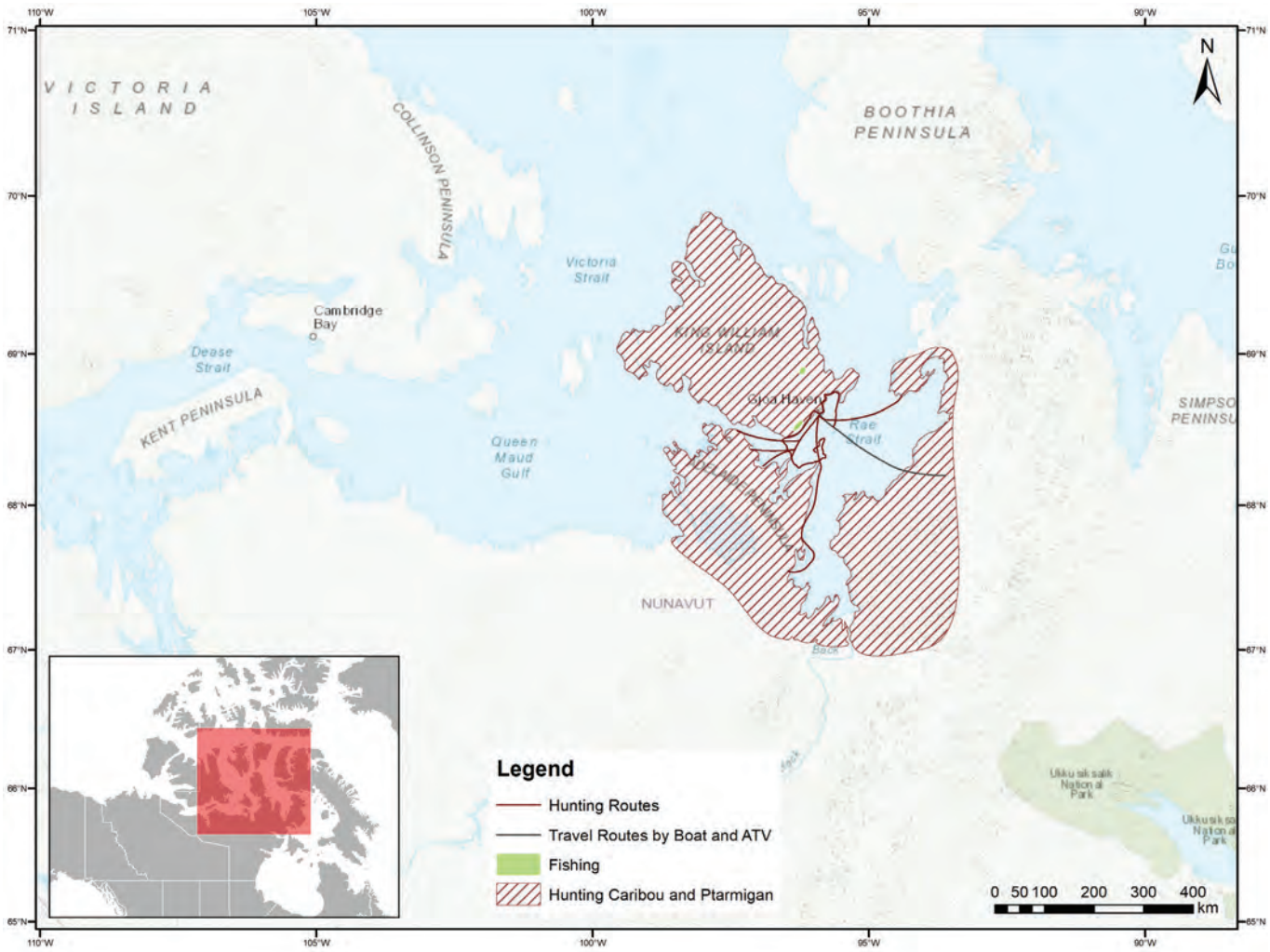


Figure 10. Location of community members' activities around the time of sea ice freeze-up

