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Addressing community concerns around increased vessel traffic in Nunavut:

A review of policy mechanisms within regional, national, and international jurisdictions

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Cover page - Photo credits

- Canadian Vessel in Frobisher Bay – Jade Owen

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List of Acronyms

Acronym	Definition
MARPOL 73/78	1973 International Convention for the Prevention of Pollution from Ships, modified by the 1978 Protocol
AOOS	Alaska Ocean Observing System
ABWEZ	Alternate Ballast Water Exchange Zone
ANMPA	Anguniaqvia niqiqyuam Marine Protected Area
AIRSS	Arctic Ice Regime Shipping System
ASSPPR	*Arctic Shipping Safety and Pollution Prevention Regulations*
AWPPA	*Arctic Waters Pollution Prevention Act*
AOI	Area of Interest
ATBA	Area to be Avoided
AIS	Automatic Identification System
BWCMR	*Ballast Water Control and Management Regulations*
BWM	Ballast Water Management
IOMP	Beaufort Sea Integrated Ocean Management Plan
BC	British Columbia
CNMCA	*Canada National Marine Conservation Areas Act*
CNWA	*Canada Navigable Waters Act*
CSA, 2001	*Canada Shipping Act, 2001*
CWA	*Canada Wildlife Act*
CCG	Canadian Coast Guard
CRN	Coastal Restoration Nunavut
CHN	Council of the Haida Nation
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
EMSA	Enhanced Maritime Situational Awareness
EEZ	Exclusive Economic Zone
DFO	Fisheries and Oceans Canada
HFO	Heavy Fuel Oil
HTO	Hunters and Trappers Organization
IMRC	Indigenous Marine Response Centre
BWMC	International Convention for the Control and Management of Ships' Ballast Water and Sediments
SOLAS	International Convention for the Safety of Life at Sea
OPRC	International Convention of Oil Pollution Preparedness, Response and Co-operation
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
FUND	International Fund for Compensation for Oil Pollution
IMO	International Maritime Organization
ICC	Inuit Circumpolar Council
IIBA	Inuit Impact and Benefit Agreement
IQ	Inuit Qaujimajatuqangit
IFA	Inuvialuit Final Agreement
IRC	Inuvialuit Regional Corporation
ISR	Inuvialuit Settlement Region
JBNQA	James Bay and Northern Quebec
LILCA	Labrador Inuit Land Claims Agreement
LISA	Labrador Inuit Settlement Area
LOMA	Large Ocean Management Area

LISC	Low Impact Shipping Corridors
MLA, 2001	*Marine Liability Act, 2001*
MaPP	Marine Planning Partnership for the North Pacific Coast
MPA	Marine Protected Area
MPCF	Maritime Pollution Claims Fund
MSC	Maritime Safety Committee
MOU	Memorandum of Understanding
NMCA	National Marine Conservation Areas
NWA	National Wildlife Area
NPA	*Navigation Protection Act*
NIS	Non-indigenous Species
NORDREG	*Northern Canada Vessel Traffic Services Zone Regulations*
NILCA	Nunavik Inuit Land Claims Agreement
NMR	Nunavik Marine Region
NMRIRB	Nunavik Marine Region Impact Review Board
NMRPC	Nunavik Marine Region Planning Commission
NMRWB	Nunavik Marine Region Wildlife Board
NIRB	Nunavut Impact Review Board
NMC	Nunavut Marine Council
NPC	Nunavut Planning Commission
NSA	Nunavut Settlement Area
NWB	Nunavut Water Board
NWMB	Nunavut Wildlife Management Board
NWMB	Nunavut Wildlife Management Board
OPP	Oceans Protection Plan
PNCIMA	Pacific North Coast Integrated Management Initiative
PSSA	Particularly Sensitive Sea Area
QIA	Qikiqtani Inuit Association
SOPF	Ship-Source Oil Pollution Fund
TNMPA	Tarium Niryutait Marine Protected Area
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
VTS	Vessel Traffic Services zone
VPZ	Voluntary Protection Zone
WWF	World Wildlife Fund

Executive Summary

Supported by Fisheries and Oceans Canada's Coastal Restoration Fund, Coastal Restoration Nunavut (www.coastalnunavut.ca) draws on Inuit Qaujimajatuqangit to document and address the health and condition of marine species and their habitats. Interviews and participatory mapping workshops with 20 of Nunavut's 25 hamlets have identified issues related to marine traffic as stressors impacting, or with the potential to impact communities. Specific issues identified include increasing vessel traffic associated with mining and tourism; impacts on marine life from vessel noise and speed; and impacts on the environment from the breaking up of ice, shipping accidents, heavy fuel oil and oil spills, and other forms of ship-sourced pollution from ballast, bilge and grey water, sewage, and garbage.

Drawing from these concerns, Coastal Restoration Nunavut conducted a policy review to identify key legislation/regulations and other non-regulatory mechanisms that influence vessel traffic in waters adjacent to Nunavut. International, national, and territorial policies were reviewed, identifying challenges with regards to existing mechanisms addressing increased vessel traffic, impacts on marine life, and impacts on the environment. While existing mechanisms focus on protection of the marine environment and vessel and crew safety, there is an evident gap with regards to protection for coastal communities that may be directly or indirectly impacted by vessel activities.

Challenges identified with respect to increased vessel traffic include limited opportunities for communication between communities and federal bodies governing shipping activities, as well as between communities and vessel owners/operators. This leads to communities having limited information about vessels operating in Nunavut waters. An initiative called the Enhanced Maritime Situational Awareness program is being piloted in Canada to address these gaps; however, there are still further opportunities to strengthen communication and information sharing.

