

GAP ANALYSIS

Shipping and Coastal Management in Inuit Nunangat



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Executive Summary

Inuit culture, livelihood, and wellbeing are reliant on a sustainable marine and coastal environment; Inuit are a maritime people. In recent years marine vessel traffic (shipping) has increased across Inuit Nunangat as a whole and has changed in unique ways in each region (Inuvialuit Settlement Region, Nunavut, Nunavik plus Eastern Hudson Bay and James Bay, and Nunatsiavut). Ship traffic in Inuit Nunangat increased by 37% from 2015 to 2019. Cargo and fishing vessels had the highest traffic overall, but bulk carrier and pleasure craft traffic increased the most during that time. Of particular note was the 1112% increase in bulk carrier activity in Nunavut due to the 2015 opening of the Baffinland Mary River Mine. Other areas of high traffic include northern Hudson Bay, Hudson Strait, the Labrador Sea, Davis Strait, and the southern route of the Northwest Passage.

Increases in shipping traffic are expected to continue as Inuit Nunangat experiences more ice-free days per year due to climate change thus extending the shipping season length. Geopolitics, economics, demographics and social behaviour, infrastructure, and technology are also causing changes in shipping traffic. While dependent upon shipping for delivery of essential goods, Inuit are concerned about the risks of vessels travelling through their marine use areas, such as, 1) ecosystem and Inuit food chain contamination; 2) wildlife habitat destruction and behavioural changes resulting in added difficulty and expense when harvesting and increased food insecurity; and 3) increased travel hazards for Inuit.

A number of shipping and coastal management policies and programs are being implemented that affect Inuit Nunangat. In places, Inuit and

Government of Canada policy priorities align (e.g. safeguarding ecosystems and wildlife from marine litter). However, key Inuit priorities remain unaddressed, such as Inuit-led co-management of shipping activity, long term funding and support, and involvement in policy-making. Additional effort is needed to support long-term and broad ranging approaches that span Inuit Nunangat and meet regional needs. Key recommendations moving forward include supporting Inuit involvement in decision-making and knowledge creation, and strengthening collaborations between federal and regional partners. Community and organizational capacity and engagement, and federal agency communication with rights holders are two of the main obstacles to successful implementation and development of shipping and coastal management policies. Recommendations include the creation of specific shipping and coastal management policies to respond to Inuit needs; support to increase organizational and community capacity; and the development of effective regional and federal partnerships.

Comprehensive Land Claims Agreements form the foundation of the relationships between Inuit and Canada. Inuit self-determination in Arctic shipping and coastal management policy means increased representation, a recognition of the unique challenges present, and honouring and upholding both historic and modern treaties and land claims. There is a need for dynamic shipping and coastal management policies that are developed with Inuit and for Inuit Nunangat.

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1.0 Introduction

Inuit living in 51 communities across Inuit Nunangat (Figure 1) are highly dependent on the marine and coastal environment to support the harvesting, consumption, and sharing of country foods such as marine and terrestrial mammals, fish, birds, eggs, and many different plant products (see arcticcorridors.ca/reports for more information).¹ As stated by Inuit Tapiriit Kanatami (ITK) President Natan Obed, Arctic waterways supporting and sustaining Inuit ways of life are being rapidly affected by changes in climate including reductions in sea ice, which has also led to increased accessibility for marine vessels.² Over the past decade vessel traffic has rapidly increased across Inuit Nunangat and expected growth in ship traffic will present a suite of both risks and opportunities related to the balancing of

economic, environmental, and social-cultural imperatives in the region.³

In response to growth in shipping traffic in Inuit Nunangat and the increasing recognition of the need to support and protect the Arctic marine environment in Canada, the Department of Fisheries and Oceans Canada and the Canadian Coast Guard, in partnership with ITK, announced the creation of the new 'Arctic Region' in 2018. The goal of the Arctic Region, which encompasses Inuit Nunangat and beyond, is "to ensure that Inuit and all Indigenous peoples, as well as residents of the North are at the center of the Department's decision making in the region".⁴

*"Inuit are a marine people... [with] life inextricably linked to the ocean."*²



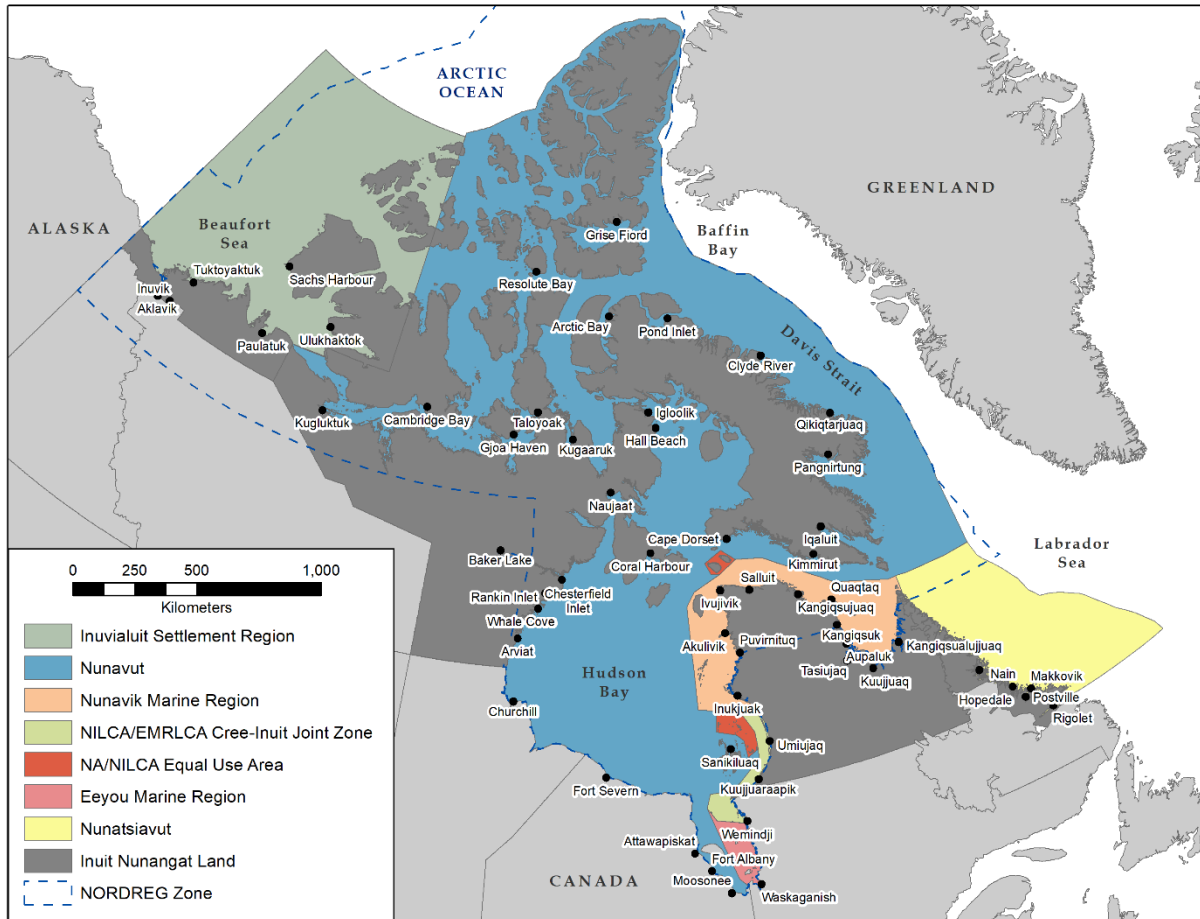


Figure 1: Marine regions used in this report and communities within Inuit Nunangat, Hudson Bay, and James Bay (additional information in Appendix A).

1.1 Purpose of the Report

With the establishment of the new ‘Arctic Region’ and considering the moral and legal imperatives enshrined in the settled Inuit Land Claim Agreements and through Government of Canada’s commitment to reconciliation with Indigenous peoples,⁵ it is vital that appropriate and effective approaches to shipping and coastal management are established and implemented in ways that support Inuit self-determination and sustainability. Through an analysis of recent shipping activity, interviews with expert

knowledge holders, and an overview of shipping and coastal management policy priorities, this report identifies existing knowledge and policy gaps, proposes solutions, and informs the development and implementation of existing policy initiatives to help identify where Inuit involvement in Arctic shipping and coastal management policy can be deepened in a meaningful and self-determined way.

2.0 Background

2.1 Historic shipping trends and projected future change

Global climate change has had dramatic impacts on the Arctic environment over the past several decades, including a substantial reduction in sea ice age, thickness, and extent (Figure 2).⁶⁻⁸ There is less thick, old (multi-year) ice, and more, thinner, younger (first-year) ice⁹ and overall, the ice is more mobile, which creates increased navigation hazards for ship operators¹⁰. As a result, The Canadian Arctic has experienced rapid increases in ship traffic, including a near-tripling of kilometers travelled by vessels since 1990.^{3,11,12} Most ship traffic currently comes from cargo vessels and government icebreakers (including vessels used for research).³ However, the fastest growing sector since 1990 has been pleasure craft (e.g., recreational sailboats and private yachts), in particular through the Northwest Passage (NWP) as it has become more and more accessible due to changing ice

conditions.^{3,13-15} Marine traffic due to exploration for, and extraction of, natural resources in the Canadian Arctic also continues to increase.^{3,11,16} The increase in northern resource extraction projects (e.g., Baffinland Mary River Iron Ore Mine) not only demands an increase in bulk shipments of raw goods and materials, but also increased marine transportation during the construction phase of these projects.¹⁷ Small-scale fishing operations in the Canadian Arctic are expanding,^{17,18} and marine tourism in the form of expedition cruise ships has become popular and it is speculated that the demand will continue to increase.^{10,19} Despite the increasing accessibility of shipping routes through the Canadian Arctic, support from icebreakers is often still necessary, particularly to assist vessels stuck in ice and for search and rescue operations.

The Canadian Arctic has experienced rapid increases in ship traffic including a near-tripling of kilometers travelled by vessels since 1990.



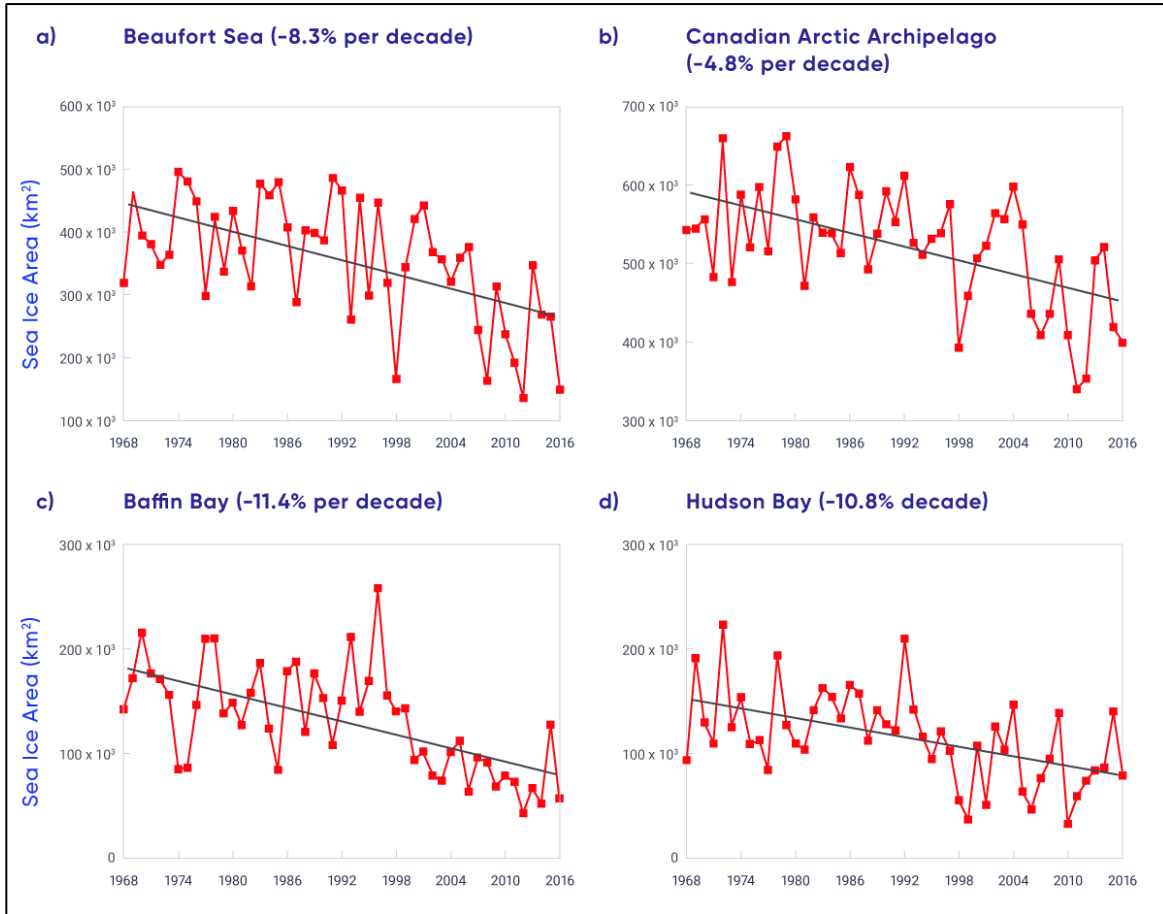


Figure 2: Change in summer sea ice area between 1968 and 2016 for the (a) Beaufort Sea, (b) Canadian Arctic Archipelago (CAA), (c) Baffin Bay, and (d) Hudson Bay regions (Source: ²⁰).

It has been projected that the Arctic will become ice free (defined as < 1 million km²) before mid-century²¹⁻²³ and that this will lead to continued growth in shipping traffic that supports re-supply, tourism, fisheries, resource development, and trans-Arctic trade. Several studies show that sea ice conditions will be

sufficiently reduced to allow even non-ice strengthened vessels to transit the NWP, which is expected to be 30% more accessible by 2050.^{22,24,25} It is possible that re-supply vessels in the western side of the NWP could gain an additional month of operating time and an additional two weeks in the eastern NWP.²⁶

2.2. Drivers and Limiters of Shipping Change

Six key variables are affecting (driving or limiting) changes in shipping activity in the Canadian Arctic: 1) economics, 2) geopolitics, 3) demographics and social change, 4) technology, 5) infrastructure, and 6) climate change (Figure 3).¹⁰



Figure 3: Drivers and Limiters of Arctic shipping activity.

Economics

- Marine vessel activity in the Canadian Arctic, may be limited by the high costs of building ice-strengthened vessels, training and hiring experienced crew, fuel use and price, and higher insurance and maintenance costs for operating in Arctic waters.^{10,27}
- As ice conditions, resource development, and commodity prices change, economic factors may shift and make shipping through the Canadian Arctic more economically feasible.¹⁰
- Over 90% of goods are moved by ships internationally in order to support 40% of the entire global economy.^{28,29} The NWP route (connecting the Atlantic and Pacific Oceans) is about 9,000

km shorter than the route through the Panama Canal, and about a third of the distance of the route through the Suez Canal, so it is very likely that, when it becomes feasible, Arctic trade routes will attract increasing numbers of international shipping traffic.^{12,30}

- Operational challenges (e.g., Ever Given grounding cost \$9.6 billion per day in lost revenues) within typical global trade routes (i.e., via the Suez and Panama Canals)³¹ could alter demand for alternative trade routes through the Arctic.^{12,32}
- Changing global economic trends will influence trade patterns and commodity needs.

Geopolitics

- The Government of Canada and Inuit claim sovereignty over the waters and ice through the NWP. Internationally this area has not been consistently recognized as Canadian waters. Foreign governments maintain that the NWP should be considered international waters. Depending on the outcome of this debate, international shipping traffic through the NWP may increase.
- Inuit Nunangat continues to be an area of global interest for potential resource extraction opportunities; increased resource extraction in the region will lead to increased shipping.
- Non-Arctic states have expressed clear interest in utilizing Arctic sea routes and have explicitly stated this within their national development plans.³³

Demographics and Social Change

- The Inuit population is increasing at a rate nearly three times faster than that of the rest of the Canadian population.³⁴ There will be an increased need for resupply and cargo ships to deliver resources to communities in Inuit Nunangat, thus ship traffic in those sectors will increase.
- Increasing interest in marine tourism will draw additional vessels to Inuit Nunangat waters especially private yachts and pleasure craft which are currently the fastest growing ship types in the region.¹⁴
- Global trends related to globalization and conversely nationalization will influence changing demand for maritime trade and transportation over time.
- The practice of offshoring (corporations producing products overseas to reduce costs) may increase marine shipping activity between the production facility and consumers. However, transportation costs must be low enough to make offshoring economically feasible.
- Experienced and well-trained ice pilots, mariners, and ship captains are retiring and newly trained mariners lack experience navigating ice-infested waters which could cause safety and staff challenges and may decrease shipping activity through the NWP.

Technology

- Access to new and better technologies (e.g., access to digital charting, navigation technologies, hull strengthening, hydraulics) may influence the willingness of people to operate marine vessels through Inuit Nunangat and could facilitate shipping increases.
- Conversely, older vessels lacking enhanced technology may limit the number of vessels that can safely operate in ice-infested Arctic waters.

Infrastructure

- Lack of infrastructure can limit economic opportunities for communities in Inuit Nunangat because ships will tend to pass straight through a region without stopping.
- Future investments in infrastructure can increase safety while decreasing the likelihood of accidents and incidents, supporting shipping growth. This includes access to port facilities, enhanced search and rescue capabilities, access to engine repair facilities and improvements in telecommunications.
- Investment in multi-purpose marine shipping infrastructure that is designed to support ship operations and community needs can increase benefits and also attract development opportunities related to tourism and fisheries.
- Limited community emergency response capacity for oil spills, ship groundings, and other emergencies can affect the safety of marine vessel travel and also can increase concerns around potential environmental disasters or marine related accidents, thus discouraging some vessel operators.

Climate change

- Warming in the Canadian Arctic is causing a longer open water season, as sea ice melts earlier in the season and freezes later.³⁵
- As the climate continues to warm it is expected that the NWP will become increasingly ice-free and more accessible for marine vessels to travel through by mid-century.^{22,24,25}
- Until the region becomes ice-free, climate change will make shipping in Inuit Nunangat more hazardous as ice becomes increasingly mobile and chokes up narrow passages, and as icebergs and bergy bits flow into the Canadian Arctic Archipelago from the Arctic Ocean.^{15,36} These conditions are especially dangerous for ships that are not ice strengthened, which is concerning because recent observations indicate an increase in non-ice strengthened vessels and a decrease in highly ice strengthened (i.e., PC3) vessels operating in Inuit Nunangat over the past two decades.³⁷

2.3 Impacts of shipping changes on Inuit Nunangat

In Inuit Nunangat, most communities are dependent upon shipping for annual delivery of fuel, equipment, and goods, and the industry as a whole is very important in the region. Marine shipping and transportation, including support of mining operations and ship-based marine tourism, provide Inuit with employment and income opportunities, support local economic development, and facilitate private-public investments in multi-purpose infrastructure and training programs. Efforts are underway to increase the opportunities that are emerging as a result of increased marine transportation in the Arctic (see for example³⁸⁻⁴²).

Globally, Inuit are also observing a wide range of impacts and risks related to increased ship traffic.^{2,43} Inuit are highly concerned about how shipping traffic may change the marine and coastal environment, affect marine and terrestrial wildlife, and influence their ability to access country food (see arcticcorridors.ca/reports).^{2,44-46} Growth in Arctic ship traffic will also increase risks related to oil, fuel, and other chemical spills; underwater noise pollution affecting marine mammal acoustics, biology, and navigation; and introduction of invasive species from ballast water and hull fouling.⁴⁷⁻⁵¹

Key Inuit-identified concerns about the risk of ships travelling through Inuit Nunangat:

- Contamination (fuel, oil, chemical, physical, invasive species) of the food chain that Inuit rely on and the deterioration of the ecosystem;
- Destruction of habitat and changes in wildlife behaviour that would
 - a) Make it harder for Inuit to harvest successfully,
 - b) Cause hunters to incur additional travel expenses while searching for wildlife and earn less revenue from sales of pelts and tusks, and
 - c) Heighten food insecurity, reliance on purchased food, and the need for social assistance; and
- Hazardous travel conditions for Inuit and wildlife (migration) due to disturbance by ships and icebreakers altering the natural formation and breakup of sea ice.^{2-12,54,55}

2.4. Shipping and Coastal Management Policies

The Government of Canada (GOC) has a robust set of coastal management policies and is developing regionally specific frameworks for shipping management in Inuit Nunangat. In 2016, the GOC developed the Oceans Protection Plan (OPP), to enhance Canada's ocean protection strategies to preserve and restore marine ecosystems. The OPP also highlighted the importance of creating meaningful partnerships with Indigenous groups to involve them in decisions affecting the Canadian marine environment.⁵² This has included plans to establish Low Impact Shipping Corridors (LISC) in the Canadian Arctic to "...provide infrastructure, navigational support and emergency response services needed for safer marine navigation, while respecting the environment and local ecology and cultures".⁵³

In 2018, Fisheries and Oceans Canada, Canadian Coast Guard, and ITK announced the creation of a stand-alone Arctic Region: "to advance reconciliation, partnerships and collaboration with Inuit, First Nations and Métis nation organizations and governments, provinces and territories and other partners."⁵⁴

This Arctic Region includes Inuit Nunangat (the four Inuit settled land claim regions: Inuvialuit Settlement Region, Nunavut, Nunavik, and Nunatsiavut) as well as the Yukon North Slope, Northwest Territories, Hudson Bay and James Bay.⁵⁴ Additionally, in September 2019, the GOC launched the Arctic and Northern Policy Framework, which set out clear priorities to develop collaborative approaches to achieve goals and objectives, acknowledging that:

*"[The Canadian] government recognizes that 'made in Ottawa' policies have not been successful."*⁵⁵

A key deliverable of the framework is the continued development of an Inuit-Crown Partnership Committee. While these recent developments are suggestive of a federal focus on collaborative approaches - which place Inuit at the centre of decision-making on issues that affect Inuit Nunangat - there is a pressing need to consider how these stated goals are incorporated in practice. The findings of this report demonstrate that there is still work to be done in order to fulfill these stated objectives.