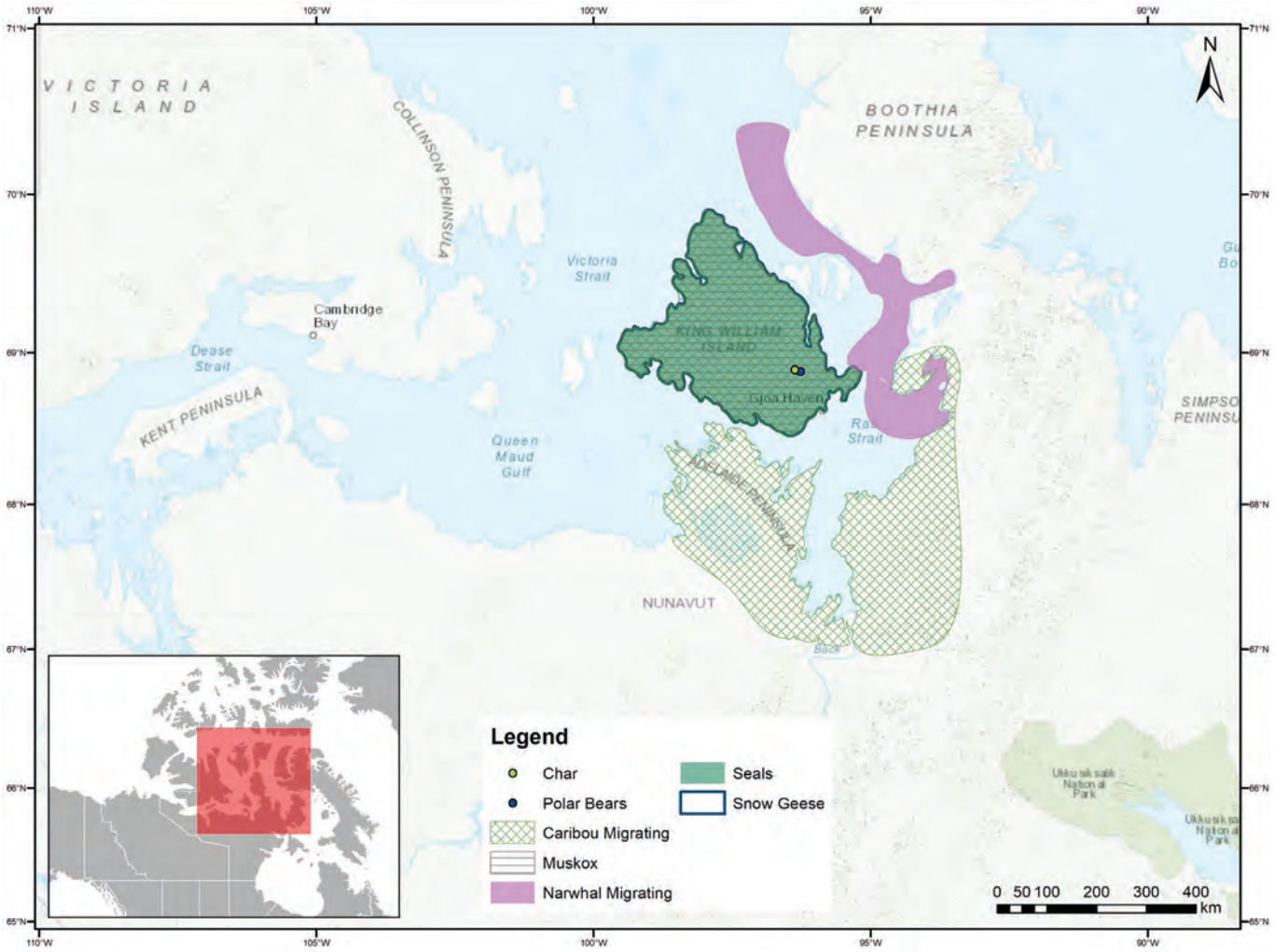


Figure 11. Location and behavioral activities of wildlife around the time of sea ice freeze-up