Challenges identified with respect to impacts on marine life and the environment include limited capacity for monitoring and enforcement of vessel activities. While there are strong pollution prevention regulations, enforcers rarely patrol Nunavut waters, requiring instead a witness to report incidents (i.e., marine spill, dumping of waste). In the wake of an incident, the Ship-source Oil Pollution Fund can provide compensation for damages. However, quantification of damages is required which presents a challenge with regards to impacted subsistence and cultural activities.

Information from jurisdictions outside of Nunavut (within Canada and Internationally) were scanned to identify additional policies/approaches applied to address increased vessel traffic and vessel traffic impacts on marine life and the environment. Approaches to vessel traffic management for the Inuvialuit Settlement Region, Nunavik, Nunatsiavut, and Haida Gwaii demonstrate different strategies that aim to prevent or mitigate potential negative impacts on the environment/marine life through increasing communication between vessel owners/operators and communities, and through sharing information between governance bodies and communities. With regards to impacts on marine life and the environment in the wake of an incident, the Heiltsuk Nation's application of Indigenous laws offers an approach where the federal regulatory and legislative mechanisms fail to account for concerns and negative impacts.

The 1989 Exxon Valdez spill in Alaska highlighted the importance of ensuring that regulatory and legislative language does not create a barrier to responding to a marine incident and highlighted the importance of incentivizing incident prevention over response. Programs in both Greenland and Alaska highlight the importance of having information systems to support vessel management and decision making and having these systems available to Indigenous communities is important to strengthen local capacity for monitoring vessel traffic and decision-making.

Recommendations

The following recommendations have been developed based on the challenges identified from this review.

1. Regulatory/legislative measures:
    1.1. Protected Area Management: Designation of future protected areas should include very clear language and zoning with respect to vessel traffic, including no-go and slow down zones. This zoning should be determined in

collaboration with communities, accounting for ecologically and culturally significant areas. Co-management arrangements can ensure that at least in the context of a designated protected area, Inuit voices will be influential in this regard.

1.2. Legal options for responding to a marine incident: Steps have been taken to strengthen legal and compensatory options following an incident of marine pollution, allowing subsistence, cultural, recreational, and ceremonial losses, as well as loss of access to traditional resources to be compensated. However, recoverable damages require a replacement cost value to be assigned. There is the potential for application of Indigenous laws, where existing policy and responses are deemed ineffective. The success of this will be determined through the work and the precedent set by the Heiltsuk Nation and should be followed moving forward.

2. Non-regulatory/legislative measures
   2.1. Beyond the required reporting of vessels adhering to the Northern Canada Vessel Traffic Services Zone Regulations, communication between vessel owners/operators and communities should be improved. This could be in the form of establishing a memorandum of understanding (specifically for tourism vessels) which could help with improving monitoring of cruise vessels with respect to regulatory compliance. Required communication between vessels and communities could also be included within a memorandum of understanding.
   2.2. Presently, the Canadian Coast Guard publishes Notices to Mariners on a monthly and annual basis. The Notices typically address regulations, marine services for vessel safety, chart corrections, and other nautical publications. The Canadian Coast Guard should work with communities and their relevant organizations to highlight additional information that would be important to include in the annual and monthly editions of Notices to Mariners. This would allow Inuit input into existing formalized channels of communication.
   2.3. Based on preliminary feedback on the Enhanced Maritime Situational Awareness program thus far, the initiative seems to be a promising option to get information on vessels and conditions impacting safety into the hands of communities. It is recommended that the Enhanced Maritime Situational Awareness program be rolled out to other communities, and additional information sources be identified to enhance this program. Other programs may offer insights that could help strengthen the Enhanced Maritime Situational Awareness program such as the Alaska AOOS system and the Greenland/Denmark Barents Watch programs.

3. Management Arrangements
   3.1. While Nunavut does not have jurisdictional authority with regards to shipping, the *Nunavut Agreement* affirms authority with respect to management of marine resources, including species management through the Nunavut Wildlife Management Board. In developing species co-management plans, the Nunavut Wildlife Management Board can identify areas where vessels should not transit or should be subject to restrictions. Voluntary protection zones could be identified through species management plans. Similarly, voluntary zones not directly tied to marine species could be initiated through marine spatial planning initiatives supported by the Nunavut Marine Council. Both options have the potential to bridge the jurisdictional divide with regards to shipping governance.
   3.2. Lastly, while there is a draft Nunavut Land Use Plan, it is recommended that the Nunavut Land Use Plan be finalized, approved, and signed by all parties. Once this occurs, the Nunavut Land Use Plan will come into effect, allowing increased authority with respect to vessel traffic related to coastal resource development.

1 Introduction and context

1.1 Purpose and objectives

Supported by the Department of Fisheries and Oceans' (DFO) Coastal Restoration Fund, Coastal Restoration Nunavut (CRN) is a joint project led by the Marine Affairs Program, Dalhousie University in partnership with the Fisheries and Sealing Division, Government of Nunavut. The project draws on Inuit Qaujimajatuqangit (IQ) to document and address the health and condition of marine species and their habitats. "Coastal restoration" is the action of returning something to its former condition; improving its current condition; or protecting it from further or future harm. "Coastal" refers to any area where marine and terrestrial processes meet and interact. In collaboration with Nunavut's 25 hamlets, CRN aims to identify and mitigate the stressors impacting coastal fisheries, communities, and coastlines. As of July 2021, interviews and participatory mapping workshops have taken place in 20 of Nunavut's 25 hamlets. In several hamlets, issues related to marine traffic were one of the more commonly identified stressors impacting, or with the potential to impact, communities. Specific concerns include increasing vessel traffic (particularly around mining and tourism), impacts on marine life (e.g., vessel noise and speed), and impacts on the environment (including breaking up of ice, shipping accidents, heavy fuel oil (HFO)[a] and oil spills, and ship sourced pollution in the form of ballast, bilge, grey water, sewage, and garbage).