3.0 Shipping Patterns in Inuit Nunangat

From 2015 to 2019, marine vessels travelled more than 7.5 million kilometers in Inuit Nunangat (Table 1). Vessel traffic within Inuit Nunangat, Hudson Bay and James Bay increased substantially (37%) between 2015 and 2019 (Figure 4A; Table 1). The number of kilometers travelled by vessels increased steadily over the 5-year period, save for a small dip in 2016 caused by unusually low traffic in Nunatsiavut (Figure 4B; see Appendix E for details). The number of ships increased steadily each year, from 366 in 2015 to 528 in 2019 – an increase of 44% (Figure 4).

In 2019, of all four regions, Nunavut had by far the most shipping activity; more than double the

total kilometers travelled in any other region that year (Figure 4B). However, it is important to consider that this region is also the largest geographically (Figure 1). Nunatsiavut had the second highest traffic overall, but it was the only region that had a slight decline in activity between 2015 and 2019 (8%) (Figure 4B). The Inuvialuit Settlement Region (ISR) and Nunavik and Eastern Hudson Bay and James Bay both had comparatively low shipping traffic, but both had increases between 2011 and 2019, of 111% and 225%, respectively (Figure 4B).

There are nine primary vessel types used in this report, they are listed in Table 2.



Fishing vessels and cargo ships travelled the furthest

37% Increase in kilometers travelled by ships

44% Increase in number of ships

217% Increase in dry bulk vessel traffic

Summary of shipping patterns throughout Inuit Nunangat between 2015 and 2019

Table 1: Distance travelled by each ship type, and the total by all ships, within Inuit Nunangat, Hudson Bay, and James Bay between 2015 and 2019.

	2015	2016	2017	2018	2019	TOTAL
Cargo	210445	174369	281542	316215	336967	1319537
Dry Bulk	76066	99300	143158	181217	241231	740971
Ferry/Ro-Ro/Passenger	120116	118816	130093	99103	99124	567253
Fishing	402846	304332	397076	444355	500002	2048611
Government/Research	168821	170150	244922	268092	236333	1088318
Other/Special Ships	48197	39370	59061	51697	18925	217250
Pleasure Craft	47123	61891	52972	28753	59597	250337
Tanker	188686	128997	164341	197919	208916	888859
Tugs/Port	62066	57737	62115	93034	117240	392193
TOTAL	1324366	1154964	1535280	1680384	1818335	7513329

Table 2: Vessel types operating in Inuit Nunangat and their descriptions.

Classification	Description	Examples of Vessel Types
Cargo	<ul style="list-style-type: none"> Carries various types of cargo 	Cargo, container ship, community re-supply, heavy load carrier, reefer
Dry bulk	<ul style="list-style-type: none"> Bulk carriage of ore 	Bulk carrier
Ferry/Ro-Ro/Passenger	<ul style="list-style-type: none"> Ships that carry passengers for a fee Roll-on/roll-off (ro-ro) ships designed for wheeled cargo (e.g. cars, trucks, trailers) to be driven on or off 	Passenger, ro-ro, ferry, cruise ships
Fishing	<ul style="list-style-type: none"> Vessels used in commercial fishing activity Generally small (~30-100 m) 	Factory trawler, small fishing boats, trawler
Government/Research	<ul style="list-style-type: none"> Designed to operate in ice-covered water Strengthened hull, sufficient power to push through ice 	Icebreaker, fishery patrol, research, military operations, pilot ship, search and rescue
Other/Special ships	<ul style="list-style-type: none"> Vessels that fall outside other categories Mostly related to oil and gas exploration 	Diving support vessel, drill ship, exploration survey vessel
Pleasure craft	<ul style="list-style-type: none"> Recreational vessels 	Cruiser, pleasure craft, sailing vessel, sloop, yacht
Tanker	<ul style="list-style-type: none"> Vessels that carry bulk liquids or compressed gas 	Chemical carrier, chemical tanker, crude oil tanker, oil/chemical tanker
Tugs/Port	<ul style="list-style-type: none"> Designed for towing or pushing, and general work duties Push or pull barges 	Anchor handling vessel, port tender, tug

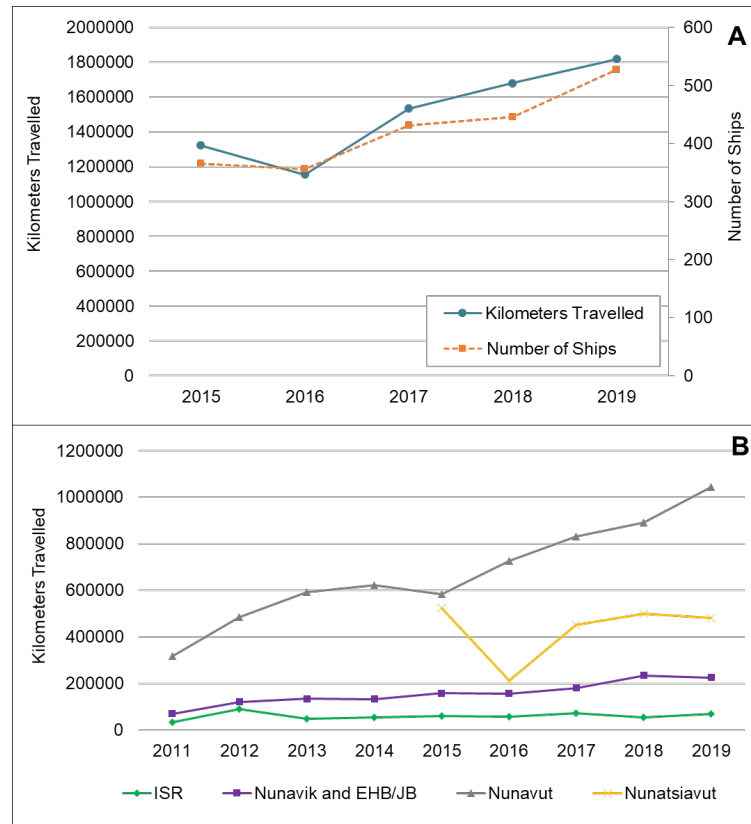


Figure 4: Distance travelled by all ships, as well as the total number of ships, within Inuit Nunangat, Hudson Bay, and James Bay between 2015 and 2019 (A), and (B) the total kilometers travelled within each region. Note: EHB/JB indicates Eastern Hudson and James Bays.

Fishing vessels, out of all of the vessel types in Inuit Nunangat, had the highest traffic (Table 1), which increased by 24% between 2015 and 2019 (Figure 5C) despite a large decrease in 2016 (Figure 5C) due to a reduction in the traffic in Nunatsiavut (see Appendix E for details). **Cargo ships**, which resupply communities and mining sites, had the second highest overall traffic, which increased substantially by 60% between 2015 and 2019 (Figure 5A). **Government/research vessels** had the third highest traffic, and increased by 40% between 2015 and 2019 (Figure 5D). Government/research vessels include icebreakers, fishery patrol, vessels conducting research, military operations, pilot ships, and

search and rescue operations. Usually these vessels are ice-strengthened. The total traffic for **dry bulk vessels** was slightly less than the three previously mentioned vessel types, but it had the fastest growth rate compared to any other ship type; it more than tripled (217%) between 2015 and 2019 (Figure 5B). Dry bulk vessels are designed to carry bulk cargo such as grain, timber and ore, and the large increase in this category was directly related to the opening of the Baffinland Mary River Mine in 2015 (see Appendix C for details). **Tanker** activity was less than the other ship types and remained consistent from 2015 to 2019, only increasing by 11% (Figure 5E). Tankers generally provide fuel and other liquids to communities and mines in

the Canadian Arctic. **Pleasure craft and tugs/port vessels** had relatively low traffic compared to other vessel types, but traffic increased by 26% and 89%, respectively, between 2015 and 2019 (Figure 6C and D).

Ferry/ro-ro/passenger vessels and other/special ships had relatively low traffic and activity decreased by 17% and 61%, respectively (Figure 6A and B).

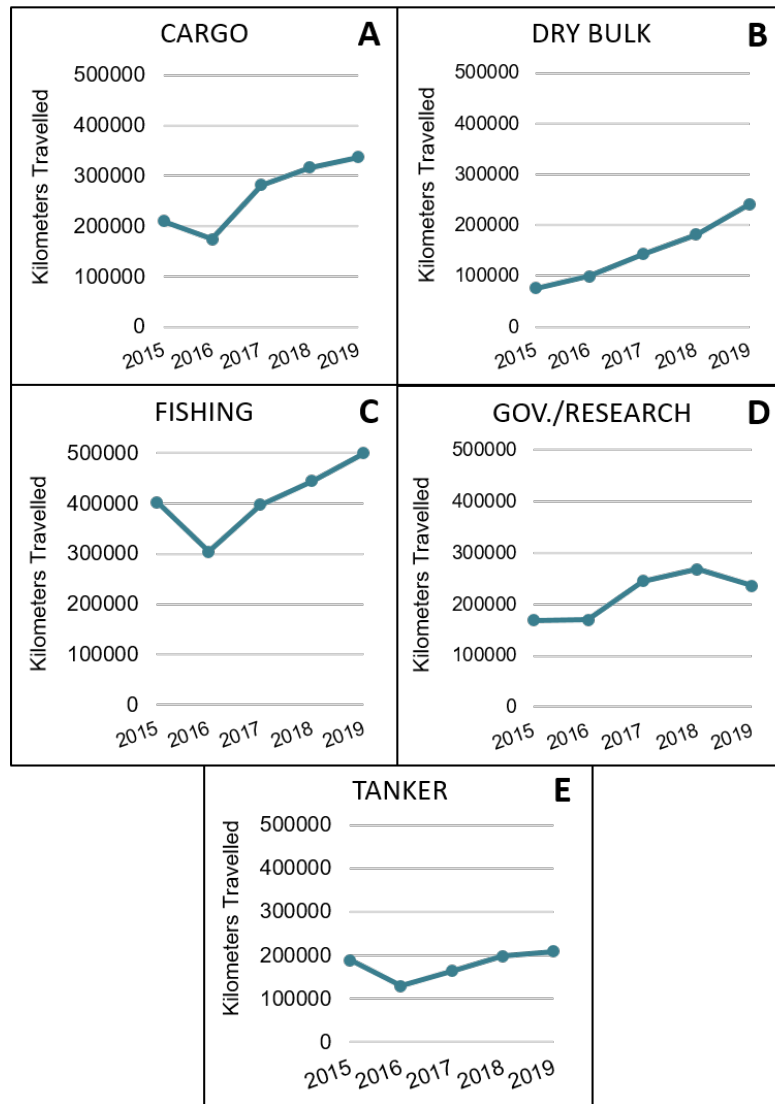


Figure 5: The distance travelled by cargo (A), dry bulk (B), fishing (C), government/research (D) and tankers (E) within Inuit Nunangat, Hudson Bay, and James Bay between 2015 and 2019.

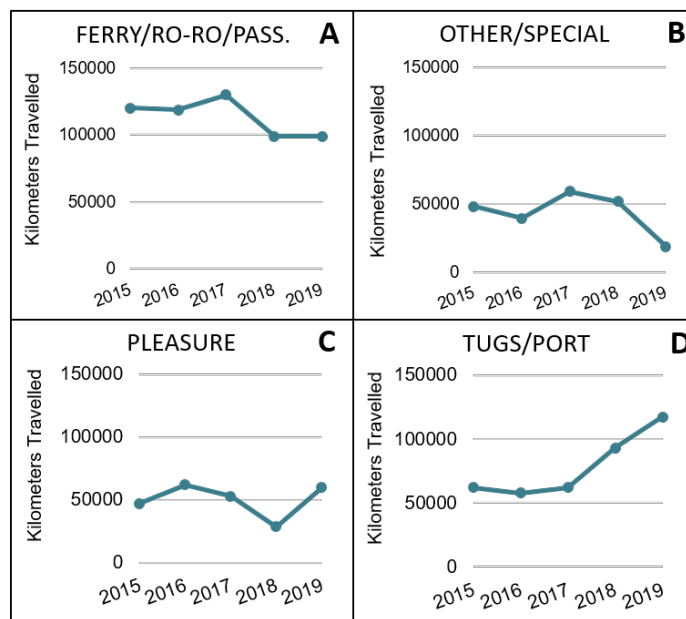


Figure 6: The distance travelled by ferry/ro-ro/passenger vessels (A), other/special ships (B), pleasure craft (C), and tugs/port vessels (D) within Inuit Nunangat, Hudson Bay, and James Bay between 2015 and 2019.

It is important to note that **pleasure craft**, and other small vessels, are not required to carry AIS transponders. Given this, and the short (5-year) period of record, the dataset presented in this report likely underestimates pleasure craft activity. Utilizing long-term datasets (e.g. Canadian Coast Guard NORDREG data, see Appendix A for details), it is clear that pleasure craft activity has increased substantially within the Canadian Arctic^a (Figure 7). These vessels are often not ice-strengthened. Rescues of private pleasure craft vessels have occurred several times in the NWP in recent years, such as in Bellot Strait in August 2018.^{56,57}

In 2015, vessel traffic density (the number of times a ship moves through a particular area)

was highest in the Labrador Sea, just off the northeastern coast of Nunatsiavut, near Rigolet (Figure 8A). Other areas of high-density traffic include Hudson Strait in Nunavik, particularly east of Salluit, caused by traffic to and from Raglan and Nunavik Nickel mines in Deception Bay (Figure 8A). There was also high traffic along the Arctic Bridge, a shipping route to and from the port of Churchill (until 2016 the Port of Churchill was used to transport shipments of grain) and past Chesterfield Inlet and Rankin Inlet (Figure 8A). There was also a large amount of traffic in Davis Strait (Figure 8A). Finally, ship traffic occurred along the southern route of the NWP, the Amundsen Gulf, and the northern coast of the ISR (Figure 8A).

^a Data for the NORDREG Zone includes much of Inuit Nunangat, but excludes Nunatsiavut. See Figure 1.

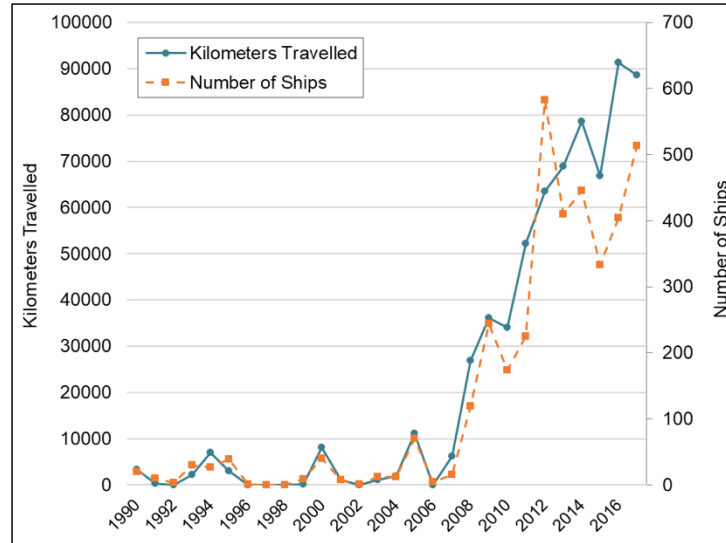


Figure 7: Change over time (1990-2017) in kilometers travelled by pleasure craft in the NORDREG Zone. Please note that the NORDREG Zone does not include Nunatsiavut (see Figure 1).

Traffic in 2019 remained spatially similar (i.e., where ships travelled remained consistent), but the traffic density in particular areas was much higher than in 2015 (i.e. more ships travelling in the same area; Figure 8B). Specifically, there was a dramatic increase in shipping traffic in Nunavut near Pond Inlet and Milne Inlet, related to the Baffinland Mary River mining project in the Qikiqtani Region, which began operations in 2015 (Figure 8B). Activity in this area more than tripled between 2015 and 2019 (Figure 8B), and mostly consisted of **dry bulk vessels** (Appendix A). Traffic density also increased into Iqaluit (Figure 8B), and in the Hudson Bay region, particularly near Chesterfield Inlet to Baker Lake and to Rankin Inlet where goods and equipment are shipped for community resupply and to the Meadowbank Gold and Meliadine Mines. Interestingly, there is one track in southern Hudson Bay that is disconnected from others, belonging to a tug (Figure 8B). This tug likely used AIS for only a portion of the trip since it is under the weight limit (300 gross tons) to be

required to transmit its location continuously⁵⁸, so the remainder of its route is unknown. This example highlights that the lack of information and data on small vessels travelling within Inuit Nunangat remains a gap, as there is currently no policy mandating the use of AIS for these vessels.

Further details regarding the spatial patterns of individual vessel types and associated maps can be found in Appendix A. Cargo ships had the most traffic overall, occurring throughout Inuit Nunangat and Hudson Bay, with the highest density occurring in the Labrador Sea, and to Iqaluit (Figure A2). Vessels also travelled extensively through Hudson Strait and Ungava Bay, and into the northern part of Hudson Bay, as well as through Davis Strait along the western coast of Baffin Island (Figure A1). Overall, the largest change between 2015 and 2019 was for dry bulk vessels travelling in Davis Strait, near Pond Inlet and Milne Inlet, into the Baffinland Mary River Mine (Figure A5).

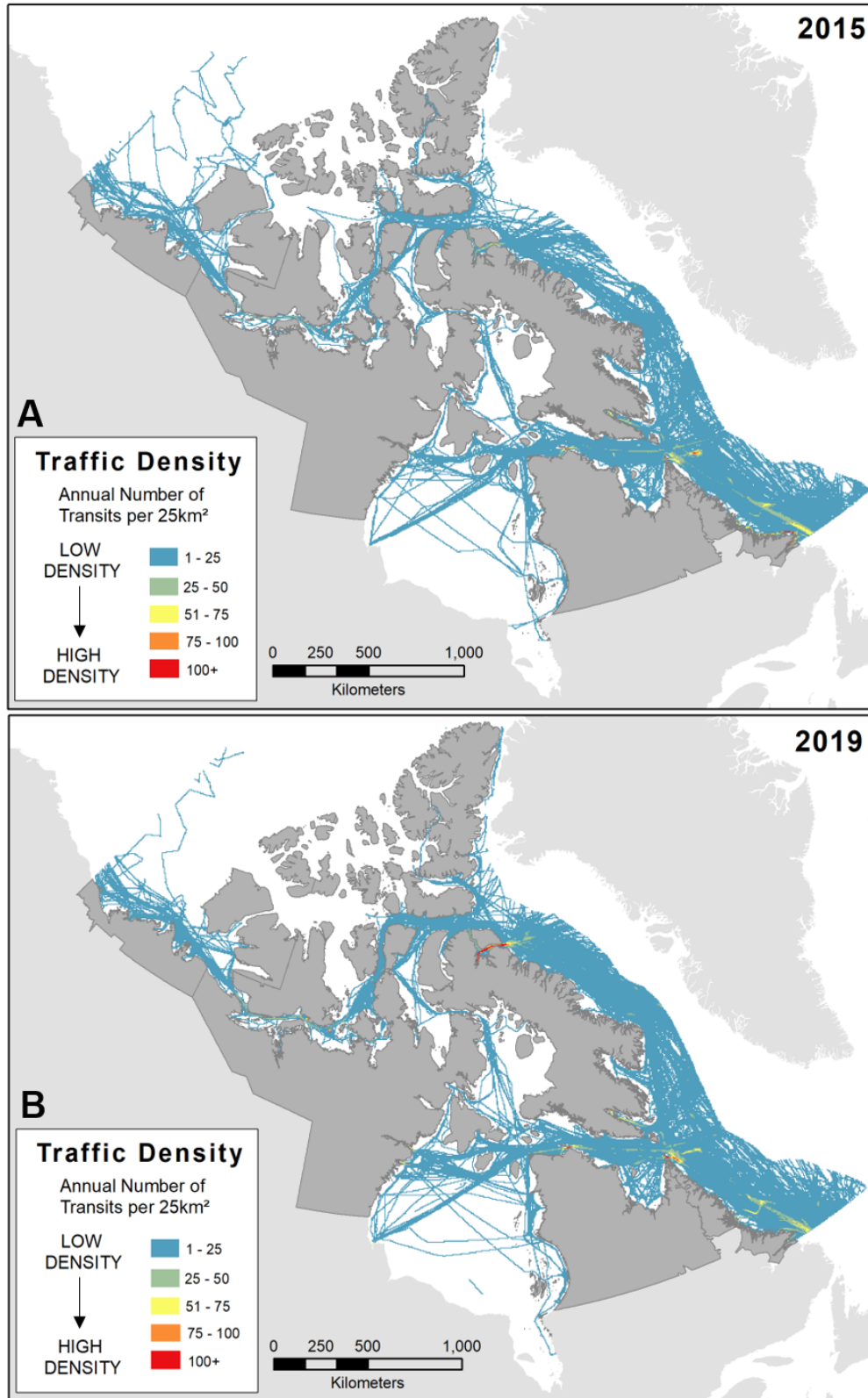


Figure 8: Average annual traffic density (the number of times a vessel moved through a particular area) by all ships in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

Generally, all four regions of Inuit Nunangat experienced increases in vessel traffic from 2011 to 2019 (Figure 9). Between 2011 and 2019, the ISR experienced the lowest ship traffic out of all four regions, but the total distance travelled by ships more than doubled (see Appendix B for more information).

Nunavut experienced the highest ship traffic out of all four regions (Appendix C). The distance travelled by ships in Nunavut nearly tripled between 2011 and 2019 (Figure 9). Dry bulk activity increased more than 1000% in the 2011

to 2019 period, and fishing vessels travelled the greatest distance by any vessel type.

In Nunavik, Eastern Hudson Bay and James Bay, the distance travelled by all ships increased by 225% (Appendix D). Cargo ships travelled the furthest distance out of all ship types between 2011 and 2019.

Finally, in Nunatsiavut, there was a slight (8%) decrease in the distance travelled by vessels between 2015 and 2019 (Figure 9). For this region, fishing vessels had the greatest distance travelled compared to all other ship types (Appendix E).