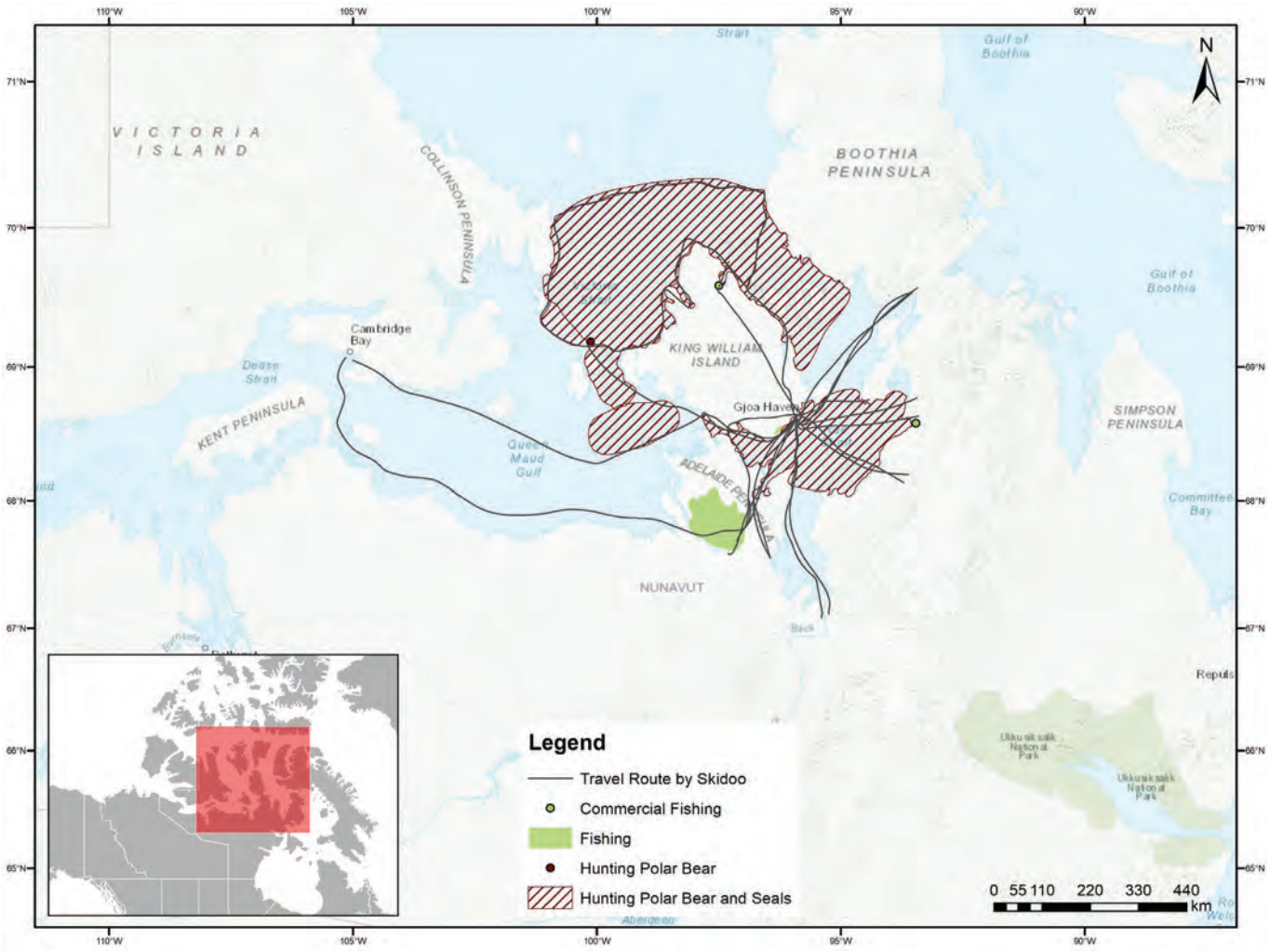


Figure 12. Location of community members' activities when the ocean is frozen