The purpose of this policy review is to identify key policies governing shipping in Nunavut, and how those interact with community concerns around increased vessel traffic and potential impacts on marine life and the environment. This policy review intends to situate concerns expressed during the CRN workshops in the broader policy and governance context within various jurisdictions. The main objectives of this review are to 1) identify the extent to which concerns are covered under existing policy mechanisms; 2) identify if other jurisdictions (Canadian/International) may be addressing those concerns through different policy approaches; and 3) identify, based on the completed jurisdictional scan, where Inuit concerns could be better accounted for in Canadian shipping policy.

1.2 Arctic shipping and coastal communities

Marine spaces hold an intrinsic value for Inuit, who for millennia have relied on Arctic waters and sea ice as a means of transportation, providing access to sustenance resources and connectivity between places of socio-cultural and environmental significance. The extent of geographical place names and their respective meanings provide a window of understanding into the significance of Inuit relationships to marine spaces (Macdonald, 2018). Place names often depict significant events, environmental characteristics, or cautionary warnings which are conveyed through experiential descriptions – depicting the intricate ways in which Inuit lives are tied to marine environments (Aporta, 2016). Waterways and sea ice as a platform to connect people, animals, land, and sea, are integral for coastal communities (Aporta et al., 2018). Disruptions to sea ice or environmental impacts from shipping pose disruptions to livelihoods and sociocultural wellbeing. At the same time, due to the remoteness of communities and relative expense of air transportation, goods and materials being transported to communities by ship must contend with sea ice, which may be a chokepoint delaying or even preventing the arrival of essential materials into communities. So, while shipping provides an essential service for coastal communities in Nunavut, it can also threaten livelihoods and wellbeing through disruptions to sea ice and potential negative environmental impacts.

With a reduced length of the sea ice season, the potential for increased vessel traffic may have broad implications for Arctic coastal communities. Concerns around such implications emerged through community mapping workshops that took place for the CRN project, particularly around the themes of increased marine traffic, potential environmental

[a] Heavy Fuel Oil (HFO) is a high-energy fuel source that has powered most ocean-going ships until recently. It is inexpensive, as it is a thick, residual product left over from the oil refining process. HFO contains sulfur, which once burned becomes sulphur oxide or SOx, an air pollutant that can cause serious health impacts and ecological harm. Burning HFO also produces particulate matter referred to as "black carbon", which contributes to global warming (Clear Seas, 2020).

impacts including changes to sea ice, contamination, and marine species changes to behaviour. Emerging from the workshops and related literature are community concerns around monitoring and policy needs, particularly in relation to potential ship-sourced pollution/contamination (oil spills, marine litter, ballast water discharge) and navigation (overall increases in vessel traffic and related impacts on marine life (e.g., noise and speed) and environment (including breaking up of ice). Within the shipping governance sphere, there historically has been a lack of Inuit involvement in policy development, and while new collaborations are emerging (Beveridge, 2020), Inuit concerns may not be adequately addressed by existing shipping policy instruments. As such, this review examines policy mechanisms governing Arctic shipping to assess how increased vessel traffic and impacts on marine life and the environment are addressed. While these concerns emerged from the CRN workshops in Nunavut, shipping impacts coastal communities on a much broader geographic scale. To explore the extent of policy options for addressing these concerns, this review focuses on international, national, and regional approaches, including policies and approaches from other Inuit and First Nations jurisdictions.

1.3 Overview of document layout

This report is structured into four major sections. The first section presents the introduction and methods. The second section sets the social, economic, and ecological context for Nunavut. The third section of this report has been structured according to the overarching concerns identified during the CRN interviews: increased vessel traffic and impacts on marine life and the environment. Relevant international, national, and territorial policy mechanisms are described to identify if and how they can address those concerns. The fourth section of this report highlights alternative policy mechanisms that have been developed and applied in other Canadian and international jurisdictions to address concerns related to increased vessel traffic and impacts on marine life and the environment. The report concludes with recommendations that identify how shipping policy approaches could align with and address the concerns identified during the CRN workshops, specifically, how policies could be strengthened to account for increased vessel traffic and potential impacts on marine life and the environment.

2 Methods

2.1 CRN data collection and analysis

CRN has facilitated workshops in 20 of Nunavut's 25 hamlets to identify and mitigate stressors impacting coastal communities. In each community, one focus group was conducted at the Hunters and Trappers Organization (HTO) and/or Hamlet council, and one-on-one interviews were conducted with Hamlet staff and/or HTO members. The interviews were conducted in person in the communities of Kinngait, Iqaluit, Cambridge Bay, Gjoa Haven, Taloyoak, Kugaaruk, Kugluktuk, Sanirajak, Igloolik, Arviat, Whale Cove, Baker Lake, Naujaat, Coral Harbour, Chesterfield Inlet, Resolute Bay, Grise Fiord, Clyde River, Pangnirtung and Sanikiluaq. All interviews and interviewee selection were coordinated through the community HTO.

Using participatory mapping and semi-structured interviews, interviewees were asked to identify changes, damages and risks to species, habitats and coastal activities over time, and the causes of and impacts from said changes. The spatial information from the participatory mapping session was georeferenced and digitized. Any spatial features with an associated observation were included as a feature attribute. The interviews and participatory mapping led to community-identified restoration priorities and/or potential interventions. The interview data was also coded for thematic areas, which have been categorized as follows: general observations, changes to habitats, environment, and species, causes for these changes, and actions that are needed to address key coastal restoration issues. In several hamlets, issues pertaining to marine traffic has been one of the most identified themes, particularly as it relates to changes in species behavior and the need for regulations to manage increased traffic from cruise ships and small crafts. Table 1 presents an overview of some of the issues and coastal changes related to shipping activities identified by interviewees during participatory mapping.