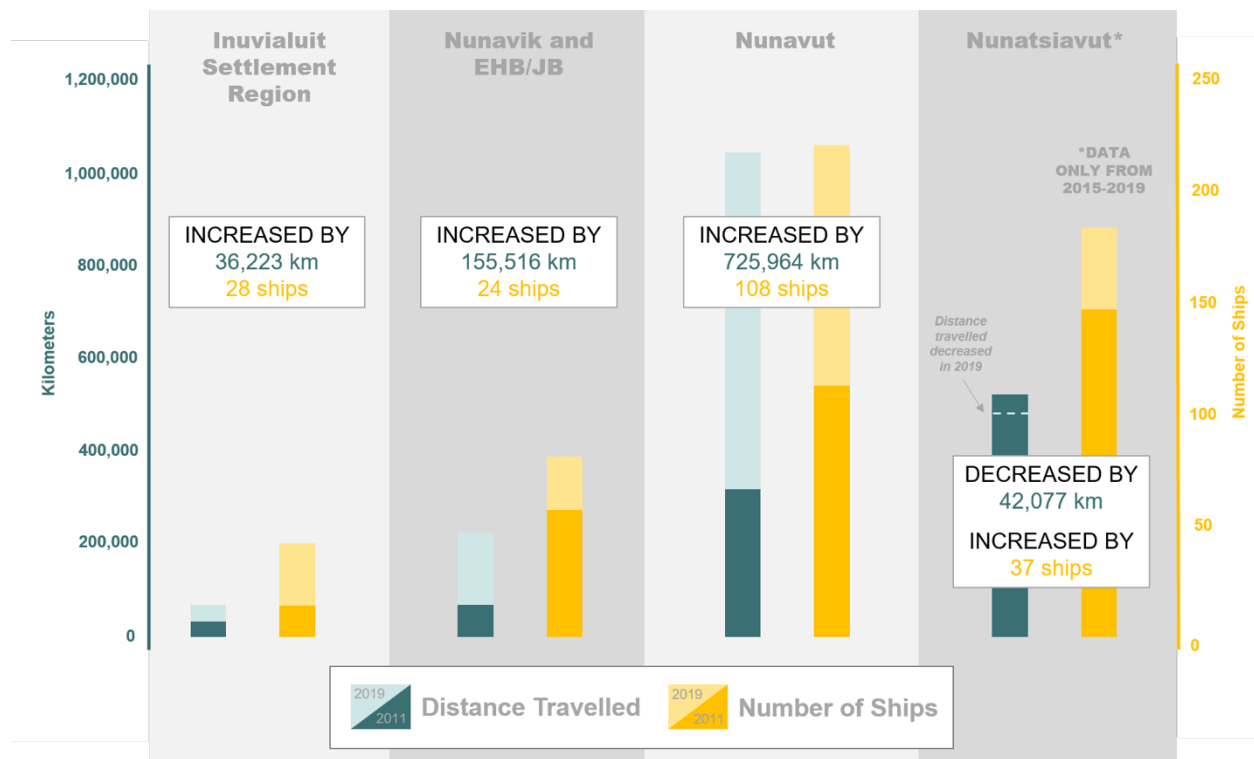


Figure 9: Summary of shipping data for each region in Inuit Nunangat. More information on each region is available in Appendices C-F. Note: EHB/JB indicates Eastern Hudson Bay and James Bay.

4.0 Shipping and Coastal Management Policy Priorities

The Arctic and Northern Policy Framework (ANPF) is used here as a foundation for conducting a ‘policy crosswalk’ of the synergies and gaps that exist within relevant policy priority areas focused on shipping and coastal management. It should be acknowledged that although the ANPF is presented as a co-developed document, it falls short on certain dimensions and some sections were developed without Inuit involvement. However, the framework still “... represents an opportunity for Arctic and northern people, and their institutions, municipalities, organizations and governments, to come together with the federal government to shape and direct change toward better outcomes”.⁵⁵ The priorities outlined in the ANPF will help guide federal investments and activities through 2030. Thus, it is useful to evaluate those priorities alongside Inuit-identified priorities for shipping and coastal management, as well as related policies, programs, and initiatives affecting Inuit Nunangat (Table 4). The outcome of this

evaluation can inform decision-making and advocacy toward addressing long-standing deficits and gaps. With ongoing co-development of an Inuit Nunangat Policy approach for Canada, it is instructive to consider how identified gaps would be addressed in a manner that better situates the design, delivery, and evaluation of future programs and initiatives. These gaps could therefore be seen as opportunities within a future of meaningful reconciliation.

Table 3 below highlights the section of ITK’s 2020-2023 Strategy and Action Plan⁵⁹ which pertains to shipping, coastal management, and marine infrastructure development. Wherever possible, the specific actions identified by ITK have been incorporated into the policy crosswalk to show related policy alignments and gaps. Additional information regarding the identification of Inuit Priorities, Federal Priorities, and gaps can be found in Appendix F.

Table 3: Inuit Tapiriit Kanatami’s 2020-2023 Strategy and Action Plan.⁵⁹

Objective	Actions	
Support Inuit Nunangat coastal and marine management and marine infrastructure development	7.1 Inuit-Specific Policy	Advance Inuit-specific policy guidance for coastal management and marine infrastructure development, including marine shipping, safety, search and rescue
	7.2 Strategic Partnerships	Facilitate strategic partnerships between Inuit and federal departments and agencies, and other stakeholders involved in coastal management and marine infrastructure development
	7.3 New Arctic Region	Advance the establishment of the Arctic Region with the Department of Fisheries and Oceans and Canadian Coast Guard
	7.4 Telecommunications	Advocate for the adoption of Inuit-specific policy recommendations to address Inuit Nunangat’s chronically under-developed telecommunications infrastructure given its key role in overcoming current and chronic deficits in marine safety, search and rescue, and environmental response operations
	7.5 Inuit-Led Conservation	Ensure marine and coastal areas of cultural importance to Inuit are identified and sustainably managed in partnership with Inuit

Table 4: Inuit and Federal Priorities on Shipping and Coastal Management Policy.

Arctic & Northern Policy Framework		Shipping and Coastal Management		
Goal	Objectives	Inuit Priorities	Federal Priorities Existing Policies, Programs & Initiatives	Alignment & Gaps
Canadian Arctic and northern Indigenous peoples are resilient and healthy	Provide ongoing learning and skills development opportunities, including Indigenous-based knowledge and skills	- More Inuit working in the maritime sector	- Northern training and hiring program (OPP)	- No training centre located in Nunatsiavut - Only one training centre in each of the other regions
		- Inuit Marine Monitoring	- OPP Funding Support	- Funding rollout has been slow - No commitment for long-term federal funding - IMMP only in Nunavut
		- Guardian Program	- Tallurutiup Imanga Inuit Impact Benefit Agreement (IIBA) funding support - Indigenous Guardians Pilot Program 2018-2022 - The Wrecks of HMS Erebus and HMS Terror: National Historical Site IIBA	- Only a pilot program - Four locations in Nunavut - One location in each of the other regions of Inuit Nunangat
Strengthen Indigenous cultural and family connections across international boundaries	- Formal recognition of Pikiyasorsuaq North Water Polynya - ITK 7.5: Inuit-Led Conservation	- Indigenous Protected and Conserved Areas (IPCA)	- Only preliminary discussions have taken place between the Government of Canada and the Kingdom of Denmark - IPCAs are underfunded and do not necessarily reflect Inuit priorities	

<p>Strengthened infrastructure that closes gaps with other regions of Canada</p>	<p>Investment in significant infrastructure projects</p>	<ul style="list-style-type: none"> - Marine infrastructure - National Inuit Climate Change Strategy <ul style="list-style-type: none"> - Close the infrastructure gap in Inuit Nunangat - Inuit Crown Partnership Committee <ul style="list-style-type: none"> - Infrastructure priorities - ITK 7.1: Inuit-Specific Policy - ITK 7.2: Strategic Partnerships 	<ul style="list-style-type: none"> - Small Craft Harbours Program (DFO) - Community Resupply Funding (OPP) 	<ul style="list-style-type: none"> - Small Craft Harbours Program requires recognition of a viable commercial fisheries industry – many communities do not meet this criterion - OPP funding only provides for small, one-time, marine infrastructure improvement projects - Inuit-Crown Partnership Committee represents strategic link for infrastructure advocacy - Federal Budget 2021 perpetuates inequality by only allocating funding to existing marine infrastructure
		<ul style="list-style-type: none"> - Telecommunications - ITK 7.4: Telecommunications 	<ul style="list-style-type: none"> - Commitment to national 50 Mbps minimum internet speed - Investing in Canada Rural and Northern Communities Infrastructure Stream - Low-Earth Orbit (LEO) Satellites 	<ul style="list-style-type: none"> - Commitment has not yet been met - Fibre optic link currently only planned between Nunavut and Greenland, progress uncertain - LEO Satellites still in development - Telecommunications deficits perpetuate foundational gaps in marine domain awareness, with spillover effects impacting sovereignty, Search and Rescue (SAR), emergency response, etc.
	<p>Enhance monitoring infrastructure for the collection and use of weather and climate data</p>	<ul style="list-style-type: none"> - Inuit Marine Monitoring - ITK 7.4: Telecommunications 		<ul style="list-style-type: none"> - No formal federal policy or program involving Inuit in the collection and use of weather and climate data - Lack of consistency between existing Inuit Marine Monitoring Programs <ul style="list-style-type: none"> - E.g. Imappivut in Nunatsiavut has a prescribed role, but NTI's IMMP does not

<p>Strong, sustainable, diversified and inclusive local and regional economies</p>	<p>Increase Indigenous participation in the economy</p>	<ul style="list-style-type: none"> - Increased involvement in the sustainable, regionally-specific management of marine development that is responsive to Inuit priorities and ways of living - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Blue Economy Strategy 	<ul style="list-style-type: none"> - No co-development efforts to-date for Blue Economy Strategy - Insufficient core marine infrastructure to fully implement an Arctic-focused Blue Economy Strategy - Inequality of fish quota allocations for Inuit has not been addressed by the federal government
	<p>Grow the northern and Arctic economy, to the benefit of Northerners and all Canadians</p>	<ul style="list-style-type: none"> - Advancement of the conservation economy - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - IIBA Negotiations 	<ul style="list-style-type: none"> - Principles of the conservation economy have been articulated in various IIBA's, such as Tallurutiup Imanga National Marine Conservation Area - IIBA's are only a standard requirement of two regions within Inuit Nunangat: Nunavut and Nunatsiavut
<p>Knowledge and understanding guides decision-making</p>	<p>Ensuring that Arctic and Northern people have the tools and research infrastructure to participate in all aspects of the knowledge creation process</p>	<ul style="list-style-type: none"> - National Inuit Strategy on Research <ul style="list-style-type: none"> - Advance Inuit governance in research - Align funding with Inuit research priorities - Build capacity in Inuit Nunangat research - National Inuit Climate Change Strategy <ul style="list-style-type: none"> - Advance Inuit capacity in climate decision-making - ITK 7.1: Inuit-Specific Policy 		<ul style="list-style-type: none"> - No federal policy, program, or initiative in place to directly address this priority

	Create and store knowledge in a manner consistent with the self-determination of Indigenous peoples, balancing ethics, accessibility and culture	<ul style="list-style-type: none"> - National Inuit Strategy on Research <ul style="list-style-type: none"> - Ensure Inuit access, ownership, and control over data and information - ITK 7.1: Inuit-Specific Policy 		<ul style="list-style-type: none"> - No federal policy, program, or initiative in place to directly address this priority
	Work with partners to implement their research strategies	<ul style="list-style-type: none"> - National Inuit Strategy on Research <ul style="list-style-type: none"> - Align funding with Inuit research priorities - ITK 7.1: Inuit-Specific Policy 		<ul style="list-style-type: none"> - No federal policy, program, or initiative in place to directly address this priority
	Develop innovative technological solutions on widely-shared community and economic development needs	<ul style="list-style-type: none"> - Marine transportation services infrastructure - National Inuit Climate Change Strategy <ul style="list-style-type: none"> - Close the infrastructure gap in Inuit Nunangat - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Increase Emergency Towing Capacity (OPP) 	<ul style="list-style-type: none"> - No federal policy, program, or initiative in place to address marine transportation services infrastructure in Inuit Nunangat (i.e., vessel repairs, refueling, etc.)
Canadian Arctic and northern ecosystems are healthy and resilient	Ensure conservation, restoration and sustainable use of ecosystems and species	<ul style="list-style-type: none"> - Safeguard Marine Ecosystems and Wildlife from Marine Litter 	<ul style="list-style-type: none"> - Arctic Waters Pollution Prevention Act & Regulations 	<ul style="list-style-type: none"> - Canada contributing to Arctic Council development of Regional Action Plan on Marine Litter
		<ul style="list-style-type: none"> - Safeguard Marine Ecosystems and Wildlife from Microplastics 	<ul style="list-style-type: none"> - DFO study on Microplastics in Canadian Arctic Waters 	<ul style="list-style-type: none"> - No federal policy, program, or initiative in place to address or control microplastics in Canadian Arctic Waters
		<ul style="list-style-type: none"> - Inuit Marine Stewardship - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - Oceans Co-Management Plans 	<ul style="list-style-type: none"> - Federal government currently securing commitments to co-develop Marine Spatial Planning work plans
	Support sustainable use of species by Indigenous peoples	<ul style="list-style-type: none"> - Minimize impacts of shipping on marine mammals and fish to prevent disruption of seasonal hunting - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Low-Impact Shipping Corridors (LISC) - Proactive Vessel Management (PVM) (OPP) 	<ul style="list-style-type: none"> - No operationalization across Inuit Nunangat - No community input into geographic prioritization

<p>Canadian Arctic and northern ecosystems are healthy and resilient (cont.)</p>		<ul style="list-style-type: none"> - Sustainable management practices - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - LISCs Co-Management and/or Co-Governance Structure 	<ul style="list-style-type: none"> - Co-Management and/or Co-Governance structure is currently being studied by the GOC, and preliminary engagement is underway
	<p>Approach the planning, management and development of Arctic and northern environments in a holistic and integrated manner</p>	<ul style="list-style-type: none"> - Inuit co-management of shipping activity: <ul style="list-style-type: none"> - Beaufort Sea Partnership - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - PVM (OPP) 	<ul style="list-style-type: none"> - PVM framework provides structure for co-management, but remains in pilot phase - Only the ISR has established a formal co-management body related to shipping activity
		<ul style="list-style-type: none"> - Anchorages - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Anchorage Initiative (OPP) 	<ul style="list-style-type: none"> - Process being developed to identify anchorages, analyze and respond to environmental, economic, cultural, safety and security concerns, as well as Best Practices Manual
		<ul style="list-style-type: none"> - Places of Refuge - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Places of Refuge Initiative (OPP) 	<ul style="list-style-type: none"> - Regional planning underway to ensure that environmental and socio-economic information and Inuit Qaujimagatuqangit (IQ) is incorporated into identifying appropriate places of refuge
	<p>Partner with territories, provinces and Indigenous peoples to recognize, manage and conserve culturally and</p>	<ul style="list-style-type: none"> - Inuit management to protect and conserve sensitive marine environments - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - Ocean Conservation Targets - Marine Protected Areas - National Marine Conservation Areas - National Wildlife Areas 	<ul style="list-style-type: none"> - Impression that the federal government determines Areas of Interest independently, and only begins consultation with Inuit afterwards

Canadian Arctic and northern ecosystems are healthy and resilient (cont.)	environmentally significant areas	<p>Inuit-led management and conservation areas</p> <ul style="list-style-type: none"> - Create Legal Mechanism - Issue Policy Directive - Seek IUCN Designation - Establish Pikialasorsuaq Indigenous Protected Area (IPA) - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - Environment and Climate Change Canada (ECCC) currently providing preliminary funding to communities in Nunavut and Nunavik to establish "Indigenous protected and conserved areas" 	<ul style="list-style-type: none"> - IPAs have not been formally adopted as a conservation method by the GOC - Discussions have been initiated between the GOC and the Kingdom of Denmark regarding Pikialasorsuaq
	Enhance understanding of the vulnerabilities of ecosystems and biodiversity and the effects of environmental change	<ul style="list-style-type: none"> - Inuit Marine Monitoring 	<ul style="list-style-type: none"> - Marine Environmental Quality Initiative - Aquatic Invasive Species Initiative 	<ul style="list-style-type: none"> - Currently no direct link between Inuit Marine Monitoring Programs and federal initiatives
		<ul style="list-style-type: none"> - National Inuit Strategy on Research <ul style="list-style-type: none"> - Align funding with Inuit research priorities - National Inuit Climate Change Strategy <ul style="list-style-type: none"> - Advance Inuit capacity and knowledge in climate decision-making 	<ul style="list-style-type: none"> - Coastal Environmental Baseline Program (OPP) - Cumulative Effects of Marine Shipping Initiative (OPP) 	<ul style="list-style-type: none"> - Pilot projects currently in Iqaluit and Cambridge Bay - No projects underway in other regions
	Ensure safe and environmentally-responsible shipping	<ul style="list-style-type: none"> - Establish LISC - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - LISC Initiative 	<ul style="list-style-type: none"> - Slow progress - No recent community engagement on geographic prioritization since 2015 - No operationalization across Inuit Nunangat - No community input into geographic prioritization
		<ul style="list-style-type: none"> - Control Underwater Noise 	<ul style="list-style-type: none"> - Whales Initiative (DFO) 	<ul style="list-style-type: none"> - Only focuses on ensuring that fish harvesting activities do not negatively affect endangered whales

		- Modern Hydrographic Data Collection	- CHS Hydrography Program (OPP)	- Investments in hydrography are being prioritized through the LISC framework - Slow progress
		- Icebreaking activities recognize and respect the use of sea ice by both wildlife and harvesters	- PVM Initiative (OPP)	- Only addresses priority areas in pilot communities - Pilots only taking place in two regions: Nunavut and ISR
	Strengthen pollution prevention and mitigation regionally, nationally and internationally	- Expedite the ban for the use of HFO and do not provide exemptions - ITK 7.2: Strategic Partnerships	- Government of Canada supports HFO ban, implemented gradually over 10 years	- Timing of ban does not take place in alignment with Inuit priorities
		- Prohibit Release of Ballast Water	- Ballast Water Control and Management Regulations	- Confusion regarding the extent and degree of control of federal regulations
		- Support the European Action on Black Carbon	- Black Carbon Emissions Inventory	- Only tracks black carbon emissions
	- Control the dumping of grey water	- Arctic Waters Pollution Prevention Regulations	- Current government Arctic Waters Pollution Prevention Regulations present an exemption for dumping untreated sewage	
The rules-based international order in the Arctic responds effectively to new challenges and opportunities	Enhance the representation and participation of Arctic and northern Canadians in relevant international forums and negotiations	- Inuit representation at international forums - ITK 7.2: Strategic Partnerships	- Various federal government funding commitments to Inuit Circumpolar Council (ICC) Canada	- No specific policy, program, or initiative to ensure Inuit representation internationally - Federal funding for ICC Canada is not multi-year - Current funding levels are inadequate to ensure meaningful engagement for Inuit in international fora

	Define more clearly Canada's marine areas and boundaries in the Arctic	<ul style="list-style-type: none"> - The NWP is a part of Inuit Nunangat 	<ul style="list-style-type: none"> - Canada argues for 'historic title' of the NWP based on Inuit use and occupancy of the sea and sea ice 	<ul style="list-style-type: none"> - Persistent international disagreement to Canada's claim of the NWP as internal waters⁶⁰
The Canadian Arctic and North and its people are safe, secure and well-defended	Strengthen Canada's domain awareness, surveillance and control capabilities in the Arctic and the North	<ul style="list-style-type: none"> - Automatic Identification System (AIS) Infrastructure and its requirement on all marine vessels in Arctic waters - ITK 7.1: Inuit-Specific Policy - ITK 7.4: Telecommunications 	<ul style="list-style-type: none"> - Enhanced Maritime Situational Awareness Initiative (OPP) - Aids to Navigation Program 	<ul style="list-style-type: none"> - Canadian Coast Guard is piloting an AIS Aid to Navigation program, which creates virtual AIS beacons - Some OPP funding for the IMMP has allowed for the installation of community shore-based physical AIS systems
		<ul style="list-style-type: none"> - Inuit Marine Monitoring 	<ul style="list-style-type: none"> - Canadian Rangers - Canadian Coast Guard Auxiliary Program 	<ul style="list-style-type: none"> - DFO created the Canadian Rangers Ocean Watch in 2018 - No formal involvement of IMMP in Arctic domain awareness or surveillance
	Enforce Canada's legislative and regulatory frameworks that govern transportation, border integrity and environmental protection in the Arctic and the North	<ul style="list-style-type: none"> - Enforcement of the Polar Code 	<ul style="list-style-type: none"> - Canada implemented the Polar Code into domestic legislation in 2017 	
		<ul style="list-style-type: none"> - Place restrictions on foreign shipping - Engage China regarding their interest and intentions in using the NWP 		
Increase the whole-of-society emergency management capabilities in Arctic and northern communities	<ul style="list-style-type: none"> - Improve local-level capacity for environmental response operations - ITK 7.1: Inuit-Specific Policy - Improve local-level capacity for emergency response operations - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - Coast Guard Auxiliary Program (OPP) - Indigenous Community Boat Volunteer Program (OPP) 	<ul style="list-style-type: none"> - Number of Auxiliary programs throughout Inuit Nunangat is currently unclear 	

		<ul style="list-style-type: none"> - Improve Search & Rescue Capabilities in Remote Areas - ITK 7.1: Inuit-Specific Policy 	<ul style="list-style-type: none"> - In-Shore Rescue Boat Program (OPP) 	<ul style="list-style-type: none"> - In-shore rescue boat program only located in Rankin Inlet
<p>Reconciliation supports self-determination and nurtures mutually respectful relationships between Indigenous and non-Indigenous peoples</p>	<p>Honour, uphold and implement the rights of Arctic and northern Indigenous peoples, including those outlined in historic and modern treaties and in United Nations Declaration on the Rights of Indigenous Peoples</p>	<ul style="list-style-type: none"> - Fully Respect, Support, and Implement Land Claims Agreements - ITK 7.5: Inuit-Led Conservation 	<ul style="list-style-type: none"> - Canada-US Joint Statement on Climate, Energy, and Arctic Leadership 	<ul style="list-style-type: none"> - Land Claims Agreements not yet fully respected, supported, or implemented
	<p>Change federal operating practices and processes in support of increased self-determination and representation of Arctic and northern Indigenous peoples, and recognize the unique operating environment of various Indigenous and public governments in the Arctic and north</p>	<ul style="list-style-type: none"> - Whole-of-Government Approach to IIBA Processes - ITK 7.2: Strategic Partnerships 	<ul style="list-style-type: none"> - Tallurutiup Imanga IIBA 	<ul style="list-style-type: none"> - Whole-of-government approach employed in Tallurutiup Imanga IIBA serves as a model for future negotiations
		<ul style="list-style-type: none"> - Partnerships between Inuit and federal departments and agencies, and other stakeholders involved in coastal management and marine infrastructure development, with a governance structure that ensures equitable representation of all four regions of Inuit Nunangat - ITK 7.3: New Arctic Region 	<ul style="list-style-type: none"> - Creation of DFO's new Arctic Region 	<ul style="list-style-type: none"> - Offices only located in two regions of Inuit Nunangat - Slow progress - Difficulty hiring Inuit to fill roles

5.0 Priorities, Challenges and Recommendations

Thirteen knowledge holders shared their knowledge of coastal management and shipping policies and priorities across Inuit Nunangat, either from a regional, federal, or international perspective. Nine are employees who work in one of the four Inuit Nunangat regions (either for a land claim organization, Institution of

Public Government (IPG), or other relevant organization), three are employees of the federal government, and one works for an international non-governmental organization (NGO) that represents Inuit. See Appendix G for additional information about data collection methods.