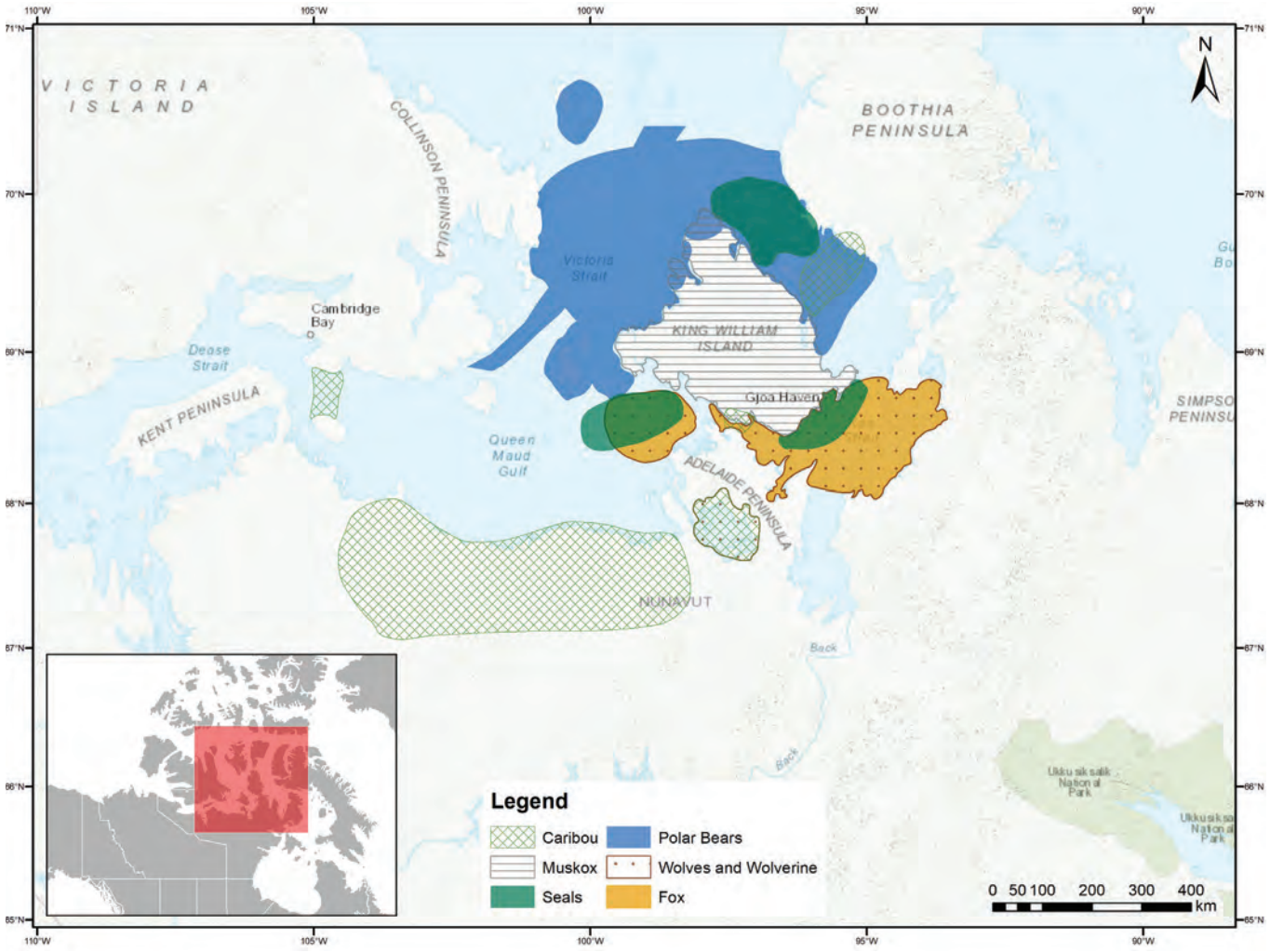


Figure 13. Location and behavioral activities of wildlife when the ocean is frozen