Table 1. Community identified issues and changes related to shipping activities

Community	Changes	Issue
Baker Lake	Crabbing area since 1965, but decreasing since mother ship traffic increasing (late 1960s onwards)	Access to fishing areas
	Killer whales and belugas follow mother ship traffic near the community, into the lake	Impacts on species
	Some seal and walrus still appear if not too much ship noise	
Cambridge Bay	Anchorage site for cruise ships	Need for anchorage sites
	Anchorage site for sailboats and yachts	
	Crystal Serenity anchorage site	
Chesterfield Inlet	Seals migrating north to avoid shipping traffic	Impacts on species
	Walrus moving to avoid shipping	
Coral Harbour	Cruise Ship traffic	Increased traffic
	Cruise Ship traffic including zodiacs, impacts on walrus basking/habitat	Impacts on species
Iqaluit	Ships/icebreakers arriving cause decreases in seal populations	Impacts on species
	Increases in vessel traffic in recent years worsen the declines	
	Seals abundant until ships arrive.	
Resolute Bay	New route for beluga and narwhal due to shipping traffic	Impacts on species
	Sailboats congregate	Need for anchorage sites
	Too many unregistered sailboats (tourists) in bay	Need for regulations and management
	Too many unregistered sailboats (tourists) in bay; seals, belugas and walrus decreasing in abundance and occurrence	

2.2 Literature review

The literature review informing this research has been shaped by three main questions:

1. Are Inuit concerns with regards to shipping addressed through existing policy mechanisms that impact waters around Nunavut?
2. Do other Canadian or international jurisdictions address these concerns through different policy approaches?
3. Based on the completed jurisdictional scan, could concerns be better accounted for in Canadian shipping policy?

Search strategy:

After reviewing data collected for the CRN project and identifying themes and concerns related to shipping, a literature review was conducted to contextualize these concerns. The literature review was initiated through conducting a database search for academic literature pertaining to Arctic shipping, Inuit, and related socio-ecological impacts. Scopus was used for the initial scoping and Web of Science was used subsequently, searching title, abstract, and keywords for all subject areas without specifying a time period. The initial search keywords used were "arctic shipping AND Inuit"; "arctic shipping AND coastal impacts", and "arctic shipping policy". The reference lists of some key literature were used to identify subsequent sources. This portion of the literature review informed the context and background information required before initiating the policy review and jurisdictional scan.

The policy review was conducted through a targeted search of policy documents found at different jurisdictional scales. Firstly, International Maritime Organization (IMO) conventions pertaining to shipping were reviewed. Arctic shipping is often framed in an international context due to transit requirements for most ships entering Arctic waters. As such, the IMO is often the overarching body influencing shipping governance in the Arctic. Secondly, Canadian policies and legislation implementing IMO conventions were reviewed. The policies were searched to identify ones that directly impact shipping in waters adjacent to Nunavut. These documents were scanned and key articles pertaining to Inuit concerns were identified and added to an internal database.

Lastly, a jurisdictional scan was conducted, adhering to similar search strategies identified for the policy review, but focusing on jurisdictions outside of Nunavut that have a concentration of coastal Indigenous peoples and territory adjacent to shipping routes. In Canada, this includes the Inuvialuit Settlement Region in the western Canadian Arctic, Nunatsiavut on the northeast coast of Labrador, Nunavik in northern Quebec, Haida Gwaii off the west coast of British Columbia (BC), and the Heiltsuk Nation in the Central Coast region of BC. Internationally, policies in Alaska and Greenland were also reviewed, although with less depth compared to those from Canadian jurisdictions. This is because Canadian jurisdictions offer a more direct linkage to approaches that could be applied to Nunavut as they have already been developed within the Canadian legal context. Relevant government websites and available documents were scanned, and grey/academic literature was referenced for supporting materials and contextual information. This review was restricted to documents available in English.

This policy review used a targeted search based on concerns that had been identified during the CRN workshops and subsequent research. Policies that could address those concerns were sought out. A limitation of this approach is that other policies could exist that may not have been identified, and as such any recommendations are limited to the scope of this review.

3 Setting the context

Nunavut covers 1,936,113 km^2 of land, and 157,077 km^2 of water, including part of the mainland, most of the Arctic Archipelago, and all of the islands in Hudson Bay, James Bay, and Ungava Bay. Nunavut is comprised of three physiographic regions: the Hudson Bay Lowlands, the Canadian Shield, and the Arctic Lands (Kikkert, 2020). Nunavut also experiences distinct marine domains: the High Arctic (dominated by perennial ice; Arctic Ocean waters; low river influence; bounded by shallow sills south and east), Baffin-Labrador (seasonal ice cover; Arctic surface waters; low river influence; bounded by shallow sills north, west, and south), Hudson-Foxe (seasonal ice cover; Arctic surface waters; high river influence; bounded by shallow sill northwest), and Kitikmeot (seasonal ice cover; Arctic surface waters; high river

influence; bounded by shallow sills north, west, and east) (Oceans North Conservation Society, WWF Canada, & Ducks Unlimited Canada, 2018). Nunavut waters are characterized by extensive sea ice cover throughout the year, with an open water season during the summer months. During the sea ice season, recurrent polynyas and flaw leads are biologically productive areas that are also an important hunting destination for Inuit.