5.1. Key priorities for developing and implementing shipping and coastal management policies throughout Inuit Nunangat

The priorities identified are discussed in more detail in *Section 5.2. Challenges* and *Section 5.3. Recommendations*. Two key priorities for developing and implementing shipping and coastal management policies in Inuit Nunangat are:

1. Support Inuit involvement in decision-making and knowledge creation
2. Strengthen collaborations between federal and regional partners

The priorities identified here and the recommendations provided in Section 5.3. support the continued co-development of an Inuit Nunangat Policy Space, one of Inuit Crown Partnership Committee's 10 priority areas.

5.2. Challenges related to implementing and developing shipping and coastal management policies throughout Inuit Nunangat

A summary of all of the challenges is presented in Table 5, separated into three subthemes:

1. Capacity
2. Engagement and Communication
3. Policy

Table 5: Challenges related to shipping and coastal management policies affecting Inuit Nunangat.

Challenge	Description	Organizational Level ²
CAPACITY		
Lack of funding	- Insufficient funding available for community/regional organizations to be able to achieve the outlined priorities	Regional
Limited organizational capacity	<ul style="list-style-type: none"> - Limited capacity within regional organizations to be able to respond to all shipping-related priorities - Federal government and other agencies (NGOs) fill in some of the gaps when communities lack capacity but this limits Inuit self-determination - Lack of reliable internet can limit the capacity of an organization to conduct their work - Limited resources limit the involvement of Inuit in decision-making - Quite often gaps get filled by whoever has the capacity (time) to fill them, not necessarily who's the best (most qualified) to fill them. 	Regional International
Communities do not have access to all of the information needed to make informed decisions	<ul style="list-style-type: none"> - Communities are relied upon to provide feedback but they do not always have access to all of the information that they need in order to be able to respond in an informed way - Being asked to participate in decision-making without access to the relevant information can sometimes be worse than not being asked at all 	Regional International
Lack of- and mis- communication between policy makers and communities	<ul style="list-style-type: none"> - Sometimes policy makers do not provide information in a format that is relevant to or can be understood by community members - "I would say that certainly there's always kind of, I don't want to say issues but when you're discussing policy pieces with the federal government and provincial government, sometimes that doesn't go as smoothly as you might plan." 	Regional
Consultation fatigue	- Communities are asked to participate in numerous engagement initiatives which is stretching their capacity and contributing to consultation fatigue	Federal
Insufficient local capacity to respond to large emergencies	- "If a cruise ship ever went down in our region, I don't think any of our communities would be able to handle that many people. I think you would lose more people than you'd save. Like a community of 100 people, [has] one little nursing station, or one little fire hall. [A community could] never house 1,000 people."	Regional

² This identifies the organizational level of the expert knowledge holders who mentioned the challenge/recommendation

ENGAGEMENT AND COMMUNICATION		
Limited federal government experience working with Inuit	<ul style="list-style-type: none"> - The culture in some federal agencies indicates a lack of understanding of Inuit history, culture and way of life which can cause challenges when creating partnerships with Inuit Nunangat regions and communities - "There was a lack of, lack of knowledge about the history of the Inuit in the Canadian North, the history of the Government of Canada's activities in the North and the negative actions that were undertaken. And there's a lack of understanding of the culture and the priorities of our Inuit partners. Clearly a lack of understanding of what's actually in the Land Claim Agreements." 	Federal
Expense of travelling to communities for consultation	<ul style="list-style-type: none"> - It is expensive to travel around Inuit Nunangat and that can sometimes limit consultation opportunities 	Federal
High staff turnover in government	<ul style="list-style-type: none"> - High staff turnover in government positions can limit institutional knowledge, consistency and ongoing connections with Inuit Nunangat and its communities: "the continuity of the knowledge and what's been done in the past, is absent." 	Federal
Lack of communication between departments within the federal government	<ul style="list-style-type: none"> - Different departments sometimes do not know what each other are doing regarding partnering with Inuit Nunangat communities and can overlap and/or cause confusion 	Regional Federal
There is no pan-governmental (federal) policy on how to engage with Inuit Nunangat	<ul style="list-style-type: none"> - Every department in the federal government operates differently which can create challenges - "Working with some divisions or departments within the federal government is a lot easier than working with others" 	Regional
Some federal departments do not always engage with communities when making policy decisions	<ul style="list-style-type: none"> - Some departments do not understand how things work at the regional level and do not engage in adequate consultation - Some federal departments are 'Ottawa-centric' and do not seek Inuit perspectives 	Regional
Reconciliation is still a work in progress	<ul style="list-style-type: none"> - People are still learning what reconciliation means and how to incorporate it into (federal) governmental work 	Regional
Inuit are not involved in decision-making at the international level	<ul style="list-style-type: none"> - Inuit have thus far not had a voice at the decision-making table at the international level and have had to rely on Canadian federal agencies to support their perspectives 	International

<p>Not all regions in Inuit Nunangat are consulted equally</p>	<ul style="list-style-type: none"> - Some regions in Inuit Nunangat have more engagement with the federal government than others, “And the rest of us kind of just get pushed to the side.” 	<p>Regional</p>
<p>POLICY</p>		
<p>Marine boundaries</p>	<ul style="list-style-type: none"> - It is not always clear who is responsible in situations of shared marine jurisdictions (e.g., response to a marine emergency in a shared jurisdictional area) 	<p>Regional</p>
<p>Different definitions of the Arctic within federal government</p>	<ul style="list-style-type: none"> - Different federal agencies define ‘the Arctic’ in different ways which can present some jurisdictional challenges when working across departments 	<p>Federal</p>
<p>International ocean and shipping management discussions are limited by geographic boundaries</p>	<ul style="list-style-type: none"> - International discussions do not hold a holistic view that all oceans are connected and are impacted by decisions made elsewhere - “What’s happening in the international waters and high seas is actually critically important to Inuit, you know.” 	<p>International</p>
<p>Legal status of Canada’s Arctic waterways</p>	<ul style="list-style-type: none"> - The international disputes over the legal status of Canada’s Arctic waterways are a challenge that need to be addressed - International interests like to view the Canadian Arctic as a ‘global common’: “They [other countries] see it as a vast desert of emptiness and I think Inuit have to stand up and say, excuse me, we’re here, you can’t call the Arctic a global common when it’s our home, we own it, we have rights to it.” 	<p>Federal International</p>
<p>Inadequate marine infrastructure</p>	<ul style="list-style-type: none"> - “Like all Inuit regions, we’re a region that’s not connected by any other means other than marine or air transport, so having a good solid, dependable marine infrastructure in place is paramount” - Safe loading and off-loading of cargo and fuel transfer is a challenge without proper docking facilities - Communities are growing and cargo volumes are increasing. This puts a strain on already inadequate marine infrastructure 	<p>Regional</p>
<p>Traditional knowledge continues to be underrepresented in the creation of policy</p>	<ul style="list-style-type: none"> - Incorporating traditional knowledge into policy is still undergoing a learning curve 	<p>Regional</p>
<p>Sea lift operators sometimes interfere with hunters</p>	<ul style="list-style-type: none"> - Interrupting hunting activity, even for a short period can be detrimental to communities - “There’s lots of conflict between the hunter gatherers and the sealift when they come in. It’s to the point of not being safe.” 	<p>Regional</p>

5.3. Recommendations

Recommendations for developing and implementing shipping and coastal management policies in Inuit Nunangat (Table 6) include:

1. Increase Inuit **organizational and community capacity** to support Inuit inclusion in decision making and knowledge creation
2. Support the **development of effective partnerships** between Inuit Nunangat (regional) organizations and communities and provincial/federal governments
3. Address **shipping-related policy** gaps

See Appendix H for some examples of shipping and coastal management initiatives highlighted by key knowledge holders.

Table 6: Recommendations to Policy Makers.		
Recommendation	Description	Organizational Level ³
INCREASE INUIT ORGANIZATION AND COMMUNITY CAPACITY		
Provide adequate information to support informed decision-making	<ul style="list-style-type: none"> - Ensure communities are provided with the information needed to make informed decisions. For example, communities are sometimes unaware of the capabilities of the Canadian Coast Guard oil spill response systems throughout the Canadian Arctic - “Maybe there’s conversations happening behind the scenes, but they’re not public so we can’t, we don’t really know what the conversation is.” 	Federal Regional

³ This identifies the organizational level of the expert knowledge holders who mentioned the challenge/recommendation

<p>Share information that is contextually appropriate</p>	<ul style="list-style-type: none"> - Communities need to be provided with appropriate access to information in ways that they can use to make policy decisions - Information sharing should be context-specific, so that communities can make the link between the information and why it is important 	<p>Regional</p>
<p>Improve access to internet and other telecommunications services</p>	<ul style="list-style-type: none"> - Not having access or having unreliable access to internet severely limits community access to information that is needed to participate in and/or lead the development of policy - Some telecommunication services are prohibitively expensive 	<p>Regional</p>
<p>Provide information in the appropriate languages</p>	<ul style="list-style-type: none"> - Communities should be given the option to receive information in English, French and/or Inuktitut (Inuit language) - "Data is only as good as it's accessible and language has an impact." 	<p>Regional</p>
<p>Increase communication with communities about vessel activity</p>	<ul style="list-style-type: none"> - Communities should have access to information to know where, when, and why marine vessels are travelling through marine areas throughout Inuit Nunangat - "There's a lot of communities I visited that had said you know ships pop up, they don't come ashore, they don't buy our crafts, they don't go to our grocery stores, we have no idea what they're doing and then we'll wake up in the morning and they're gone and we'll wonder what the hell happened. Honestly, that has to stop you know?" 	<p>Regional</p>
<p>Support Inuit involvement in knowledge creation</p>	<ul style="list-style-type: none"> - Involve and support Inuit knowledge development in policy decision-making - "[Inuit] having a seat at the table doesn't really matter unless you have something of value to say...if you don't have the ability to participate in knowledge development with regards to what you want to say...then there is really no point in being there." 	<p>International</p>
<p>Create an Inuit-led council focused on shipping</p>	<ul style="list-style-type: none"> - An Inuit-led council on shipping will ensure Inuit have a voice at decision-making tables nationally and internationally - "All the regions are overworked, overwhelmed, they have so much on their plates, you know. It's the same person who's doing shipping, who's doing marine protected areas, who's doing...security, you know." The creation of a new council could address this capacity issue as there would be a dedicated body with a shipping mandate. 	<p>International</p>
<p>Support the development of organizational and community capacity within Inuit Nunangat</p>	<ul style="list-style-type: none"> - It is important that regional organizations have the capacity to incorporate the policy priorities in their regions. - "COVID-19 [travel and meeting restrictions] showed us how important it is to be self-sufficient, or relatively so. There might be another time where we can't have people coming up from the south." 	<p>Regional</p>

DEVELOPMENT OF EFFECTIVE PARTNERSHIPS		
Have a flexible approach to respond to community needs when developing policy	<ul style="list-style-type: none"> - Policy makers need to be receptive about what works for their partners and be able to change their course of action if necessary - Policy makers must accept responsibility if mistakes are made 	Federal
Increase knowledge about Inuit history and culture within the federal government	<ul style="list-style-type: none"> - Federal agencies should provide training sessions about Inuit culture, history and engagement, for policy makers working with Inuit and northerners - Federal agencies should encourage their staff to spend extra time in communities so they can get to know community members and get out on the land 	Federal
Take time to listen to and engage with communities	<ul style="list-style-type: none"> - Ask questions and listen to partners and what they want and how they would like the partnership to work - Talk to everyone "...you cannot ignore one piece of the puzzle. And so that's kind of, you know, I follow that advice and I think it's certainly been reinforced. I've seen others not do that and get caught in situations." 	Federal
Ensure that community engagement activities do not overlap with other initiatives	<ul style="list-style-type: none"> - Ensure there is no overlap between engagement activities being conducted by other governmental departments - Create an overview map or document that shows where engagement is already occurring, and what communities are already involved 	Regional Federal
Hold informal meetings and/or discussions before formal engagement begins	<ul style="list-style-type: none"> - Share information and provide opportunities for input and feedback prior to formal meetings. This will make formal events more effective and useful for all involved - On the lack of informal discussions: "I think that's [how] you get stuck in this situation of attending meetings where information is just presented at you and you go home and just go about things as usual, as opposed to using that time more effectively and just take a little bit more planning and thought". 	Regional
Involve the people who are impacted by policy decisions in influencing the policy	<ul style="list-style-type: none"> - Inuit need to play a front and center role in policy development - Each region has a unique relationship to shipping and they have unique rights and needs. This must be acknowledged and reflected in decision-making - "Proactive Vessel Management has been a great example of the federal government letting Indigenous organizations essentially run the show, with their support." 	Regional Federal International
Respect and refer to Inuit Qaujimagat (Inuit knowledge, values; IQ) in all documents concerning Inuit Nunangat	<ul style="list-style-type: none"> - IQ should play a role in all policy decisions concerning Inuit Nunangat - IQ should be incorporated into policy making at every stage of the process, from the beginning to the end. 	Regional

<p>Have a federal agency representative or seasonal regional base</p>	<ul style="list-style-type: none"> - Having a designated representative (staff liaison) within federal departments whom Inuit Nunangat residents could easily contact would enable better engagement and communication between Inuit Nunangat regions and federal departments - Station federal staff in Inuit Nunangat at regional bases during the shipping season and employ Inuit at the base to build additional capacity 	<p>Regional</p>
<p>Increase investments in order to address challenges within Inuit Nunangat</p>	<ul style="list-style-type: none"> - Funding from the federal government is appreciated but additional long-term investment is needed to support regional priorities 	<p>Federal Regional International</p>
<p>Take the unique Arctic context into account when decision making</p>	<ul style="list-style-type: none"> - Logistics are often different in Inuit Nunangat when compared with southern Canada and these need to be taken into account before introducing policies that could unintentionally negatively impact communities 	<p>Regional</p>
<p>SHIPPING-RELATED POLICY GAPS</p>		
<p>Make Automatic Identification System (AIS) mandatory on all marine vessels</p>	<ul style="list-style-type: none"> - Create policy that requires AIS on all marine vessels - Knowing where ships are throughout the Arctic is important for communities 	<p>Regional Federal</p>
<p>Develop greywater discharge policy</p>	<ul style="list-style-type: none"> - There is a need for grey water and scrubber water discharge policies - The federal government needs to increase transparency about these discussions and the feasibility of creating such a policy - It should not be up to the regions alone to develop a greywater discharge policy 	<p>Regional Federal</p>
<p>Develop double hull/ice strengthened yacht policy</p>	<ul style="list-style-type: none"> - Policy is needed to ensure yachts have ice-strengthening 	<p>Regional</p>
<p>Review spill response capacity Support additional training for spill response</p>	<ul style="list-style-type: none"> - Review spill response capacity in light of changes to fuel types (e.g., after implementation of HFO fuel ban) as different fuels require different type of clean up response - “And I would just note that the biggest concern from the Northerner’s perspective with regards to what we do is environment response, keeping the water clean and oil out of the water and really integrating communities into that response.” 	<p>Regional Federal</p>
<p>Define underwater noise as pollution</p>	<ul style="list-style-type: none"> - Underwater noise should be defined as pollution in policy (discussions) 	<p>Regional</p>

Offset cost of switching fuels when introducing HFO ban	- Canadian investment is needed to offset the cost of switching fuels for sealift when introducing the HFO ban so that fewer ships will use HFO and communities do not have to absorb associated increased costs	International
Increase investment in marine infrastructure	- There needs to be designated funds made available to ensure infrastructure pieces across Inuit Nunangat can be developed and maintained	Regional
Increase search and rescue response capacity	- "I think that the search and rescue piece and the spill response capacity piece are still concerns. There's been progress, certainly, but I wouldn't say that there is a consensus that we're totally there yet." - Increase training for search and rescue response so that regions have the capacity to respond to emergencies	Regional Federal
Require professional ice pilots on board ships in the Canadian Arctic	- Professional ice pilots are not currently required in the Canadian Arctic but this could make vessel activity safer - This could be a good opportunity to train Inuit as pilots	International
Increase safety mechanisms during cargo and fuel transfer	- Support development of harbor master programs - Create policy and enforcement processes to ensure safe operation of cargo and fuel transfer	Regional
Increase enforcement capacity	- Policies need enforcement and regions need the support from the federal government to collaboratively develop enforcement capacity. - "It's hard to be motivated to see policy change if you can't even enforce it."	Regional
Conduct ocean charting	- Lack of charting in areas throughout Inuit Nunangat can increase risk for marine vessels.	Regional
Better define Polar Operational Limit Assessment Risk Indexing System (POLARIS) for better risk management	- "We could probably spend more time trying to determine how to further refine these risk methodologies to ensure that only their most appropriate ships are operating in ice conditions."	Federal
Have Marine Mammal Observers (MMO) on board ships to monitor vessel operation in response to wildlife presence	- It is important for large vessels to have MMO so that they can respond to marine mammals appropriately and contribute to further protecting marine wildlife	Regional
Develop regulations for cruise ships wanting to land in areas outside of communities	- Cruise ship operators should be required to request permission from communities before landing in areas outside of communities as they may disrupt community activities	Regional

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Appendix A Inuit Nunangat Shipping Data and Methods

Collection, storage, and accessibility of shipping data

Data on shipping within Inuit Nunangat are available in two ways. **The first is through the Canadian Coast Guard**, where ship operators travelling within the Northern Canada Vessel Traffic Services (NORDREG) Zone (see Figure 1) report their daily locations and other information to the Marine Communications and Traffic Services (MCTS) office (more information available at: <https://www.ccg-gcc.gc.ca/mcts-sctm/index-eng.html>). These data are freely available by contacting the MCTS office in Iqaluit, Nunavut.¹ The raw data are provided in an Excel spreadsheet, for individual years, for 5-year periods. The data include the name of the vessel, call sign, International Maritime Organization (IMO) number, nationality, vessel type, and ship position. These data then need to be cleaned (e.g. checked for spelling mistakes), processed (e.g. converted into vessel tracklines,^{2,3,4} and analyzed for spatial and

temporal trends. Reporting within the NORDREG Zone is only required if: 1) the vessel is 300 gross tons or more; 2) the vessel is towing or pushing another vessel, and the combined tonnage is 500 tons or more; or, 3) the vessel, or the vessel being towed or pushed, contains a pollutant or a dangerous good.⁵ All other vessels report their information voluntarily. 98% of ships operating in the NORDREG Zone provide their information, including those reporting voluntarily.⁶ The Nunatsiavut marine region is outside of the NORDREG Zone (Figure 1), so data in this area are not available from MCTS.

The other available information on shipping is Automatic Identification System (AIS) data. Vessels are equipped with AIS transponders which send messages to terrestrial (land-based) (T-AIS) and satellite (S-AIS) receivers. The messages include information on, but not

¹ Canadian Coast Guard. (2020). *Contact the Canadian Coast Guard: Marine Communications and Traffic Services*. <https://www.ccg-gcc.gc.ca/contact/mcts-contact-stcm-eng.html#Iqaluit>

² Pizzolato, L., Howell, S. E. L., Derksen, C., Dawson, J., & Copland, L. (2014). Changing sea ice conditions and marine transportation activity in Canadian Arctic waters between 1990 and 2012. *Climatic Change*, 123(2), 161-173. <https://doi.org/10.1007/s10584-013-1038-3>

³ Pizzolato, L., Howell, S. E., Dawson, J., Laliberté, F., & Copland L. (2016). The influence of declining sea ice on shipping activity in the Canadian Arctic. *Geophysical Research Letters*, 43(23), 146-154. <https://doi.org/10.1002/2016gl071489>

⁴ 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>

⁵ Canadian Coast Guard. (2021). Northern Canada Vessel Traffic Services Zone (NORDREG). Section 3.7.1.3. <https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-amm/part3-eng.html?wbdisable=true>

⁶ Rompkey, W., & Cochrane, E. (2008). *The Coast Guard in Canada's Arctic: Interim Report*. (Fourth Report). Senate of Canada, Standing Senate and Committee on Fisheries and Oceans. <https://sencanada.ca/content/sen/committee/392/fish/rep/rep04jun08-e.pdf>

limited to, position, speed, course, the vessel name, size, and destination. Transponders are of two types, Class A and Class B, with the main difference being that Class A transponders broadcast messages more frequently and at a stronger signal than Class B transponders, making Class A messages easier to pick up by receivers. In Canada, all vessels are required to carry Class A transponders if: 1) the vessel is 150 gross tons or more, is carrying more than 12 passengers, and is engaged on an international voyage; 2) the vessel is 300 gross tons or more and is engaged on an international voyage (excluding fishing vessels); 3) the vessel is 500 gross tons or more and is not engaged on an international voyage (excluding fishing vessels); or 4) the vessel is certified to carry more than 12 passengers, or is eight or more metres in length and is carrying passengers.⁷ Class B transponders are voluntary, and are generally equipped on smaller vessels (e.g. pleasure craft). More and more vessel operators are choosing to carry transponders, especially in the Arctic. The number of vessels carrying Class B transponders increased from 100 to 500 between 2010 and 2014.⁸ Since S-AIS data is private, it can only be obtained through purchase from exactEarth Ltd.

(<https://www.exactearth.com/>). Once acquired, AIS messages need to be decoded, processed (e.g. converted into points or tracks), and analyzed for trends.