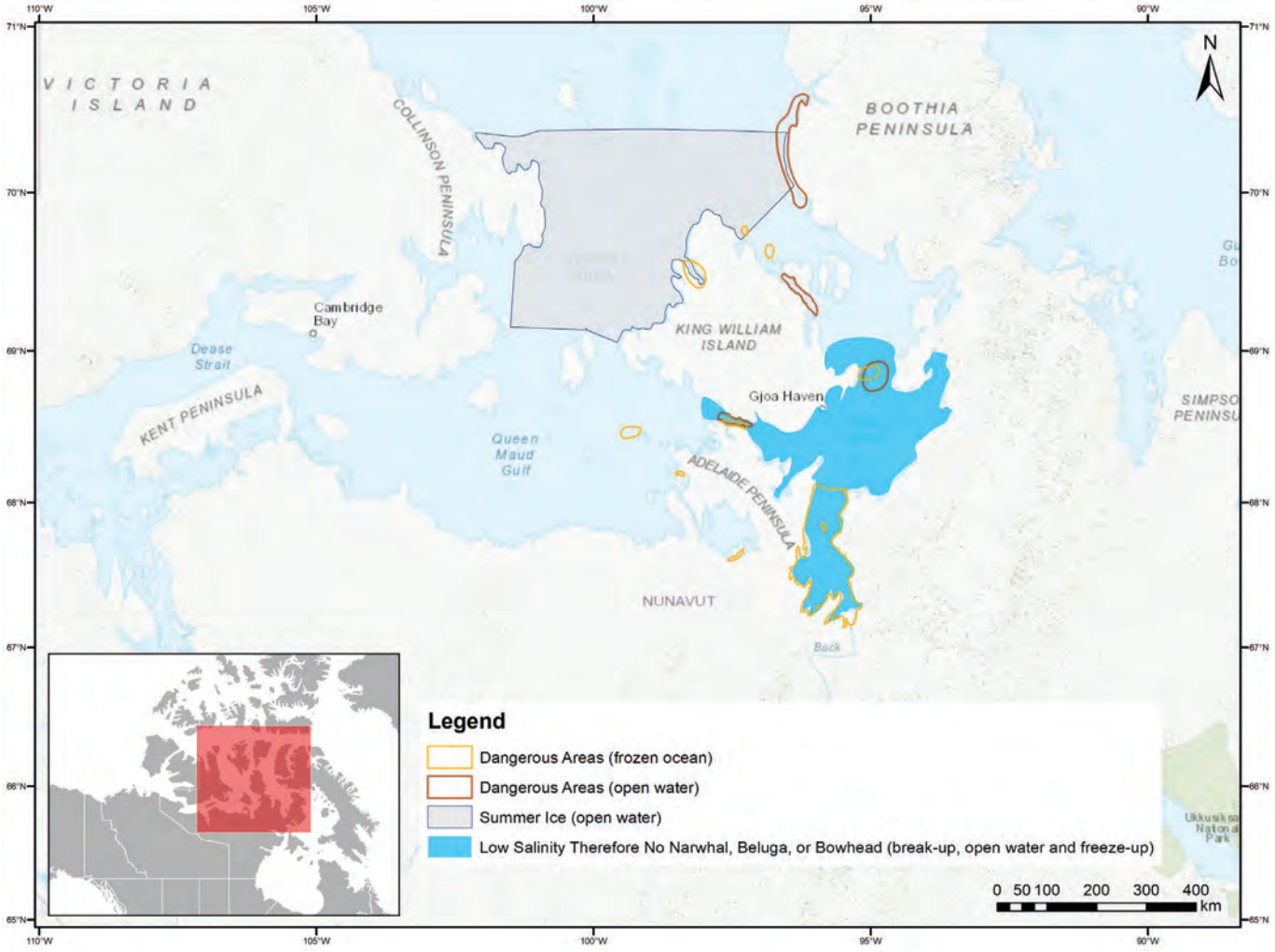


Figure 14. Location of significant marine features

POTENTIAL IMPACT OF MARINE VESSELS

Marine vessels using the Low Impact Shipping Corridors may impact the ecology, wildlife, and community members. Related recommendations are provided.

Table 1. Potential impacts of marine vessels using the Low Impact Shipping Corridors on ecology, wildlife, and community members and related recommendations

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN	RELATED RECOMMENDATION
Ships or icebreakers disturbing frozen or freezing ice, or ice that is breaking up, negatively affects community members who travel over ice daily; creating risk of dangerous travel conditions, and requiring hunters to travel farther than usual. Polar bear dens on sea ice will be destroyed if ships and icebreakers break up ice and caribou migration will be disrupted. Caribou will not use bridges across open water.	Early Spring, Spring, Fall, and Winter	No winter shipping or ice breaking for the safety of Gjoa Haven people. Military is the only exception. No winter shipping or ice-breaking especially not through Simpson Strait or Peel Sound (Figure 15).
Community members have serious concerns about vessels going through Peel Sound. Peel Sound is a highly sensitive area of the Inuit ecosystem for people from Gjoa Haven, Taloyoak, and Resolute Bay. It is a calving ground, nursery, and molting area for 5000 beluga whales, and has a high concentration of seals and whales. There are no narwhal or whales near Gjoa Haven due to low ocean salinity. Thus, Peel Sound is where Gjoa Haven people harvest whales. Hunters travel over 275 miles to get there. Gjoa Haven residents do not want to increase shipping costs but they have serious concerns about ships going through Peel Sound. Shipping companies say there will be an added cost if they travel along the far side of Prince of Wales Island instead, because it will take minimum 5 to 6 hours longer. Also, ice conditions are safer in Peel Sound. Ships in Peel Sound are tolerated only due to the added cost of taking the longer route.	Year-round	No ships through Peel Sound (Figure 15). Conduct research about ice conditions and the ecological sensitivity of waters west of Prince of Wales Island to determine if that area would be an appropriate revised Low Impact Shipping Corridors location. Conduct further testing of cargo blimps so that supplies can be shipped by air and not by sea.

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

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN	RELATED RECOMMENDATION
There is no good place for an oil spill, but Peel Sound is particularly sensitive because it is very rich in marine mammals. A lot of animals would be affected. A lot of people rely heavily on country food every day. An oil spill would have a big impact. Gjoa Haven lacks the capacity to respond to spills, accidents, and groundings in marine areas.	Year-round	Every vessel must use depth monitoring equipment to avoid grounding. Conduct charting so that tankers will not hit bottom and rip open and spill oil or fuel. Improved charting is needed particularly in Simpson Strait and locations identified in Figure 15. Charting is needed in Queen Maud Gulf for alternate routes in heavy ice conditions. Clearly mark and communicate about the location of corridors so that there is no question as to where vessels should go. This will help ensure spills and groundings do not happen. Vessels must stay in the corridors.
Dredging to accommodate larger ships may impact fish and marine mammal habitat.	Year-round	Do not disturb archaeological or historical sites, camping grounds, and cabins if dredging is done. In those places younger generations learn from older generations about preparing for the fall and understanding and respecting the land, water, and wildlife.
Ship size is likely to increase in the future. Larger ships are noisier than small ships. Noise travels very far through water. Marine mammals will move and shift away from ship noise. Sonar may cause marine wildlife to behave abnormally as happened during military exercises elsewhere in Nunavut. Seismic blasting interferes with narwhal, beluga, and seals' ability to navigate because they use sound to navigate, or the blast knocks wildlife unconscious.	Year-round	No recommendation documented at this time.