Formally established as a territory in 1999, Nunavut has a population of about 35,944 of whom over 84% identify as Inuk (Inuit) (Statistics Canada, 2017). Of the 25 communities (Fig. 1) Iqaluit has the highest population of approximately 7,740, and the lowest population is found in Grise Fiord, with approximately 129 residents (Statistics Canada, 2017). Every community is located on the coast, other than Baker Lake (Qamani'tuuq) which is inland at the mouth of the Thelon River. While a wage economy is prevalent throughout Nunavut, subsistence hunting and harvesting is still very important to much of the population, with the marine environment providing access to many species that are economically and culturally important. Marine species harvested by Inuit include marine mammals such as beluga, narwhal, bowhead whale, ringed seal, bearded seal, harp seal, harbour seal, and hooded seal; fish such as Arctic char, lake trout, northern pike, whitefish, Arctic grayling, burbot, Arctic cod, sculpin, and turbot; and waterfowl such as a variety of species of geese and ducks (Priest & Usher, 2004). Terrestrial animals such as caribou are also very important to Inuit, which rely on sea ice for key migration routes between feeding and calving grounds. It is estimated that the traditional harvesting economy in Nunavut is worth approximately $40 million annually (Government of Nunavut, n.d.a)

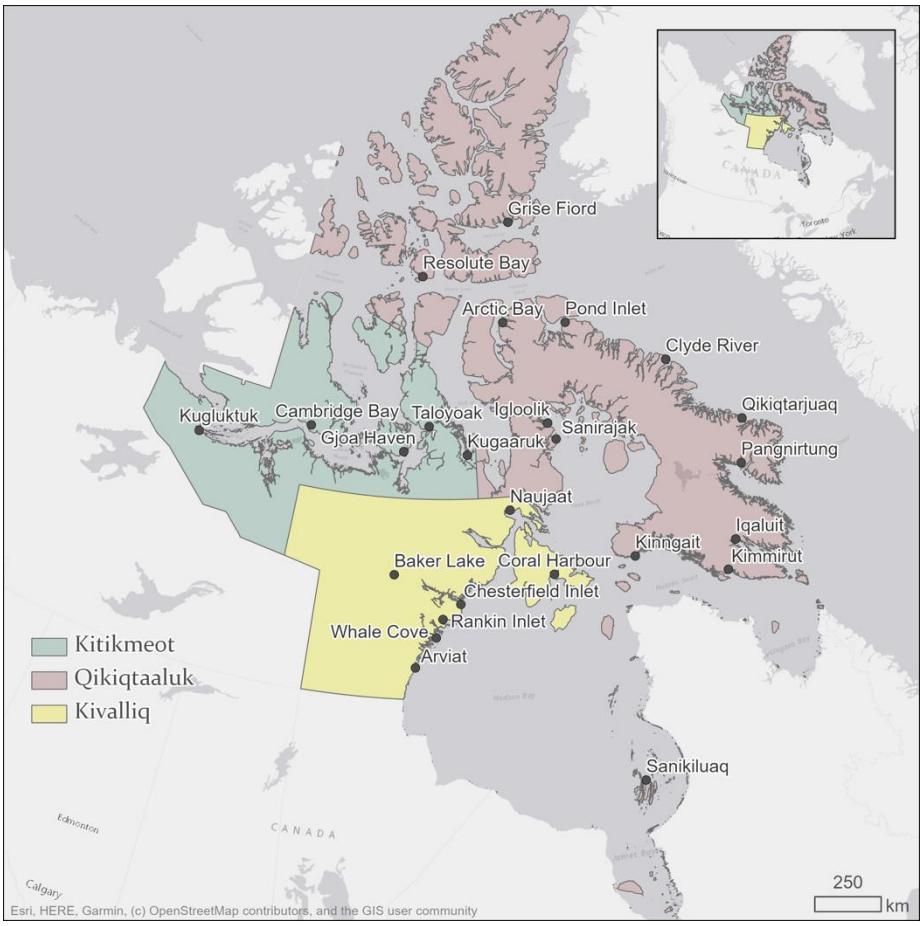

Figure 1 Nunavut hamlets and administrative regions

In addition to subsistence hunting and harvesting, other sectors important to the Nunavut economy include mining, shipping, and tourism. Active mines in Nunavut presently bring in an estimated gross revenue of $1.3 billion (George, 2020), while mining and resource development contributed about $876.1 million to Nunavut's 2019 GDP (of which metal ore mining comprised $874.3 million) (Government of Nunavut, n.d.b). Resource extraction projects require

negotiation of an Inuit Impact and Benefit Agreement (IIBA) under the *Nunavut Agreement*. They often require compensation, royalties, local employment, and training, and contracting to Inuit-owned businesses (Rodon & Lévesque, 2015). While there are positive economic impacts from resource development in Nunavut, there are associated economic, social, and environmental challenges, the latter of which will be elaborated on in the coming sections.

Tourism is an important and growing sector in Nunavut, which is presently concentrated in cruise and pleasure craft tourism. In 2018, although weather and ice conditions affected half of planned cruise voyages, eight cruise operators conducted 23 voyages between July and September 2018, producing $388,351 in direct spending (by cruise operators, excluding passenger spending; Department of Economic Development and Transportation, 2019). Less data is available on pleasure craft voyages and related economic impacts; however, it is estimated that these voyages are also increasing (Pizzolato et al., 2016). It is estimated that Nunavut has experienced a 70% increase in expedition cruise tourism and a 400% increase in pleasure craft tourism over the past decade (Johnston et al., 2019). Such an increase is reflected in the concerns expressed during the CRN workshops pertaining to management of increased vessel traffic. The regulatory complexity of cruise tourism in Arctic Canada poses a barrier to fully realizing the economic, socio-cultural, and educational benefits of the industry (Dawson et al., 2017).