AIS is becoming the preferred format for analyzing shipping data as it is generally more accurate, more efficient for data processing, and more comprehensive for Inuit needs, as data include ship traffic within Nunatsiavut. However, reliable AIS data only dates back to 2011, so establishing long term historical trends are not possible. NORDREG data are more readily available, and access to historical data for NORDREG goes back to 1990. The Inuit Marine Monitoring Program (IMMP) is an example of an Inuit-led initiative to monitor vessel traffic within Nunavut using T-AIS technology.^{9,10} Currently, there are insufficient AIS receivers within Inuit Nunangat to get a comprehensive understanding of all vessel traffic, so S-AIS data is still required.¹¹

Processed data are also available through initiatives like the Arctic Council's "Protection of the Arctic Marine Environment" Working

⁷ Justice Canada. (2020). *Navigation Safety Regulations*. [https://laws-lois.justice.gc.ca/eng/regulations/sor-2005-134/page-5.html#:~:text=Automatic%20Identification%20Systems%20\(AISs\),System%20\(AIS\)%20Class%20A](https://laws-lois.justice.gc.ca/eng/regulations/sor-2005-134/page-5.html#:~:text=Automatic%20Identification%20Systems%20(AISs),System%20(AIS)%20Class%20A)

⁸ Eriksen, T., & Olsen, Ø. (2018). Vessel Tracking Using Automatic Identification System Data in the Arctic. In L. P. Hildebrand, L. W. Brigham, & T. M. Johansson (Eds.), *Sustainable Shipping in a Changing Arctic* (Vol. 7, pp. 115–136). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-78425-0_7

⁹ Abou-Absii, E. (2018). A new way to track Arctic vessels. Oceans North. <https://oceansnorth.org/en/blog/2018/01/nti-monitoring-program/>

¹⁰ Dawson, J., Carter, N., Reid, M., B., Lalonde, S., Oraweic, A., Pelot, R., and Schmitz, P. (2019). *Development and Management of Low-Impact Shipping Corridors in Nunavut: a workshop report*. Ottawa: University of Ottawa. https://www.arcticcorridors.ca/wp-content/uploads/2019/11/ACNV_Nunavut_Workshop_Report_Final.pdf

¹¹ Chenier, R., Abado, L., Sabourin, O., & Tardif, L. (2017). Northern marine transportation corridors: Creation and analysis of northern marine traffic routes in Canadian waters. *Transactions in GIS*, 21, 1085–1097. <https://doi.org/10.1111/tgis.12295>

Group project on Arctic Ship Traffic Data¹², which has data available from 2013 to present. Access to the data is available to Arctic State approved government agencies and ministries, Arctic Council Permanent Participants and Arctic Council Working Groups, and others can pay a small fee for access.

Many trends emerge when evaluating shipping data within Inuit Nunangat, however, some gaps remain. Historically, shipping trends were analyzed from ship reports collected by CCG within the NORDREG Zone. The NORDREG Zone does not include Nunatsiavut, meaning that most studies have excluded this area of Inuit Nunangat. AIS data, which has been available from 2011, can be used to ensure all of Inuit Nunangat is included when conducting shipping analysis.

Priority Area 4 of the National Inuit Strategy on Research aims to ensure that Inuit have access

Methods for shipping trends analysis

Data presented in this report summarizes shipping activity within Inuit Nunangat, Hudson Bay, and James Bay. It includes four Inuit Nunangat Land Claims regions: Inuvialuit Settlement Region; Nunavut; Nunavik; and Nunatsiavut. In this report, the Nunavik and Eastern Hudson Bay and James Bay Region includes data for the Nunavik Inuit Land Claims Agreement (NILCA), also includes the Eeyou Marine Region Land Claims Agreement (EMRLCA) Cree-Inuit Joint Zone, the Nunavut Agreement (NA) and NILCA Equal Use Area,

to, ownership of, and control over data and information collected within Inuit Nunangat.¹³ Currently, this is not the case in the field of marine shipping research. AIS data are collected by either land-based (T-AIS) or satellite (S-AIS) receivers. S-AIS data is privately owned and available for purchase from exactEarth Ltd.¹⁴ T-AIS receivers can be purchased and deployed anywhere on land (a good line of site to vessels is needed), and there are currently a limited number of T-AIS receivers in Inuit Nunangat. The Nunavut Inuit Marine Monitoring Program (IMMP) is one example of an Inuit-led initiative to collect shipping data using T-AIS receivers, combined with Inuit marine monitors, to track vessels travelling in Nunavut.^{9,10} Should regions in Inuit Nunangat wish to collect/acquire and store data about ships travelling in their region, enlisting the expertise of a GIS technician or data analyst to process the raw data could support their efforts to do so.

and the Eeyou Marine Region. For the purposes of this report, the marine boundaries off the coast of Nunatsiavut and through Davis Strait have been extended to the Canada/Greenland Marine Boundary (~200 NM from shore). This was done in consultation with Inuit Regional Organizations. More information regarding regional boundaries is available at <http://www.nmrpc.ca/region/>, <https://imappivut.com/about/>, and <https://www.itk.ca/inuit-nunangat-map/>.

¹² <https://pame.is/projects/arctic-marine-shipping/astd#astd-access>

¹³ Inuit Tapiriit Kanatami. (2018). National Inuit Strategy on Research. <https://www.itk.ca/wp-content/uploads/2020/10/ITK-National-Inuit-Strategy-on-Research.pdf>

¹⁴ <https://www.exactearth.com/>

Data in the report are presented as the distance ships travelled within the region, as maps of traffic density (the number of times a vessel moved through a particular area), and counting the number of unique ships. A unique ship is defined by counting a ship only once within each annual period, even if it travelled in the region multiple times that year, but from hereon will be referred to simply as ‘the number of ships’.

For this analysis, positional AIS messages were converted into spatial points using a custom Python script, and stored in a geodatabase by year. Points with invalid Maritime Mobile Service Identity (MMSI; unique nine-digit identifier assigned to an AIS unit) were removed. For example, MMSIs with valid country codes fall between 201000000 and 775999999, so values outside this range would be excluded. After this, points were converted into tracklines using NOAA’s Track Builder tool. For each MMSI, the tracklines were generated from points as long as the next point was within 80 km and 5 hours. These thresholds were chosen because of large gaps in distance and time that AIS messages are received, which is especially prevalent in Arctic regions.¹ If points exceeded these values, a new trackline for the vessel would be produced, in order to create

independent vessel transits over time. Additional vessel information was collected from a combination of online sources (e.g., MarineTraffic.com, MyShipTracking.com, and Industry Canada) and added to the tracklines data based on the MMSI.

To visualize the density of ship traffic, 25km² grids were generated in ArcGIS 10.8.1, for the marine region polygons outlined in Figure 1. The number of tracks in each grid cell, hereon referred to as “transits”, were then counted for each vessel type and each year using the spatial join tool in ArcGIS. The final output are maps showing the density of vessel transits at the beginning of the record (2015) and at the end of the record (2019) per 25km². The summary tables and graphs were generated using a custom Python script in ArcGIS that summarizes the number of kilometres sailed by vessel type in each year, for each of the marine regions outlined in Figure 1.

The total number of unique ships travelling within the region was also extracted from the decoded AIS data by removing duplicates. A unique ship is defined by counting a ship only once within each annual period, even if it travelled in the region multiple times that year.

¹ Winther, M., Christensen, J. H., Plejdrup, M. S., Ravn, E. S., Eriksson, Ó. F., & Kristensen, H. O. (2014). Emission inventories for ships in the arctic based on satellite sampled AIS data. *Atmospheric Environment*, 91, 1–14. <https://doi.org/10.1016/j.atmosenv.2014.03.006>

Additional Shipping Analysis for Inuit Nunangat

Fishing vessels

In 2015, the vast majority of fishing vessel activity was in the Labrador Sea and Davis Strait, with less traffic in Lancaster Sound, Barrow Strait, and Admiralty Inlet (Figure A1a). The highest traffic density occurred off the northeast coast of Nunatsiavut (Figure A1a).

In 2019, the overall pattern was very similar, with low traffic in the Amundsen Gulf off the northern coast of the ISR and through Hudson Strait and Hudson Bay (Figure A1b). The highest traffic density overall in 2019 happened in the same area off the northeast coast of Nunatsiavut, but was slightly less than in 2015.

Cargo ships

In 2015, cargo ships travelled throughout Inuit Nunangat and Hudson Bay, with the highest density occurring in the Labrador Sea, and to Iqaluit (Figure A2a). Vessels also travelled extensively through Hudson Strait and Ungava Bay, and into the northern part of Hudson Bay, as well as through Davis Strait along the western coast of Baffin Island (Figure A2a).

In 2019, the pattern was very similar spatially, with some additional traffic through Hudson Bay to Churchill, Manitoba (likely as a result of the Port of Churchill reopening in 2019 and

being used to supply cargo to ships for community resupply), as well as through Fury Sound and Prince Regent Inlet in Nunavut (Figure A2b). Cargo ship traffic increased in 2019 throughout the region, particularly in Hudson Strait, the Labrador Sea, and Davis Strait (Figure A2b). The highest traffic density occurred in the same areas as 2015, but nearly doubled in Nunatsiavut and in Nunavut near Iqaluit (Figure A2b). Density was also higher in 2019 in Nunavut near Pond Inlet and Milne Inlet, due to the Baffinland Mary River Mine.

Government/research vessels

Much like cargo ships, government/research vessel traffic occurred throughout Inuit Nunangat and Hudson Bay, and remained very similar **in 2015** (Figure A3a) and **2019** (Figure A3b). **In 2019**, government/research vessels travelled more extensively in Hudson Bay, in the NWP, and around Banks Island (Figure A3b).

In 2015, government/research vessel traffic density was highest near Iqaluit (Figure A3a). **In**

2019, however, density was highest in Milne Inlet, (Figure A3b). Traffic also increased in 2019 through Victoria Strait and around the southeastern tip of Victoria Island (Figure A3b). Priority Area 4 of the National Inuit Strategy on Research calls for Inuit to have access to, ownership of, and control over data and information collected within Inuit Nunangat.¹³

Pleasure craft

In 2015, pleasure craft travelled mostly through the southern route of the NWP, with some activity also in Hudson Strait (Nunavik) and Nunatsiavut (Figure A4a). The highest density of traffic occurred off the northern tip of Nunatsiavut and near Iqaluit (Figure A4a). In

2019, the pattern was very similar spatially, except that there was less traffic in Hudson Strait (Figure A4b). However, traffic density increased overall, and highest density shifted to the NWP, particularly between Cambridge Bay and Tuktoyaktuk, and near Pond Inlet (Figure A4b).

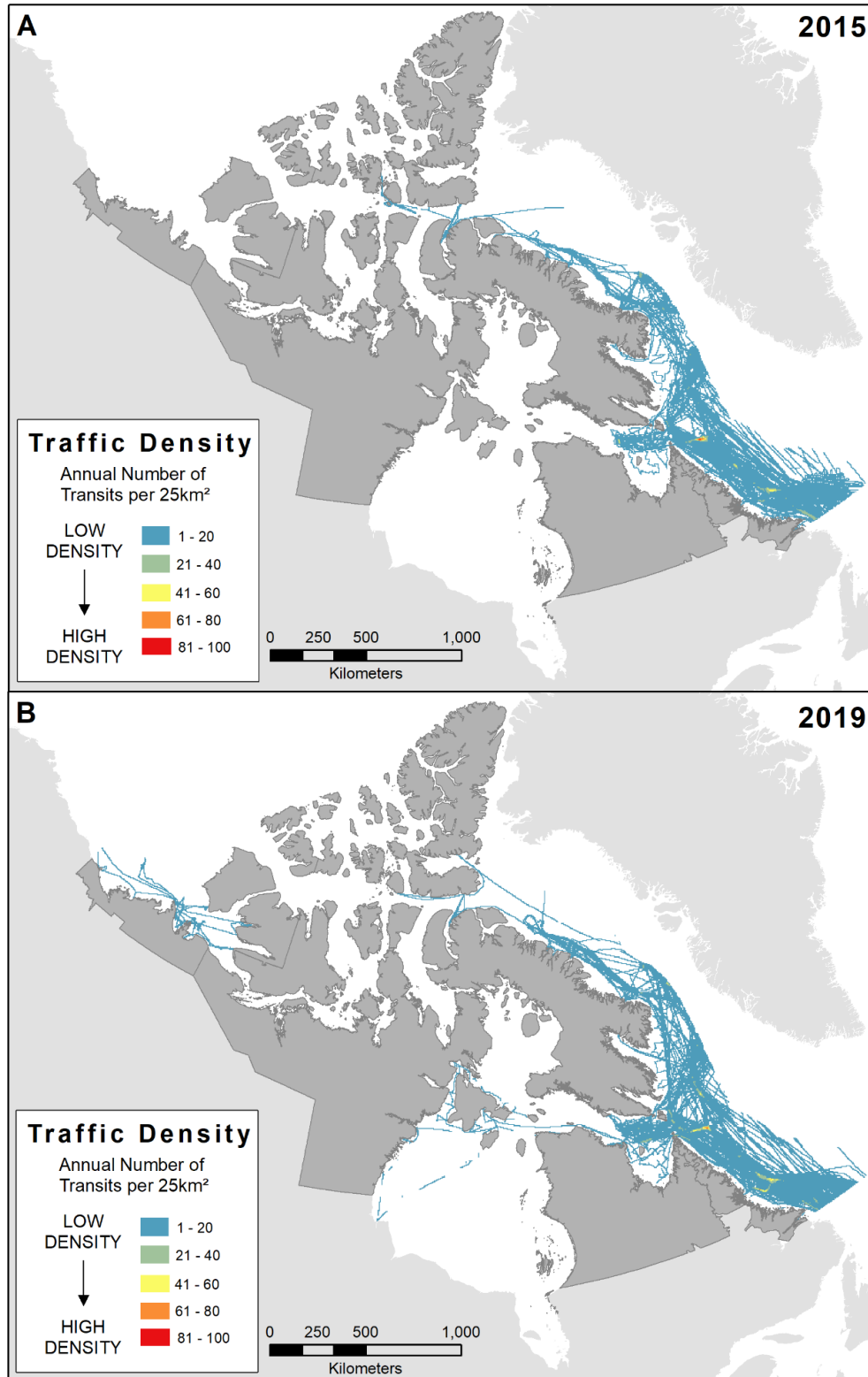


Figure A1: Average annual traffic density of fishing vessels in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

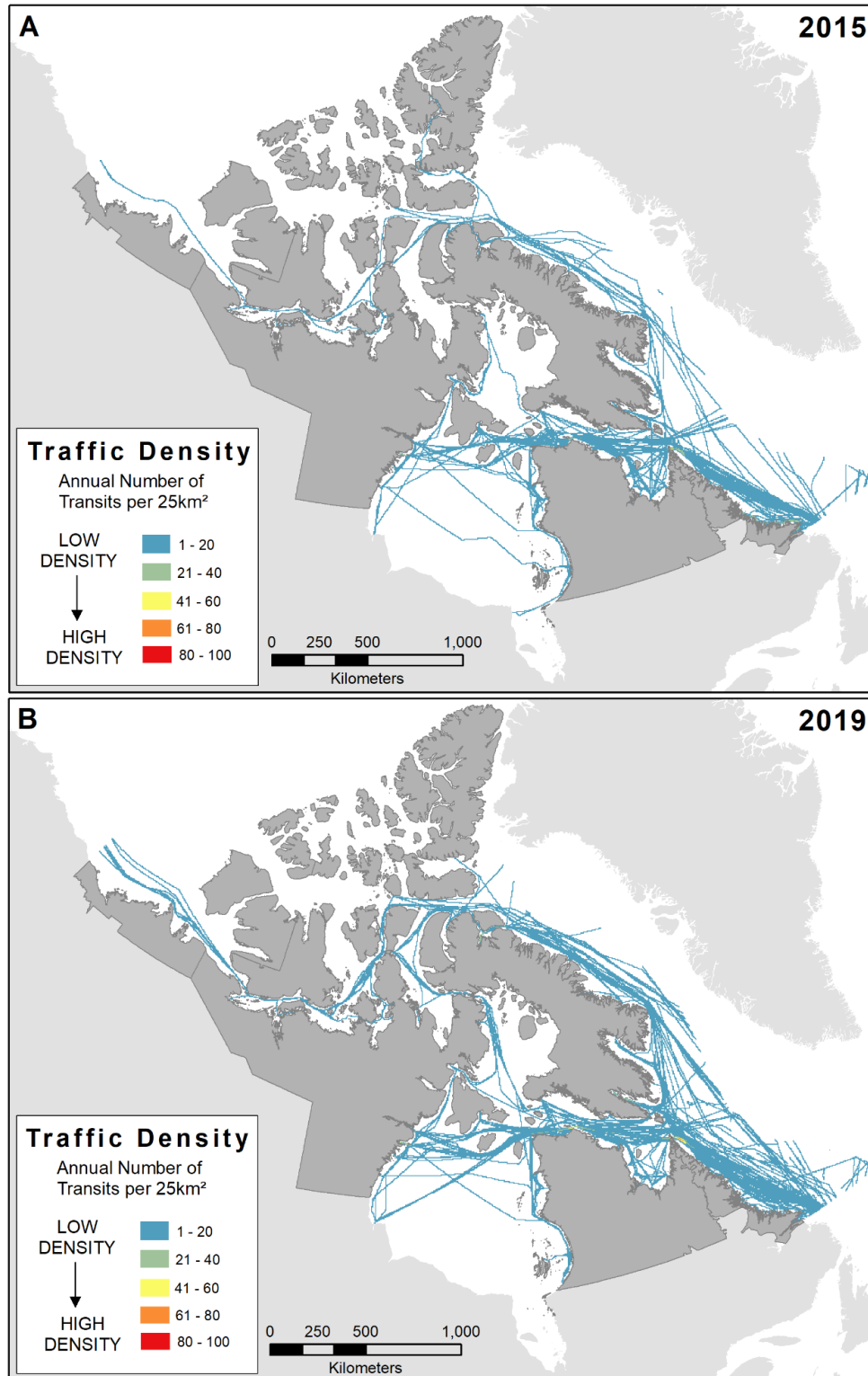


Figure A2: Average annual traffic density of cargo ships in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

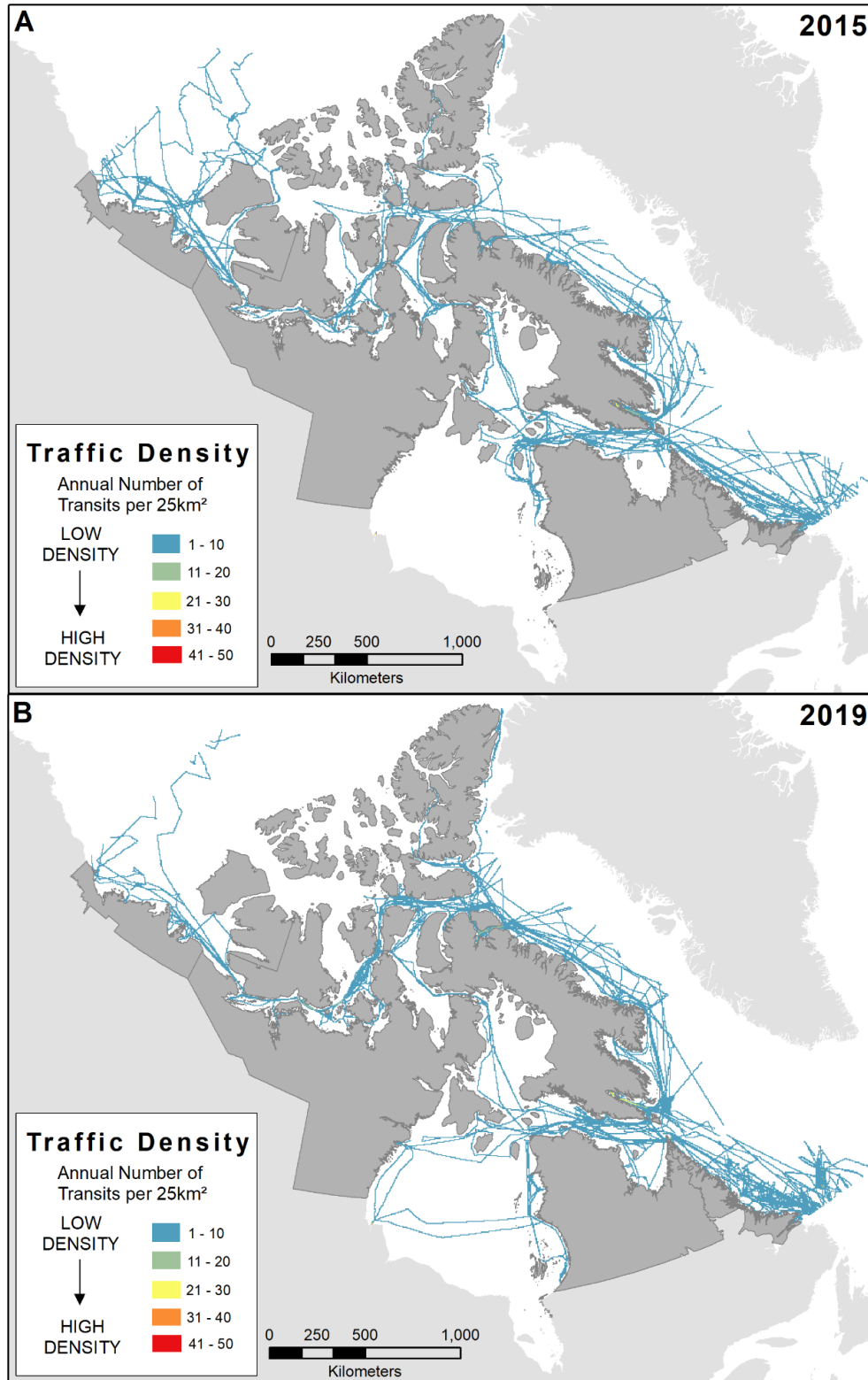


Figure A3: Average annual traffic density of government/research vessels in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