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

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN	RELATED RECOMMENDATION
Caribou, polar and grizzly bear, and wolf migratory routes, and caribou calving grounds, have changed due to mining exploration camp noise and heavy traffic. Ship noise and traffic may cause wildlife to abandon current habitats. Few people have jobs and many people live on income support and/or social assistance. People run out of food because they cannot afford fuel and equipment to go out to harvest country food. People can survive on store-bought food but have to pay for it. It is an added frustration that ships damage certain areas, which adds to existing concerns about food security and food safety. The thought of not having country meat anymore is scary.	Unknown as studies are needed	Conduct studies investigating the impact of ship noise and traffic on wildlife.
Some community members have no issues with shipping because that is the only way Gjoa Haven residents get southern food and supplies. There are many benefits to the Low Impact Shipping Corridors route especially that cargo can be shipped to communities in a timelier fashion and fuel can be safely delivered by barge. Annual delivery of cargo and fuel is essential. Inuit hunt along the shore and not out in the middle where ships are and where it is really deep. Marine mammals spend time near reefs, shallow areas, and the shore. They are not impacted much by ships since ships are mostly in deeper water mid-sea, so Gjoa Haven residents are not impacted much by ships. Residents only interact with cruise ships in the community and with other ships during emergencies.	Summer, late Summer, and Fall	Clearly mark and communicate the location of the Low Impact Shipping Corridors. Vessels must plan a route in the Low Impact Shipping Corridors and maintain that route. Make vessel operators aware that in Bellot Strait there is a risk of icebergs surfacing from beneath ships.
Simpson Strait is Gjoa Haven residents' only route to the main seal and caribou hunting grounds in the islands south-west of Gjoa Haven. This is the area where ice-breaking at any time, winter shipping, a grounding, an oil spill, or a fuel leak would affect Gjoa Haven people the most. It is too expensive (involves buying more gas) and takes too long for residents to detour and go around King William Island.	Year-round	Vessels must follow the well-travelled long-standing shipping routes, especially the barge route adjacent to Simpson Strait marked on chart 7083.

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

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN	RELATED RECOMMENDATION
Local boaters 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 it to make it visible especially in the dark. Boaters often return home in the dark when the ocean is calmer. It would be a major catastrophe if a boat hit and broke the fuel pipe.	Summer, late Summer, and Fall	Inform local boaters when the fuel barge is in town. Make the fuel pipe visible at all times.
On a completely flat day travelling in a small boat at high speed, crossing a ship's wake can cause everything to fall out of the cabinets on the small boat.	Summer, late Summer, and Fall	Reduce speed (Figure 15).
Search and rescue of small vessel operators costs Canadian tax-payers. Some small craft operators come in ill-equipped vessels and require rescuing.	Summer, late Summer, and Fall	Residents prefer that ice-breakers escort ships elsewhere versus having to rescue ill-prepared visitors here. Visitors' vessels must be properly equipped.
Nunavut Fisheries and Marine Training Consortium provides training for Nunavut Inuit to be licensed to work on research, Coast Guard, cargo, and cruise ships. Employment opportunities include working as deckhands, unloading sealift, and as Canadian Rangers to take pictures and report unauthorized boats to the military. Cruise ship landing fees paid to the Hamlet Office pay for part-time employment as cultural demonstrators, performers, guides, security, and doing meal preparation. Artists earn income through art sales.	Summer, late Summer, and Fall	Some residents are trying to get more Inuit, especially young people, involved with cruise ships. Some residents are interested but few people are taking steps to become more involved. More Inuit could be employed as storytellers, guides, and observers on cruise ships. Adventure Canada wants to hire and train Inuit tour guides, bear monitors, and zodiac operators.

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

POTENTIAL IMPACT OF MARINE VESSELS	WHEN IT MAY HAPPEN	RELATED RECOMMENDATION
Some interactions with small craft operators are very positive, exciting experiences that include sharing stories, making new connections, visiting each other's camp/boat, and getting supplies. Some small craft operators invite young women from Gjoa Haven onboard to look for or bring alcohol and drugs. Some are Hells Angels sailors or wanted by Interpol or come in ill-equipped vessels and require rescuing.	Summer, late Summer, and Fall	Security is a big issue. Improved security, monitoring and enforcement are needed. Public Safety Canada could co-ordinate increased security. Residents wish to know if the current federal government will be as focused on security in the north as the previous (Conservative) government was; and if military presence in the north should be increased for added security in Arctic waters.
Cruise ships, the fuel barge, and supply ships do not announce their arrival dates or schedule changes. Thus, the community is often unprepared when they arrive (e.g., performers waiting at the community hall, no staff on hand to unload or pay the ship or do tasks).	Summer, late Summer, and Fall	Improved communication is needed between marine vessel operators including fuel barge, sealift, cruise ships, pleasure craft and the community. Information to communicate includes presence of the fuel pipe, itineraries, schedule changes/cancellations, plans to anchor, and purpose of the voyage. Ideally communicate with the Hamlet Council, Hunters and Trappers Organization, and Nattilik Heritage Centre who would then alert the community in a timely fashion via Facebook, radio, and notices posted in town.
Cruise ships are the type of ships most likely to stray from planned itineraries and outside of the Low Impact Shipping Corridors. Cruise ships take business away from local tour operators, hotels, and restaurants because cruise ships bring bulk amounts of tourists who stop briefly and do not spend money in the community. If not for cruise ships, tourists would stay longer and spend more money. Cruise ship passengers watch and photograph residents, in their own yards, against their will. Despite Nunavut laws against moving artifacts, tourists and Gjoa Haven people take artifacts home.	Summer, late Summer, and Fall	To cause less disturbance, cruise ship passengers are encouraged to only visit communities because the land will not tell any stories but the people in communities will. Talking with residents provides opportunities to clarify cross-cultural misunderstandings (e.g., a seal that seems to be left to rot is actually dog food or is being fermented to improve its taste). Artifacts seen on the land are in communities too.