4 Policy mechanisms governing shipping in Nunavut

4.1 Nunavut governance and marine shipping

Nunavut does not have jurisdictional authority over shipping in marine waters adjacent to Nunavut. However, certain policy instruments have the capacity to influence shipping with regards to impacts related to coastal resource development sites. The *Nunavut Agreement* establishes the territory of Nunavut, governance arrangements and the rights of Nunavummiut. Governance bodies established through the *Nunavut Agreement* include the Nunavut Impact Review Board (NIRB), the Nunavut Planning Commission (NPC), the Nunavut Wildlife Management Board (NWMB), and the Nunavut Water Board (NWB), which can collectively form the Nunavut Marine Council (NMC) for matters outside of their individual mandates.

The NWMB is a co-management board that is the instrument for management of wildlife within the Nunavut Settlement Area (NSA). While primarily responsible for managing access to wildlife, the NWMB can approve plans related to the management and protection of wildlife and wildlife habitat and has an advisory role with respect to management of marine areas. Any decisions made by the NWMB are subject to Ministerial discretion at the federal level. In 2019 the Government of Nunavut released the “Nunavut Polar Bear Co-Management Plan,” which identifies shipping for industrial activities and tourism as potential conservation threats and challenges to management of polar bears. The plan identifies a medium priority management action to study the effects of marine shipping and to develop mitigation measures. Until mitigation measures are implemented for polar bear co-management (or another species management plan), the capacity of the NWMB to influence shipping is yet to be demonstrated.

The NPC and NIRB are responsible for land use planning and screening development projects. Article 12 of the Nunavut Agreement outlines that the NIRB can make recommendations to the responsible government minister(s) with regards to the impacts of project proposals. The ability of these bodies to influence shipping activities was demonstrated in 2015 when the NPC rejected Baffinland’s application to ship ore for 10 months of the year, which was not compatible with the North Baffin Regional Land Use Plan (Crowley, 2015). The scope of influence for the NPC and NIRB are currently limited to shipping related to development projects.

Beyond shipping related to development projects, Nunavut territorial jurisdiction does not pertain to marine shipping. Yet, destinational and transiting vessel traffic have the capacity to impact Inuit lives and livelihoods through increased vessel traffic and potential negative impacts on marine life and the environment. Section 15.4.1 of Article 15 of the Nunavut Agreement states that: “the NIRB, the NWB, the NPC, and the NWMB may jointly, as a Nunavut Marine Council, or severally, advise and make recommendations to other government agencies regarding the marine areas, and

Government shall consider such advice and recommendations in making decisions which affect marine areas." Thus, the NMC is a mechanism to address marine issues that are broader than any individual institution's mandate. A strategic plan addresses the period of operations from 2018-2023, with the goal of establishing the NMC as a key voice on marine shipping and marine conservation (NMC, 2018). While the capacity to influence marine shipping is yet to be seen, the goals of the NMC can be supported through this policy review, which identifies international, national, and regional policy approaches to marine shipping, including how issues related to increased vessel traffic and impacts on marine life and the environment are addressed.

4.2 Policies addressing the impacts of increased shipping traffic

The IMO, formally established in 1948 as a specialized agency of the United Nations (UN), provides the regulatory framework for the global shipping industry. As such, the direction of contemporary maritime law has been international in scope, with a strong emphasis on the universal and uniform application of safety, security, and environmental performance standards on vessels. Indigenous groups or governments do not have independent representation in any IMO process, perpetuating a Western legal bias where "Indigenous sovereignty rights to the sea go unrecognized" (Flynn, 2011, pg. 7). In 2020 the Inuit Circumpolar Council (ICC) "submitted its application for consultative status at the IMO to ensure that the ICC can participate directly and independently to advocate for issues of concern to Inuit voices, to make [Inuit] voices heard" (ICC, 2020a). ICC representatives have only attended IMO meetings as members of the Canadian delegation or as members of a non-governmental organization's delegation to date. A decision from the IMO was expected in July 2021 but at the time of writing, a decision had not been made public.

4.2.1 International Code for Ships Operating in Polar Waters (IMO)

The International Code for Ships Operating in Polar Waters, commonly known as the Polar Code, entered into force on 1 January 2017. Previously, the global regimes for safety (International Convention for the Safety of Life at Sea, or SOLAS) and environmental protection (1973 International Convention for the Prevention of Pollution from Ships, modified by the 1978 Protocol (MARPOL 73/78)) did not consider the unique risks of operating at either geographic pole. The overarching intent of the Code is "to supplement existing IMO instruments in order to increase the safety of a ship's operation and mitigate the impact on the people and environment in the remote, vulnerable and potentially harsh polar waters". The Polar Code was adopted under SOLAS and MARPOL 73/78. The Maritime Safety Committee (MSC) adopted the safety-related provisions of the Polar Code by adding a new chapter (Chapter XIV) to SOLAS. The environment-related provisions of the Polar Code were adopted as amendments to MARPOL 73/78 Annexes I, II, IV and V (Chircop et al., 2016.) As a party to both SOLAS and MARPOL 73/78, Canada domesticated the Code into national law under the *Arctic Shipping Safety and Pollution Prevention Regulations* (*ASSPPR*), the latter of which entered into force on 19 December 2017. Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, recognize the requirement for enhanced training as set forth in the Polar Code (see regulation V/4 and section A-V/4).

4.2.2 Particularly Sensitive Areas (IMO)

A particularly sensitive sea area (PSSA) is defined in the PSSA guidelines (Resolution A.982[24]) as "an area that needs special protection through action by the IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities" (IMO, 2005). As PSSAs do not have any legal basis in and of themselves (McCreath and Brigham, 2018), it is not the declaration of a PSSA that carries legal force, but rather the associated protective measures implemented within it. An application for PSSA designation by a member state must propose at least one associated protective measure.