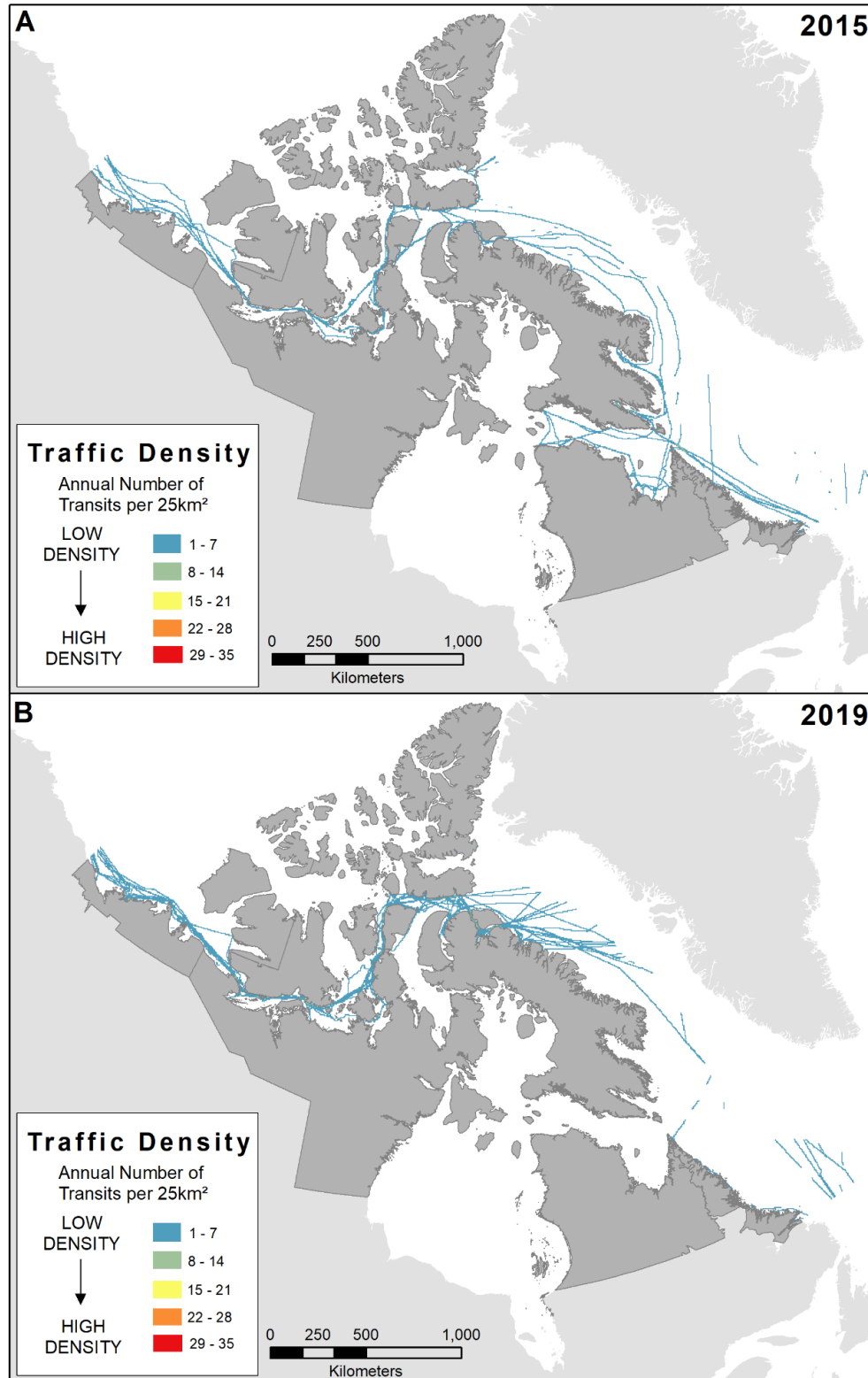


Figure A4: Average annual traffic density of pleasure craft in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

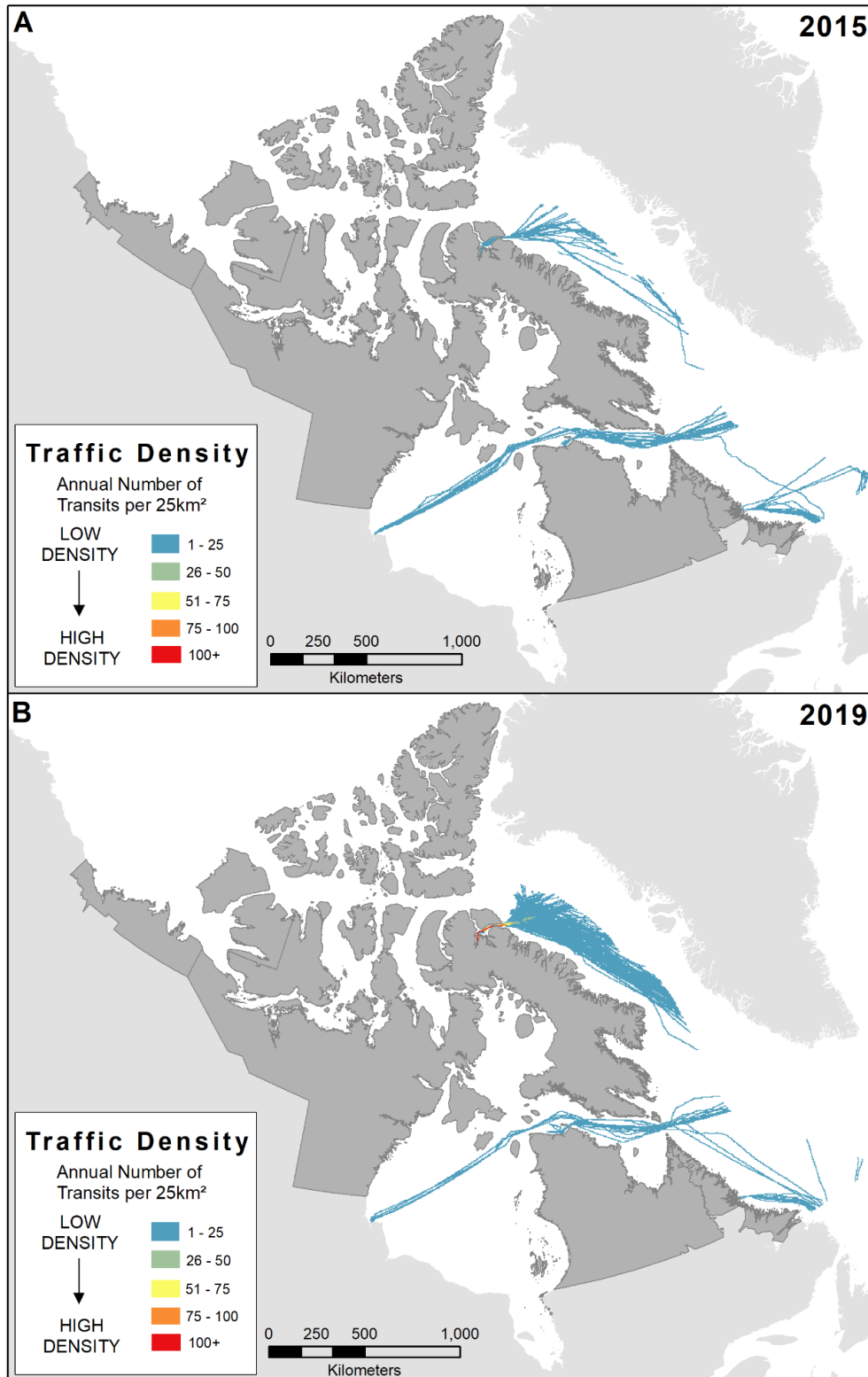


Figure A5: Average annual traffic density of dry bulk vessels in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

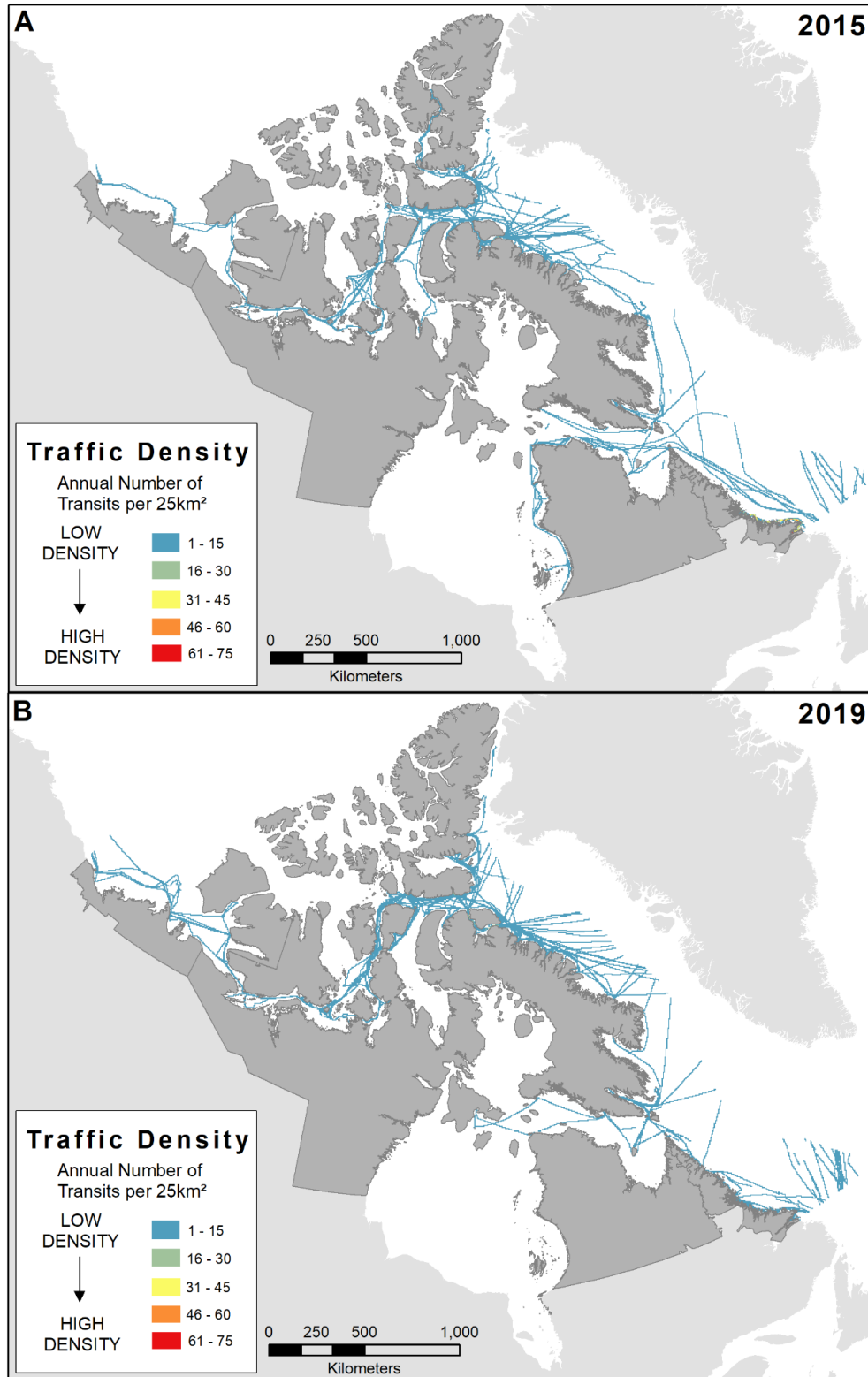


Figure A6: Average annual traffic density of ferry/ro-ro/passenger vessels in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

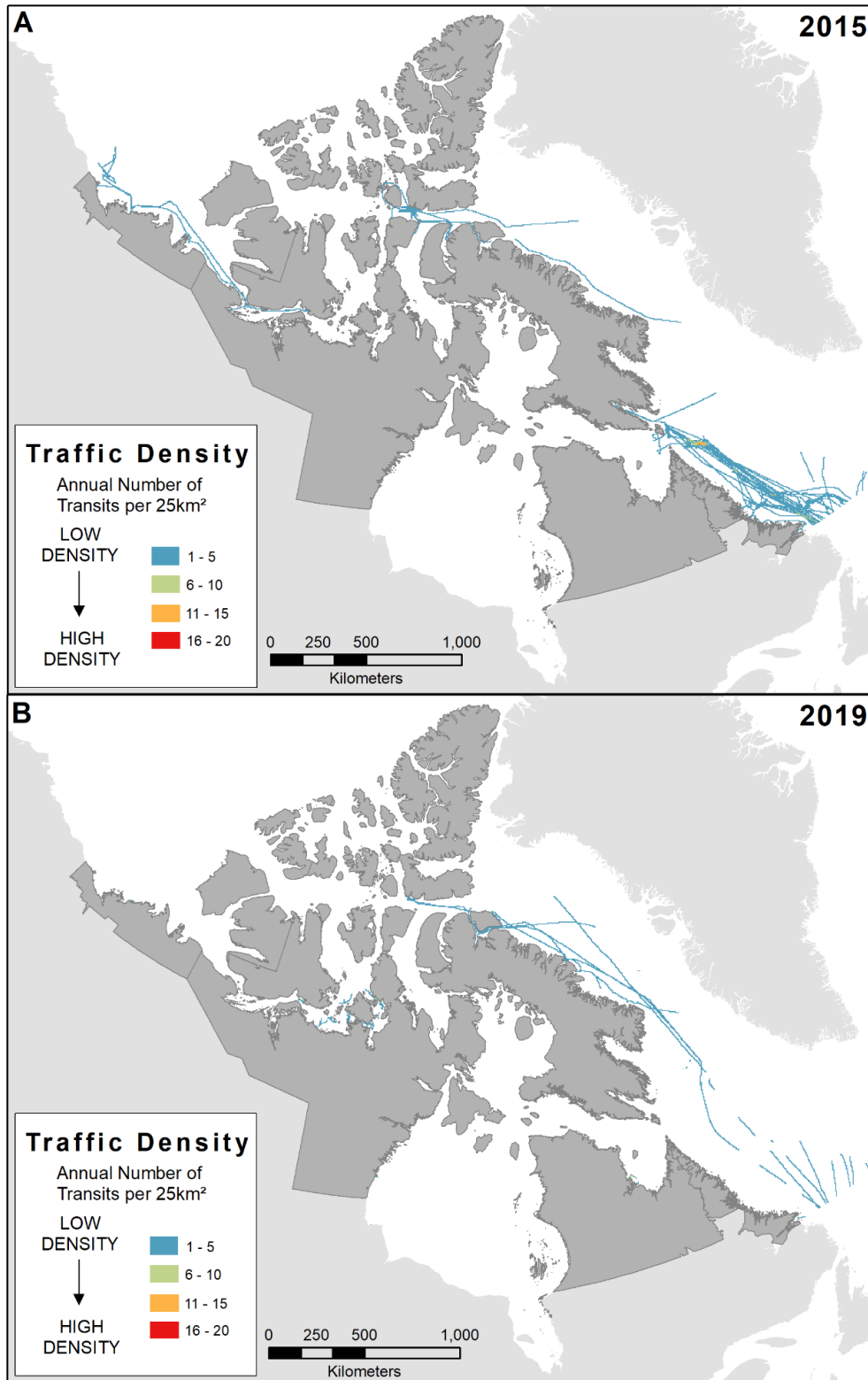


Figure A7: Average annual traffic density of other/special ships in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

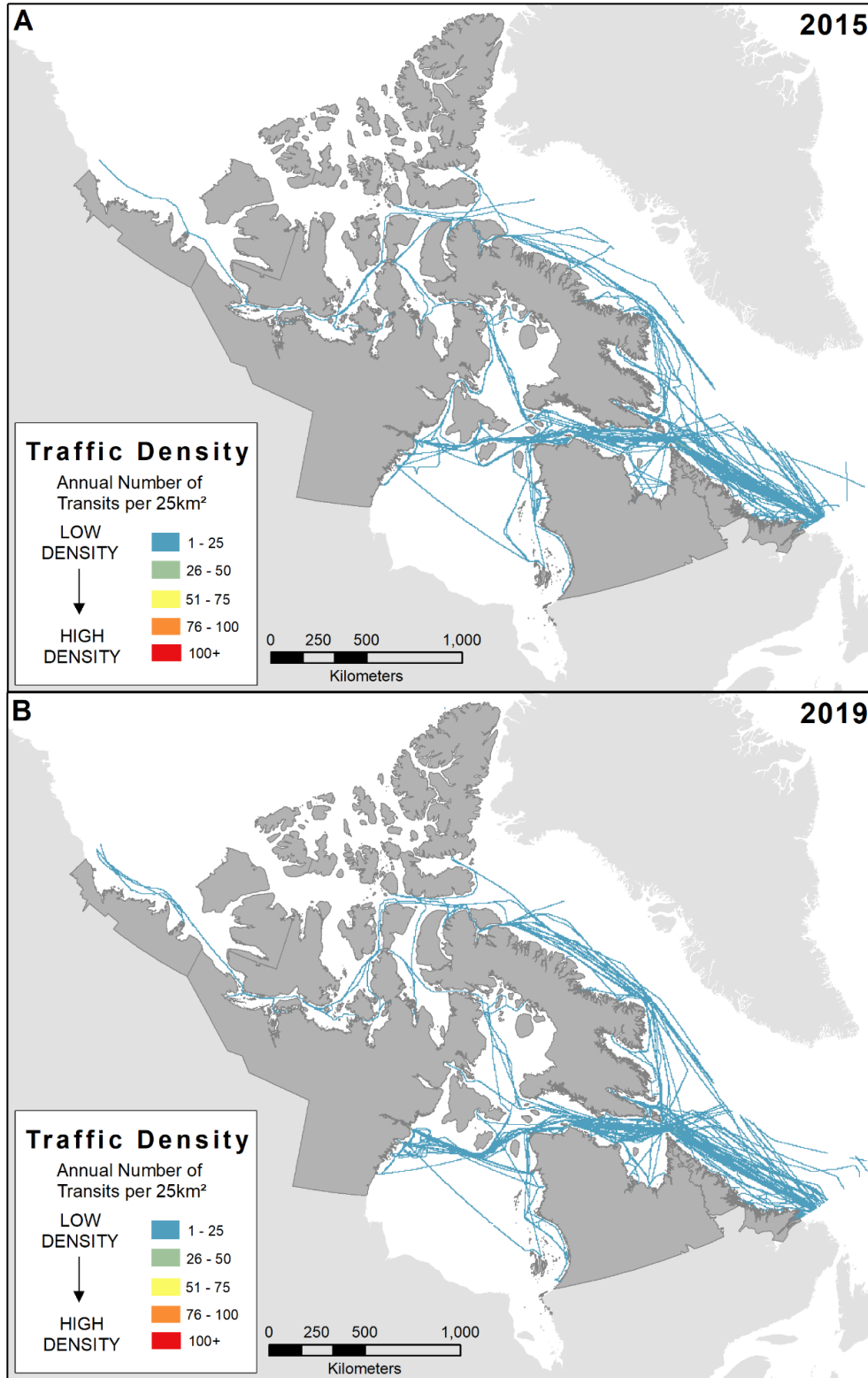


Figure A8: Average annual traffic density of tankers in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

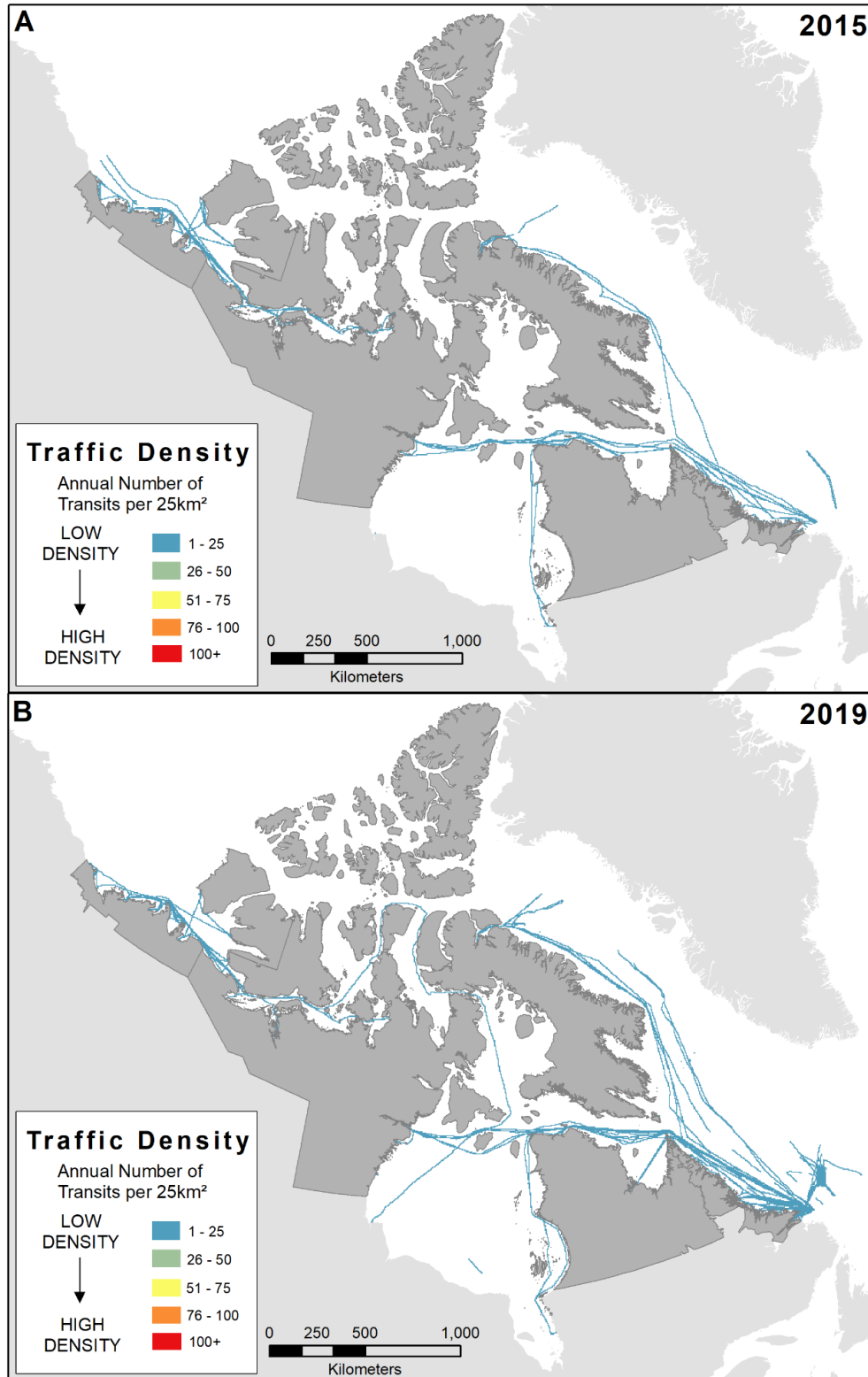


Figure A9: Average annual traffic density of tugs/port vessels in Inuit Nunangat, Hudson Bay, and James Bay in 2015 (A) and 2019 (B).