The results of this study should be shared widely in the south and in other northern communities, so Inuit and Northerners' perspectives can be understood.

MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

Maps include:

- no-go zones
- no-icebreaking zones
- restricted-use zones
- reduced-speed zones
- revised Low Impact Shipping Corridors

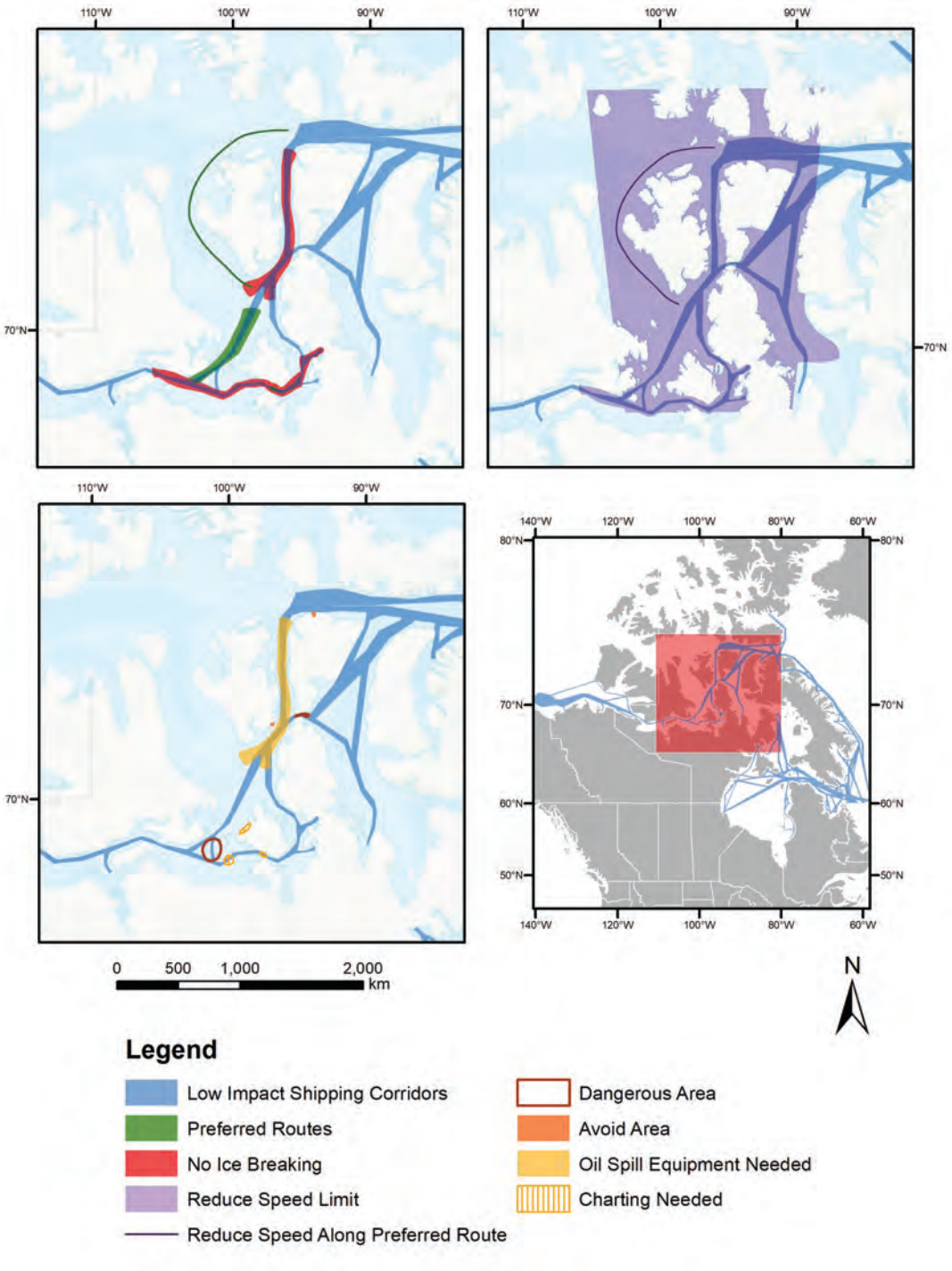


Figure 15. Recommendations for Low Impact Shipping Corridors

MAPS OF RECOMMENDATIONS FOR THE LOW IMPACT SHIPPING CORRIDORS

Maps include:

- no-go zones
- no-icebreaking zones
- restricted-use zones
- reduced-speed zones
- revised Low Impact Shipping Corridors

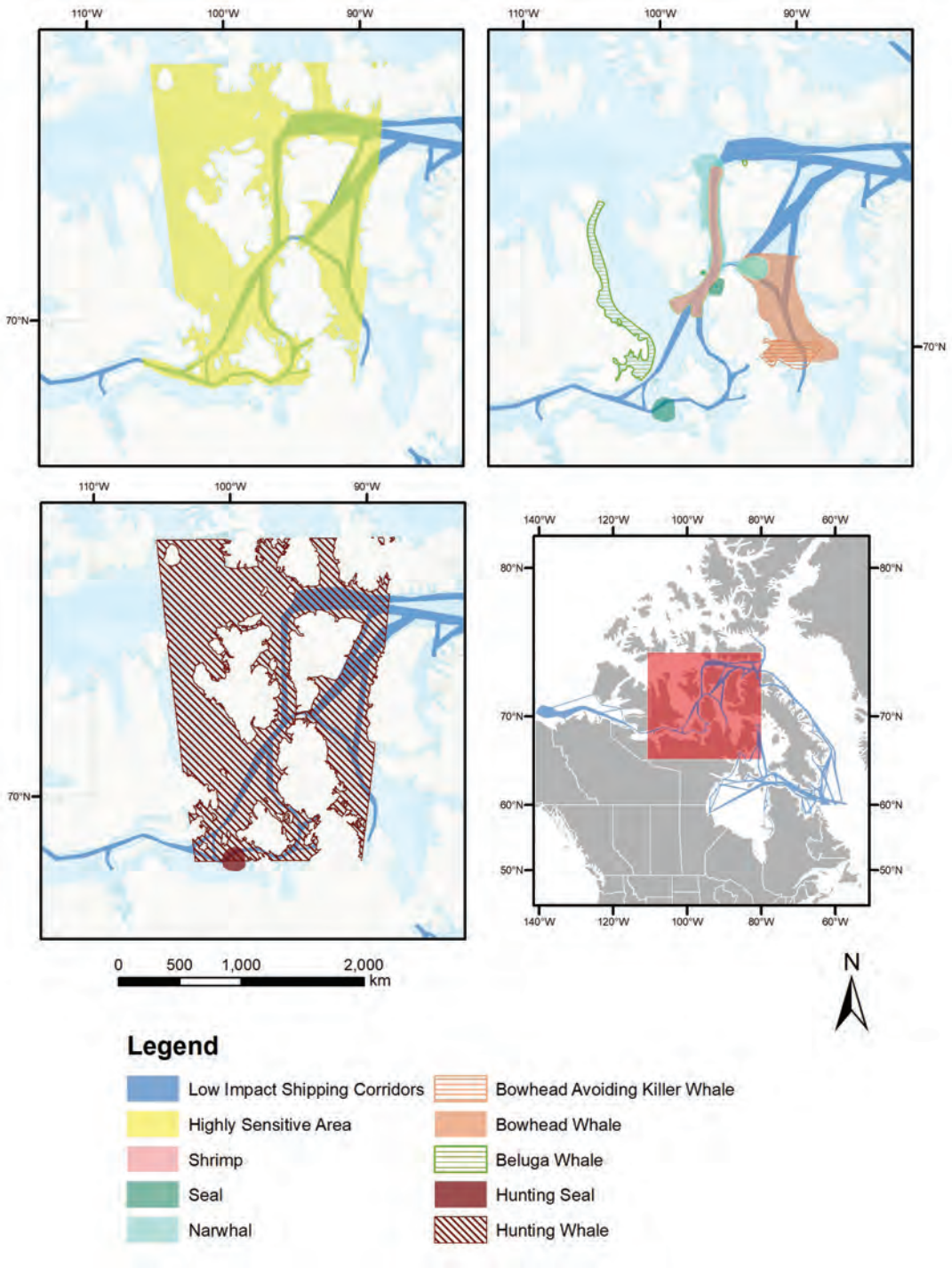


Figure 16. Existing sensitive areas associated with reasons for recommendations made about Low Impact Shipping Corridors

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. Gjoa Haven has experienced one of the largest increases in marine vessel activity in Nunavut in recent decades.[1] Moreover, the marine areas that are most significant to community members' subsistence harvesting and livelihood activities, are located in the heart of the Northwest Passage – exactly where there have been significant increases in ship traffic. The recent discoveries of the *HMS Erebus* and *HMS Terror* have drawn additional attention to Gjoa Haven and the waters surrounding it. Given community members' concerns about this attention and growth, and its implications for the ecology, environment, and Inuit way of life, the perspectives of Gjoa Haven 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. Infusing Inuit and Northerners' voices in the continued development of Low Impact Shipping Corridors is critical to ensuring safe marine transportation near Gjoa Haven and throughout the Canadian Arctic.

[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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