Potential protective measures for PSSAs include the following: designation of either (1) an area as a Special Area under MARPOL 73/78 Annexes I, II, or V (a lack of port facilities, as will be discussed below), deems this measure irrelevant to the Arctic context); (2) application of special discharge restrictions to vessels operating in a PSSA (the implementation of the Polar Code deems this measure redundant to the Arctic context); or (3) a sulfur oxides emission control area under

MARPOL 73/78 Annex VI (as international shipping density remains at low levels in the Canadian Arctic, this measure might be deemed too preemptive). Adoption of routing and/or reporting systems near or in the area, under SOLAS also qualifies as a protective measure. For example, a PSSA may be designated as an area to be avoided (ATBA) under SOLAS or may receive protection with the implementation of routing or reporting systems imposed by the coastal state and officially approved by the IMO (Jakobsen, 2016).

4.2.3 Special Areas (IMO)

Special Areas under MARPOL 73/78 can be designated to prevent pollution from ships (by oil, noxious liquid substances, garbage, or air pollution) in a particular area due to technical reasons relating to its oceanographic and ecological conditions, and to traffic characteristics. IMO Resolution A.927(22) adopted the guidelines for the designation of Special Areas under MARPOL 73/78. Special Areas are "conferred with enhanced protection since discharges of oily waste and some chemical residues are prohibited" (MARPOL 73/78). Improved enforcement mechanisms, including stricter port state control requirements under MARPOL 73/78, similarly promote further compliance by flag states.

One of the challenges with the designation of Special Areas is the requirement for adequate reception facilities to be available in accordance with the provisions of MARPOL 73/78. Considering the lack of port infrastructure in the Arctic (in Nunavut, the first port will not be operational until 2021 at the earliest), this requirement would hamper Special Area designation. Due to the strict discharge restrictions already formalized in the Polar Code and the extensive international shipping and construction standards for vessels operating in the Arctic, there seems to be little benefit in pursuing special area designation under MARPOL 73/78 for Arctic MPAs currently. The Polar Code already "includes a ban on the discharge of oil (Annex 1), and restrictions on the discharge of sewage (Annex IV) and garbage (Annex V)" (McCreath and Brigham, 2018, pg. 313). Emission control areas may be designated under Annex VI, a perhaps more suitable designation to restrict vessel traffic not yet utilized in the Arctic (Parsons, 2012).

4.2.4 *Northern Canada Vessel Traffic Services Zone Regulations* (Canada)

The *Canada Shipping Act (CSA), 2001* is the principal legislation governing safety of marine transportation with the general objective of protecting the marine environment. One set of regulations adopted under the *CSA, 2001* is the *Northern Canada Vessel Traffic Services Zone Regulations* (*NORDREG*), "which were first introduced as voluntary regulations in 1977 but made mandatory in 2010" (Thorén, 2014, pg. 34). Foreign-flagged or domestic vessels, depending on their tonnage (300 gross tonnage or more), activity (towing or pushing another vessel) or cargo (pollutants or dangerous goods), must report and provide certain information before they enter the *NORDREG* Zone. Compulsory information includes regular transit reports (current position, course, speed, ice encounters and the intended route), provided by vessels to the Canadian Coast Guard (CCG) throughout the entire *NORDREG* zone (which covers 16 Shipping Safety Control Zones; Figure 2.) In exchange, vessels receive information on ice conditions, vessel routing, icebreaker assistance and other government services. To enter the zone, vessels must obtain clearance from Canadian authorities as well, and vessels acting in non-compliance could be subject to a fine, imprisonment or detention. Canada claims that the *NORDREG* is consistent with international law. Even though the CCG (the recipient of the *NORDREG* reports) is not legally barred from distributing the daily reports to impacted Inuit communities and organizations, the lack of a communications and engagement plan creates an unnecessary barrier.

While viewed as a routing system, Canada did not work with the IMO to receive formal approval of the *NORDREG*. Also, a vessel traffic services (VTS) zone under SOLAS may only be made mandatory within the territorial sea of a coastal state, which suggests that *NORDREG* does not give "due regard to navigation" as the zone extends into the limits of the exclusive economic zone (EEZ). The legal basis justifying these regulations, "both in terms of their applicability to the EEZ and in terms of making them mandatory without seeking approval from the IMO beforehand" (Thorén, 2014, pg. 35), is provided in Article 234 of the United Nations Convention on the Law of the Sea (UNCLOS). Article 234 provides coastal States with special rights to adopt laws and regulations to prevent, reduce and control marine pollution in ice-covered areas within their exclusive economic zone. Even though Canada invoked Article 234 for its unilateral imposition of

NORDREG (Lalonde, 2018a; 2018b), "foreign sovereign immune vessels[b] would [only] be requested to voluntarily comply with *NORDREG*" (VanderZwaag, 2015). Still, "given the navigation information provided freely by *NORDREG* to mariners in the region and the potential search and rescue benefits, many vessels do choose to report to the agency" (Johnston *et al.,* 2017), regardless of affiliation. As an added advantage, ships reporting in the *NORDREG* zone receive ice-breaking assistance if required. Article 136(1) of the *CSA, 2001* gives full force to the VTS, which states that the "Governor in Council, under the recommendation of the Minister of Transport, may make regulations establishing VTS Zones within Canadian waters or in a shipping safety control zone prescribed under the *AWPPA*…, regulating or prohibiting the navigation, anchoring, mooring or berthing of a vessel" (Kraska, 2016), and all in the name of environmental protection and Article 234.