Appendix B Shipping Patterns within the Inuvialuit Settlement Region

The ISR experienced substantially less ship traffic compared to the other regions in Inuit Nunangat between 2011 and 2019 (Figure B1), and vessels travelled only a total of about 536,000 kilometers within the ISR over that time (Table B1). This is only 1/3 of the total distance travelled in Nunavik, which is the region with the second lowest traffic amount. Despite being relatively low, traffic in the ISR increased from 2011 to 2019, more than doubling over the 9-years (Figure B1; Table B1). There was a large spike in traffic in 2012 due to an increase in activity in the other/special ships category.

This spike was caused by two vessels, both offshore supply ships, that travelled back and forth in the same 100x100km area, likely doing a gridded survey for oil and gas exploration or supplying an offshore platform (see below; Figure B2; Table B1). The number of ships travelling annually within the ISR also doubled over the 9-years (Figure B1). In 2018, there was a decrease (51%) in the number of ships travelling in the ISR, likely due to thick and unusually high ice extremes that year (Figure B2; Table B1).

Table B1: Distance travelled by ship type, and total by all ships, within the Inuvialuit Settlement Region (ISR) between 2011 and 2019

	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Cargo	0	0	0	0	1758	3447	2810	1990	6213	16218
Dry bulk	0	0	876	1432	0	0	0	0	0	2308
Ferry/Ro-Ro/Passenger	1686	2880	3605	2344	2881	4512	3722	0	6516	28146
Fishing	0	5052	5855	6963	0	0	7533	7996	8017	41416
Government/Research	19611	12676	14289	17428	25104	17179	22260	22949	13803	165300
Other/Special ships	0	29098	3779	3880	3107	655	9766	935	676	51896
Pleasure Craft	2192	2539	6346	6168	5919	8017	6688	1044	11234	50148
Tanker	0	14447	0	0	1885	1742	3346	3145	3310	27875
Tugs/Port	9291	22839	13449	16494	19554	21677	15080	15591	19234	153209
TOTAL	32780	89531	48198	54710	60208	57230	71205	53650	69003	536515

The ISR experienced substantially less ship traffic compared to the other regions in Inuit Nunangat between 2011 and 2019 (Figure B1), and vessels travelled only a total of about 536,000 kilometers within the ISR over that time (Table B1). This is only $\frac{1}{3}$ of the total distance travelled in Nunavik, which is the region with the second lowest traffic amount. Despite being relatively low, traffic in the ISR increased from 2011 to 2019, more than doubling over the 9-years (Figure B1; Table B1). There was a large spike in traffic in 2012 due to an increase in activity in the other/special ships category.

This spike was caused by two vessels, both offshore supply ships, that travelled back and forth in the same 100x100km area, likely doing a gridded survey for oil and gas exploration or supplying an offshore platform (see below; Figure B2; Table B1). The number of ships travelling annually within the ISR also doubled over the 9-years (Figure B1). In 2018, there was a decrease (51%) in the number of ships travelling in the ISR, likely due to thick and unusually high ice extremes that year (Figure B2; Table B1).

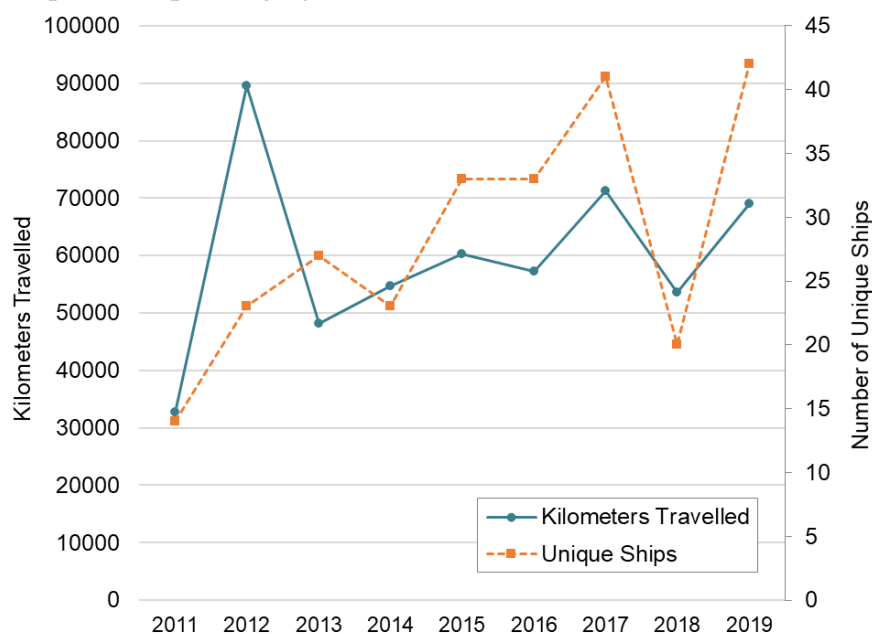


Figure B1: Distance travelled by all ships and the total number of ships within the Inuvialuit Settlement Region (ISR) between 2011 and 2019.

Government/research vessels had the most activity in the ISR, followed closely by **tugs/port vessels** (Figure B2; Table B1). For both categories, activity did not increase between 2011 and 2019. **Other/special ships** had third highest activity, and the distance they traveled each year varied, but was highest in 2012 (Figure B2; Table B1). This also happened with **tankers**, and the increase in 2012 was related to two

tankers that followed gridded patterns surrounding offshore oil and gas platforms. **Pleasure craft traffic** increased by over 400%, the largest overall increase in kilometers travelled in the ISR. **Fishing vessel** traffic varied from year to year. No fishing vessels travelled in the ISR in 2011, 2015, or 2016, but did travel between 5,000 and 8,000 km per year in the other 6 years (Figure B2; Table B1). Activity in the

ferry/ro-ro/passenger category increased by 286% between 2011 and 2019 (Figure B2; Table B1). In 2019, the activity was by five vessels, four of which were expedition cruise ships. **Cargo and dry bulk vessels** travelled the least in the ISR. There were no cargo ships in the region between 2011 and 2014, and then there was a

steady increase to 2019 (Figure B2; Table B1). Dry bulk vessels only travelled 2,308 km in the 9-year period, all in 2013 and 2014 (Figure B2; Table B1). The dry bulk traffic in those years came from the unusual transits of the Northwest Passage by the *Nordic Orion* and *Nunavik* in 2013 and 2014, respectively.

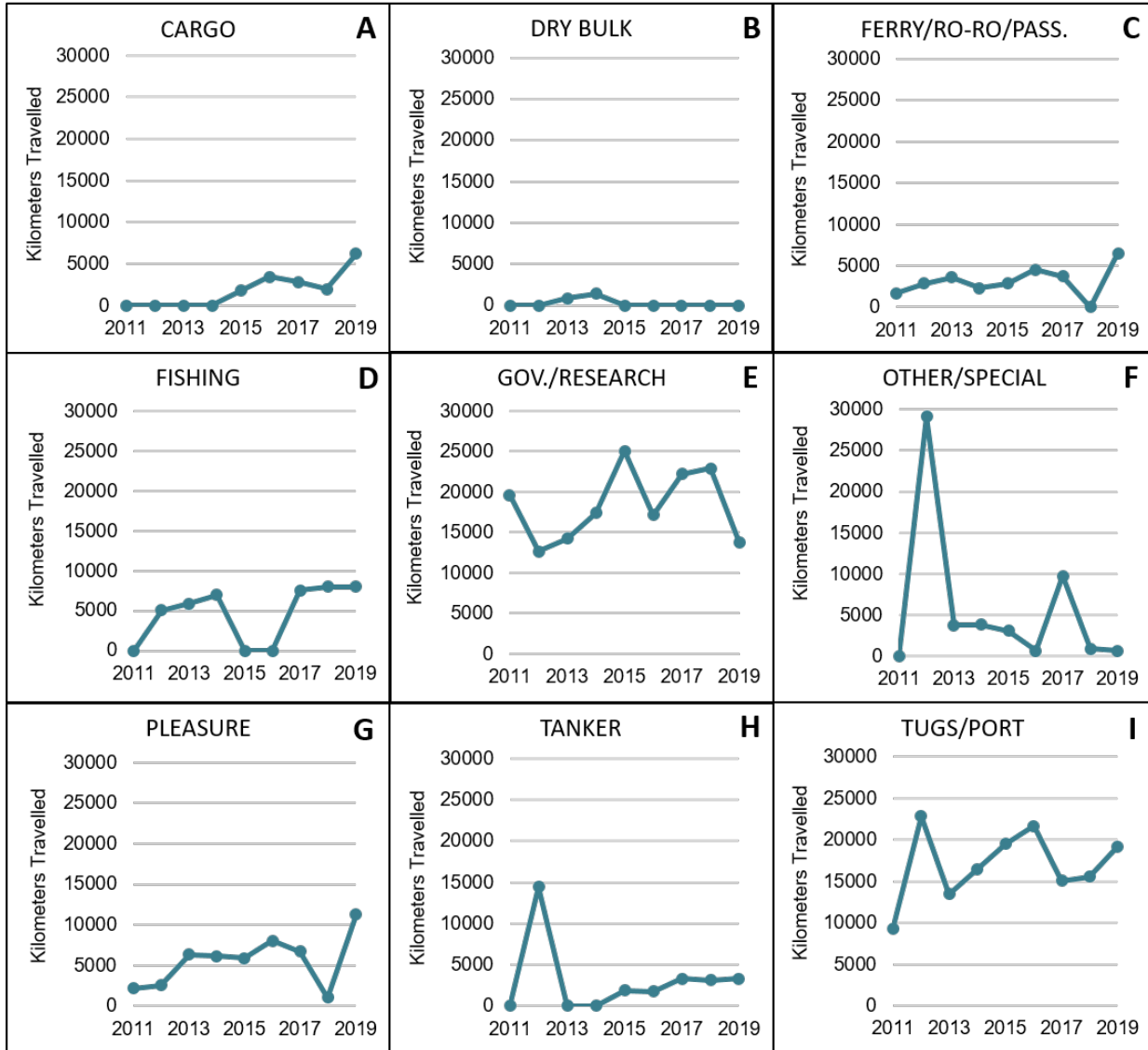


Figure B2: Distance travelled by ship type within the Inuvialuit Settlement Region (ISR) between 2011 and 2019.

Appendix C Shipping Patterns within Nunavut

From 2011-2019, vessels travelled a total of 5.6 million kilometers in Nunavut (Table C1), the highest within any region in Inuit Nunangat. However, it is important to note Nunavut is also the largest region (see Figure 1). Vessel traffic increased by 190% between 2011 and 2019 (Figure C1; Table C1). The number of kilometers travelled increased rapidly over the 9 years (Figure C1; Table C1), the fastest compared to any other region in Inuit Nunangat. The number of ships travelling annually within Nunavut also increased steadily (Figure C1), and was the highest compared to anywhere else within Inuit Nunangat.

Cargo ships remained consistent in Nunavut at around 50,000 km travelled annually for the entire 9-years, for a total of 431,766 km travelled (Figure C2; Table C1). Kilometers travelled by **dry bulk** vessels increased over the 9 years, with a dramatic spike after 2015 following the opening of the Baffinland Mary River Mine (Figure C2; Table C1). Annual kilometers travelled by this vessel type increased by 1102% between 2011 and 2019, the highest and fastest rate of increase by any vessel type in Nunavut (Table C1). The kilometers travelled by **ferry/ro-ro/passenger vessels** also increased, but more gradually, with a peak of almost 90,000 km in 2016 (Figure C2; Table C1). The distance travelled by **fishing vessels** increased rapidly between 2011 and 2019, from just over 50,000 km to almost 250,000 km (Figure C2). This was the highest number of kilometers travelled by any vessel type within Nunavut (Table C1). Kilometers travelled by **government/research vessels** increased by 111% between 2011 and

2019 (Figure C2). Overall, government/research vessels had the second highest number of kilometers travelled within Nunavut, just over one million (Table C1). Vessels in the **other/special ships** category travelled the least in Nunavut, less than 50,000 km each year, and decreased by 28% overall (Figure C2; Table C1). Likewise, distance travelled by **pleasure craft** was relatively low in Nunavut, but increased by 122% between 2011 and 2019 (Figure C2). However, the peak in kilometers travelled by pleasure craft was in 2014, followed by a dramatic reduction of almost 30,000 kilometers travelled in 2015 (Figure C2). **Tanker activity varied from year to year**, but overall, kilometers travelled by tankers in Nunavut increased by 171% (Table C1). Finally, **tugs/port vessels** had relatively low traffic (Table C1), but more than tripled over the 9 years (Figure C2).

Table C1: Distance travelled by ship type, and the total by all ships, within Nunavut between 2011 and 2019.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Cargo	49788	47037	47203	52013	47037	47037	47575	47037	47037	431766
Dry bulk	17786	31503	38818	35317	42712	84044	118788	151723	213740	734431
Ferry/Ro-Ro/Passenger	23724	33717	57207	50860	57145	89658	67974	57561	77141	514989
Fishing	64757	103189	121347	147012	150656	181505	188994	202547	232292	1392298
Government/Research	66901	78334	86601	104727	100633	121020	152931	151048	141274	1003470
Other/Special ships	20902	48259	30578	29957	12245	14867	23215	15948	14999	210971
Pleasure Craft	20474	27218	36019	58312	29046	48709	42642	26474	45358	334253
Tanker	38530	65024	98284	86897	84033	69481	78758	90992	104556	716553
Tugs/Port	15326	28192	26427	20410	26916	24470	27544	46381	46776	262441
TOTAL	318188	462472	542483	585507	550424	680791	748421	789712	923173	5601170

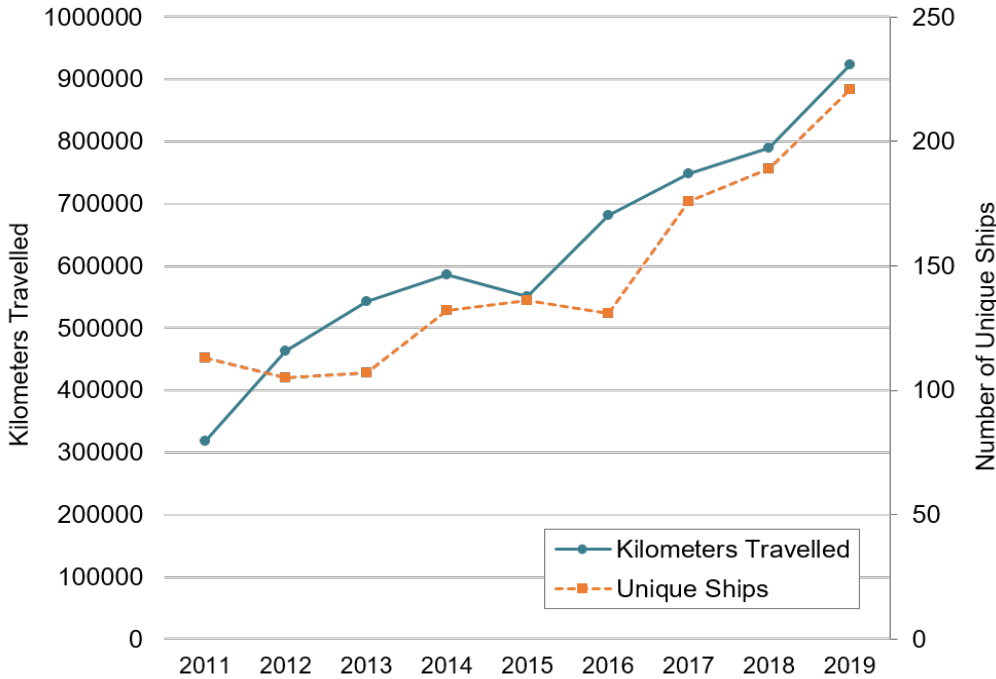


Figure C1: Distance travelled by all ships and the number of ships within Nunavut between 2011 and 2019.

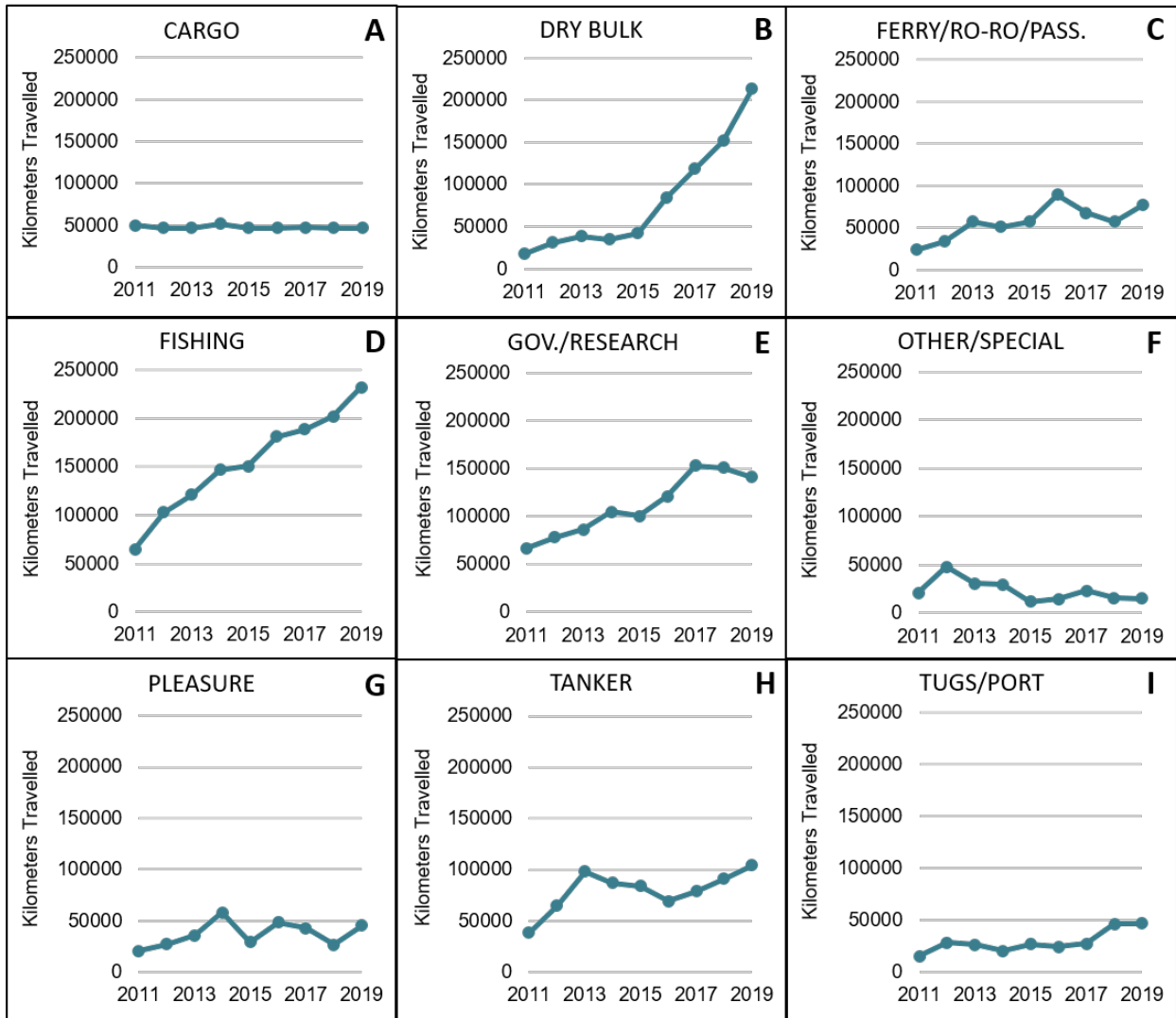


Figure C2: Distance travelled by ship type within Nunavut between 2011 and 2019.

Appendix D Shipping Patterns within Nunavik and Eastern Hudson and James Bays

Data presented in this subsection includes shipping activity within Nunavik, the Nunavik Inuit Land Claims Agreement (NILCA) and Eeyou Marine Region Land Claims Agreement (EMRLCA) Cree-Inuit Joint Zone, the Nunavut Agreement (NA) and NILCA Equal Use Area, and the Eeyou Marine Region, herein referred to as Nunavik and Eastern Hudson and James Bays (Figure 1). In total, vessels within this region travelled 1.4 million km between 2011 and 2019 (Table D1). Traffic increased steadily from 2011 to 2019 (225% increase) (Figure D1; Table D1). The number of ships, however, increased overall, but varied from year to year (Figure D1).

Within Nunavik and Eastern Hudson Bay, **cargo ships** travelled by far the largest distance (over 440,000 km) compared to any other vessel type (Table D1). From 2011 to 2019, cargo ship traffic

increased by 251% (Figure D2; Table D1). **Tankers** travelled the second largest distance (293,254 km) (Figure D2; Table D1). **Government/research and fishing vessels** both travelled a relatively high number of kilometers, both between 170,000 and 190,000 km (Table D1). **Dry bulk, tugs/port, and ferry/ro-ro/passenger** vessels all had relatively low total kilometers travelled (all under 90,000 km; Table D1), all travelled under 20,000 km annually, and did not display any dramatic changes in activity from 2011 to 2019 (Figure D2). Vessels in the **other/special ships** category also had low distance travelled, including several years with very minimal traffic (<1000km in 2015 and 2019; Figure D2; Table D1). Finally, **pleasure craft** travelled the least number of kilometers within Nunavik and Eastern Hudson Bay, just over 37,000 km (Table D1).

Table D1: Distance travelled by ship type, and the total travelled by all ships, within Nunavik and Eastern Hudson Bay between 2011 and 2019.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Cargo	21999	32039	33456	40240	53316	51209	58077	73378	77282	440998
Dry bulk	7801	12160	16321	13162	11291	4968	5583	7240	9372	87899
Ferry/Ro-Ro/Passenger	5235	8766	10032	9811	9684	6900	9801	2166	1570	63965
Fishing	1257	621	6877	10790	23677	28377	24115	30417	46994	173125
Government/Research	6307	9347	7873	7877	14335	14892	35033	59565	31719	186949
Other/Special ships	2722	10981	11587	10275	242	7975	6155	9656	825	60417
Pleasure Craft	6228	14111	5299	3982	4723	2351	0	442	32	37169
Tanker	14603	29658	28191	31818	33838	35383	33117	44795	41851	293254
Tugs/Port	3102	2819	13737	4348	7387	4069	7991	6724	15123	65300
TOTAL	69254	120502	133373	132304	158493	156123	179873	234384	224769	1409075

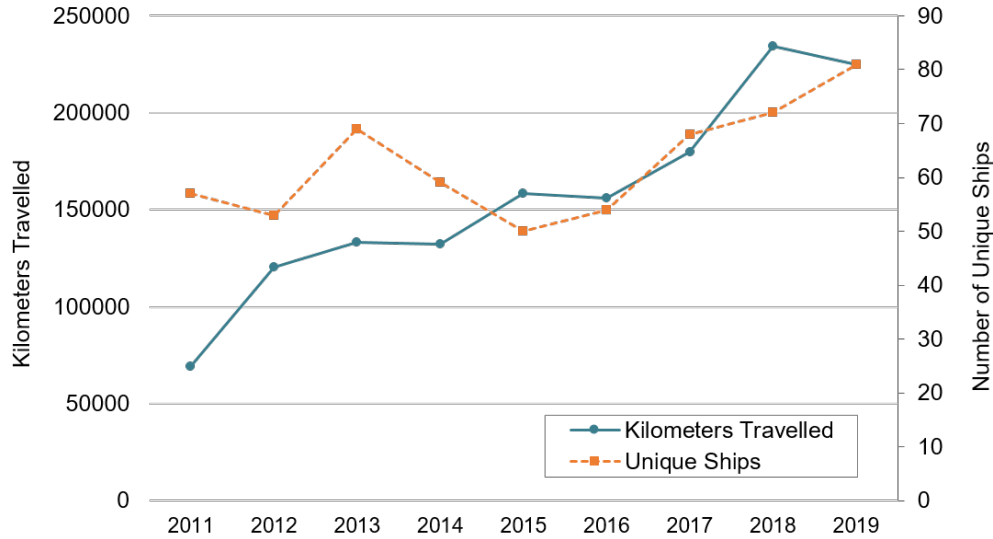


Figure D1: Distance travelled by all ships and the total number of ships within Nunavik and Eastern Hudson Bay between 2011 and 2019.

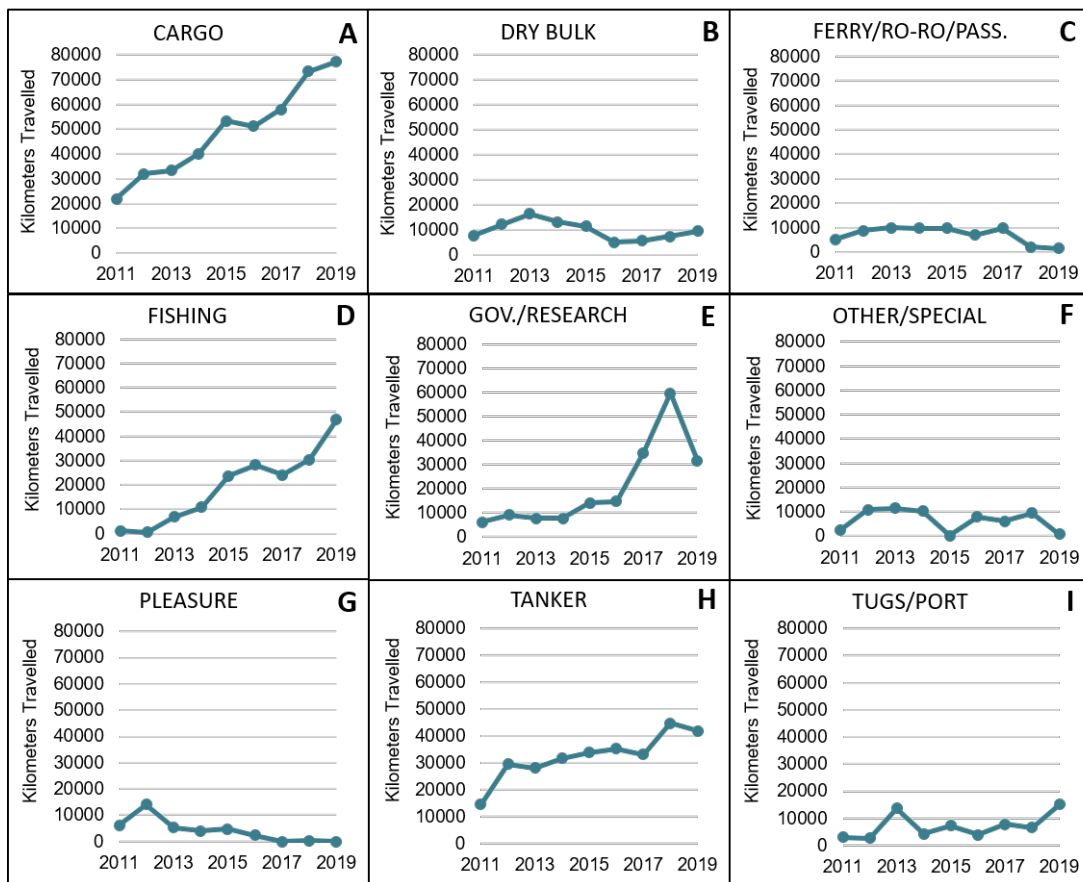


Figure D2: Distance travelled by ship type within Nunavik and Eastern Hudson Bay between 2011 and 2019.

Appendix E Shipping Patterns within Nunatsiavut

Vessels travelled a total of 2.2 million kilometers in Nunatsiavut between 2015 and 2019 (Table E1). The total number of kilometers travelled annually in Nunatsiavut remained fairly constant over the 5-year period (Figure E1; Table E1). The exception was in 2016, where kilometers travelled dropped by 59% from the previous year, to a minimum of 213,837 km

(Figure E1; Table E1). This decline could be due to an increase in sea ice concentration in the Labrador Sea that year,¹ as well as the early arrival of multi-year ice in the Labrador Sea.² The number of ships travelling annually within Nunatsiavut increased by 25% over the 5 years (Figure E1).

Table E1: Distance travelled by ship type, and the total travelled by all ships, within Nunatsiavut between 2015 and 2019.

	2015	2016	2017	2018	2019	TOTAL
Cargo	75580	25693	89123	90849	85455	366699
Dry bulk	22063	10288	18786	22254	18119	91511
Ferry/Ro-Ro/Passenger	50406	17746	48596	39376	13896	170020
Fishing	228513	94451	176434	203395	212698	915491
Government/Research	28748	17059	34698	34530	49537	164572
Other/Special ships	32604	15873	19925	25158	2425	95985
Pleasure Craft	7434	2812	3642	793	2974	17655
Tanker	68930	22392	49120	58986	59199	258628
Tugs/Port	8208	7522	11501	24338	36107	87676
TOTAL	522487	213837	451825	499678	480411	2168237

The distance travelled by all ships in Nunatsiavut declined in 2016, by 40-70%, except for tugs/port vessels, which only declined by 8% (Table E1). The most dramatic

decreases were by cargo and fishing vessels, which both decreased by about 50,000 and 135,000 km, respectively (Figure E2; Table E1). After the relatively low in 2016, most vessel

¹ Petty, A. A., Stroeve, J. C., Holland, P. R., Boisvert, L. N., Bliss, A. C., Kimura N., & Meier, W. N. (2018). The Arctic sea ice cover of 2016: a year of record-low highs and higher-than-expected lows. *The Cryosphere*, 12, 433-452. <https://doi.org/10.5194/tc-12-433-2018>

² Barber, D. G., Babb, D. G., Ehn, J. K., Chan, W., Matthew, L., Dalman, L. A., Campbell, Y., Harasyn, M. L., Firoozy, N., Theriault, N., Lukovich, J. V., Zagon, T., Papakyriakou, T., Capelle, D. W., Forest, A., & Garipey, A. (2018). Increasing mobility of high arctic sea ice increases marine hazards off the East coast of Newfoundland. *Geophysical Research Letters*, 45(5), 2370-2379. <https://doi.org/10.1002/2017GL076587>

types subsequently returned to 2015 levels (Figure E2; Table E1). **Fishing vessels** had the greatest total kilometers travelled by any vessel type within Nunatsiavut by far (total of 915,491 km; Table E1). The distance **cargo ships** travelled was second highest, and remained consistent at about 90,000km per year from 2017 to 2019, and cargo ships travelled a total of 366,699 km over the five years (Figure E2; Table FE1). **Dry bulk** vessels travelled a relatively low number of kilometers (<25,000 km per year), and travelled 91,511 total kilometers in the region from 2015 to 2019 (Figure E2; Table E1). The traffic by **ferry/ro-ro/passenger** and **other/special ships**

was relatively low, but the latter decreased by 99% over the 5 years (Figure E2; Table E1). Kilometers travelled by **government/research vessels** were relatively low, but did increase by 72% over the 5-years (Figure E2). The traffic for **pleasure craft** was the lowest of any vessel type in Nunatsiavut, and declined by 60%, to only about 800 km in 2018 (Figure E2; Table E1). Activity by **tankers** in Nunatsiavut was relatively high (258,628 total kilometers travelled; Figure E2). Finally, **tugs/port vessels** travelled a relatively low number of kilometers (Table E1), but the distance they travelled more than quadrupled over the 5-years (Figure E2).

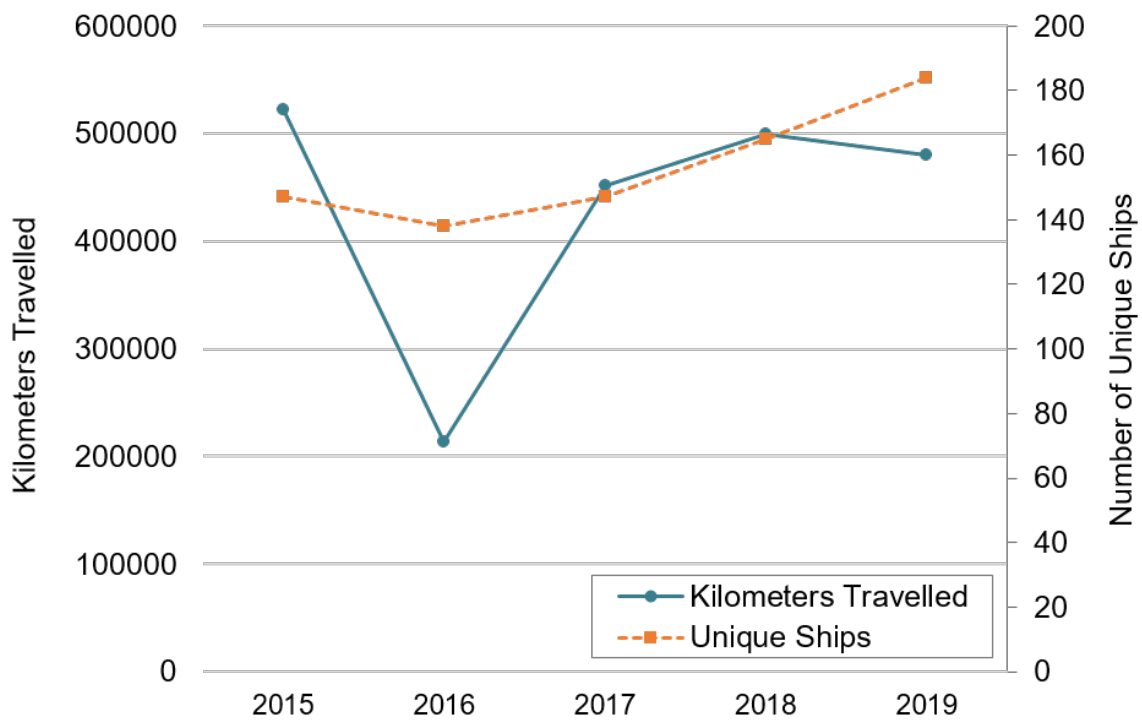


Figure F1: Distance travelled by all ships and the total number of ships within Nunatsiavut between 2011 and 2019.

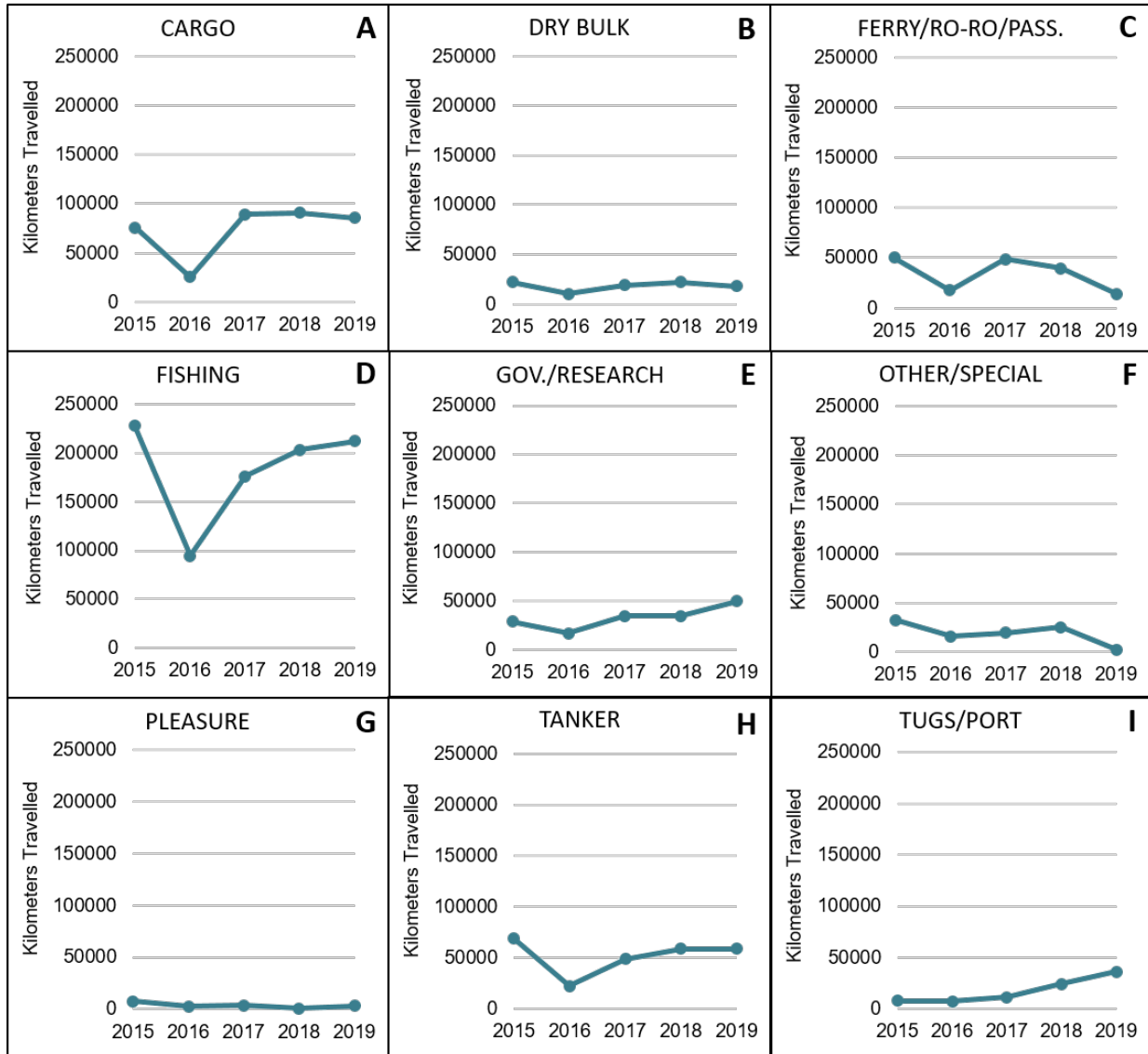


Figure E2: Distance travelled by ship type within Nunatsiaout between 2015 and 2019.

Appendix F Policy Crosswalk Methods

To organize a broad and varied array of priorities, Canada’s recent Arctic and Northern Policy Framework (ANPF) was utilized as a categorization mechanism. The ANPF “represents an opportunity for Arctic and northern people, and their institutions, municipalities, organizations and governments, to come together with the federal government to shape and direct change toward better outcomes”.¹ For the federal government, the ANPF’s goals will guide investments and activities, through 2030. While the ANPF is presented as a co-developed document, it should be acknowledged that some sections did not see Inuit input; as such, its broader goals and objectives are only utilized here as the lens for further analysis and do not necessarily imply consensus.

Identification of Inuit Priorities

Inuit priorities were identified through a thorough review of primary documents across a range of Inuit organizations and leadership positions, including sources such as Mary Simon’s *A new Shared Arctic Leadership Model*,² ITK’s 2020-2023 Strategy and Action Plan³, Qikiqtani Inuit Associations’s principles for

Tallurutiup Imanga NMCA⁴, Inuit Circumpolar Council’s *Call for Safe Arctic Shipping*⁵, and testimony before parliamentary committees - among others. Where there was significant alignment, priorities were combined; however, the level of specificity was maintained whenever possible to best capture original intent.

Identification of Federal Priorities

For the purposes of this project, it is assumed that existing federal policy, programs, or initiatives currently funded and underway reflect a federal priority. This decision was made in order to show the closest possible degree of alignment between Inuit and The Government of Canada’s priorities, wherever they exist.

Identification of Gaps

By comparing Inuit priorities with existing federal policies, programs, and initiatives, it is possible to demonstrate where actions have or have not been taken. From here, assessments can be made regarding the degree of shared priorities on coastal management and shipping policies.

¹Government of Canada. (2019). Canada’s Arctic and Northern Policy Framework. <https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587>

² Crown-Indigenous Relations and Northern Affairs Canada. (2017). A new Shared Arctic Leadership Model. <https://www.rcaanc-cirnac.gc.ca/eng/1492708558500/1537886544718>

³ Inuit Tapiriit Kanatami. (2020). 2020-2023 Strategy and Action Plan. <https://www.itk.ca/2020-2023-strategy-and-action-plan/>

⁴ Qikiqtani Inuit Association. (2019). Tallurutiup Imanga National Marine Conservation Area. <https://www.qia.ca/wp-content/uploads/2019/03/QIA-Inuit-Stewardship-and-Tallurutiup-Imanga-NMCA.pdf>

⁵ Inuit Circumpolar Council. (2020, February 25). Inuit Circumpolar Council Calls for Safe Arctic Shipping to Protect Inuit Rights and the Marine Environment – ICC Applies for IMO Consultative Status. Inuit Circumpolar Council. <https://www.inuitcircumpolar.com/news/inuit-circumpolar-council-calls-for-safe-arctic-shipping-to-protect-inuit-rights-and-the-marine-environment-icc-applies-for-imo-consultative-status/>

Appendix G Interview Methods

The interviews were conducted remotely via video conference or phone, and lasted approximately 45 minutes to one hour. One interview was conducted with three participants, the others were conducted individually. Each interviewee was asked a similar set of questions based on the semi-

structured interview guide that was created collaboratively by ITK and the ESPG team. Informed consent was received from interviewees and they chose whether or not to be identified. Interviewees provided responses based on their personal and professional experiences. The questions focused on:

- Organizational priorities regarding shipping and coastal management policy
- Regional policy gaps
- Federal shipping priorities and challenges
- Federal policy implementation
- Federal government policy gaps
- Partnership between federal government and Inuit Nunangat

Regional	Name and affiliation of participant
Inuvialuit Settlement Region	Jim Elias, <i>Inuvialuit Game Council</i>
	Tess Forbes, <i>Inuvialuit Regional Corporation</i>
Nunavut	Colleen Parker, <i>Nunavut Impact Review Board</i>
	One anonymous participant
Nunavik	Janelle Kennedy, <i>Nunavik Marine Region Planning Commission</i>
	Three anonymous representatives from <i>Kativik Regional Government</i>
Nunatsiavut	Jim Goudie, <i>Nunatsiavut Government</i>
Federal	Name and affiliation of participant
Transport Canada	Drummond Fraser
	Desmond Raymond
Canadian Coast Guard	Neil O'Rourke
International	Name and affiliation of participant
Inuit Circumpolar Council	Stephanie Meakin

Appendix H Highlighted Coastal Management and Shipping Initiatives

Inuit Marine Monitoring Program

IMMPs monitor and record the observations of experienced hunters regarding small vessel traffic and other activity in a region. These programs can provide essential insight into what is happening in these areas where traditionally little monitoring occurs. IMMPs build local capacity by employing local hunters. These programs also provide the potential for the collection and sharing of Inuit knowledge and data to respond to the needs of Inuit throughout Inuit Nunangat. Additional funding and support are required for IMMPs across Inuit Nunangat.

Regional, Inuit-led Program

Inuit Circumpolar Council (ICC) quest for inclusion at the International Maritime Organization (IMO)

It is important that Inuit have a rightful say on Arctic marine governance at the international level. Thus far, ICC has had to work through connections with the Government of Canada or other non-governmental organizations (NGO) to present their perspectives at the IMO. This requires approval and limits Inuit voices as Inuit/federal/NGO partner perspectives do not always align. There is much work to be done to educate international representatives about Inuit and their role in the Arctic. On March 1, 2021, ICC officially presented its case for consultative status to the IMO, a decision is expected in July, 2021.

International, Inuit-led

The Arctic Region

The Arctic Region of Fisheries and Oceans Canada and the Canadian Coast Guard consists of the Yukon North Slope, Northwest Territories, Nunavut, Nunavik, Nunatsiavut, Hudson Bay and James Bay. This recognition of a region that includes all of Inuit Nunangat is supported by and brings hope to Inuit and the expectation that change, including increased inclusion of Inuit from all four regions in decision-making, will happen in all of Inuit Nunangat.

Regional-Federal Policy Development

Canadian Coast Guard engagement with Inuit Nunangat regions

The effort that the Canadian Coast Guard (CCG) has put into engaging with each region in Inuit Nunangat in recent years is an example of positive community engagement and partnership. This level of engagement has not always been present but CCG has put increased effort into engaging with communities and regional organizations and this has strengthened partnerships. Engagement occurs on the ground and at the senior policy level. CCG has recognized the need to take a collaborative approach to policy making in the north and this approach is identified as an example of how partnerships between federal departments and Inuit Nunangat communities and organizations could work.

Regional-Federal Partnership