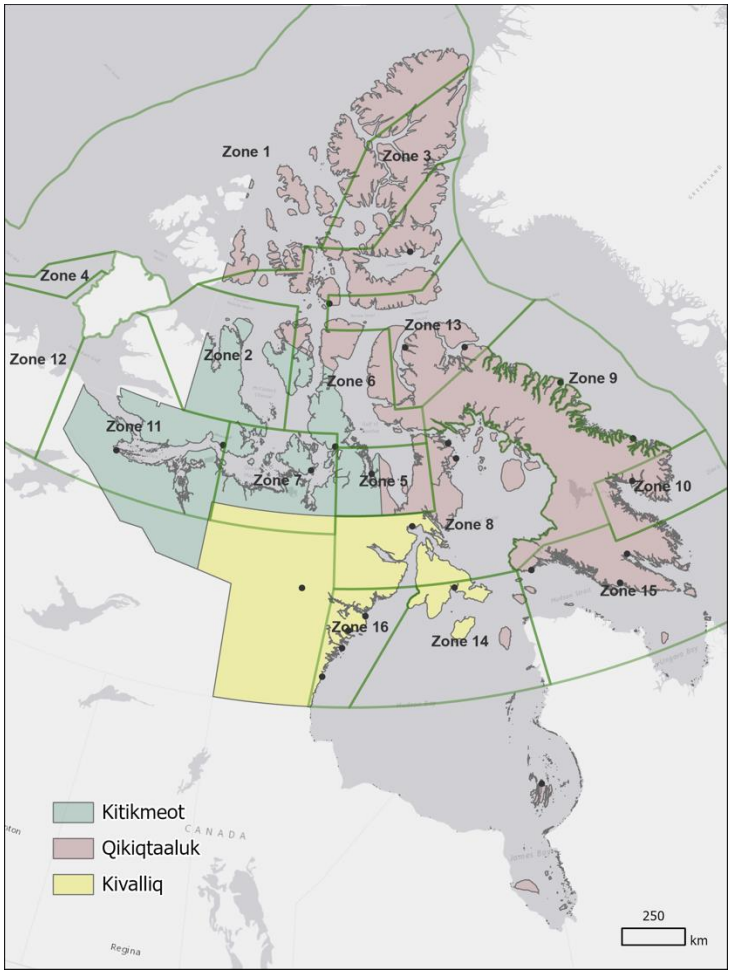

Figure 2 NORDREG Shipping Safety Control Zones

4.2.5 *Canadian Navigable Waters Act* (Canada)

The *Canadian Navigable Waters Act (CNWA, 2019),* which amended and replaced the *Navigation Protection Act* (*NPA*), deals with any work or proposed work on a "body of water, including a canal or any other body of water created or altered as a result of the construction of any work, that is used or where there is a reasonable likelihood that it will be used by vessels, in full or in part, for any part of the year as a means of transport or travel." Similar to a development project, any project proposal submitted under the *NPA* and within the NSA would be subject to screening and review (and a duty to consult) by NIRB under the *Nunavut Agreement.* The Act does not have the effect of regulating navigation,

[b] Foreign sovereign immune vessels are vessels owned or operated by the flag state and used in governmental, non-commercial service.

but instead protecting navigation, including navigation by "Indigenous peoples of Canada exercising rights recognized and affirmed by section 35 of the Constitution Act, 1982", from impediments or any work which would render navigation more difficult or dangerous. Under the Act, "any Indigenous knowledge that has been provided" must be considered during the assessment of the project proposal. Indigenous knowledge would most likely be assessed during the consultation phase, which again will require certain accommodations in order for Inuit participation to be both "active and informed."

4.2.6 *Canada Wildlife Act* and National Wildlife Areas (Canada)

The *Wildlife Area Regulations* under the *Canada Wildlife Act (CWA)* legislate the protection and management of a National Wildlife Area (NWA). The primary purpose of most NWAs is "the conservation of wildlife and their habitat." For this purpose, and according to the legislation, any activities that may interfere with the conservation of wildlife are expressly prohibited in an NWA. These uniform prohibitions apply in all designated NWAs and public access is restricted except in the exercise and recognition of inherent Aboriginal rights and title. Nonetheless, "the Minister of the Environment has the ability to authorize [prohibited] activities, whether through public notice or the issuance of permits" (CCG, 2020, pg. 1). Authorized activities may thus include operating a conveyance.

The current Regulations, under section 3(1), prohibit operating a "conveyance" within any NWA. The *CWA* defines a "conveyance" as "a vehicle; an aircraft; a water-borne craft; or any other contrivance used to move persons or goods." Boats, for instance, are considered a conveyance under the Act. Furthermore, "no person shall do any of the following in any wildlife area except under and in accordance with a permit: introduce any living organism that is likely to result in harm to any wildlife or the degradation of any wildlife residence or wildlife habitat…; dump or deposit any rubbish or waste material, or any substance that would degrade or alter the quality of the environment…; [or] carry out any other activity that is likely to disturb, damage, destroy or remove from the wildlife area any wildlife, whether alive or dead, wildlife residence or wildlife habitat" (*CWA*, 1985). These discharge prohibitions are also entrenched in customary international law under the Polar Code and further domesticated under Canada's *ASSPPR*.

To date, there are 55 NWAs across Canada, with five in Nunavut. Canadian and foreign vessels are not allowed to enter NWAs in the Territory without a permit. Any foreign vessel entering an NWA without a permit and claiming a right of innocent passage is - at most - "strongly advised to communicate with Environment and Climate Change Canada (Canadian Wildlife Service)" (CCG, 2020, pg. 1). Unfortunately, Canada only has prescriptive jurisdiction (not enforcement jurisdiction) over foreign ships in innocent passage (rules are prescribed but cannot be enforced). In Nunavut, NWAs are managed under their associated IIBA and the *Nunavut Agreement*, both of which guarantee certain harvesting and access rights to Inuit of the NSA (such as hunting, fishing, trapping, and boating). A permit for operating a conveyance is not required here either.

Lastly, NWAs can only be designated on lands owned by the federal government. "Public lands" refer to "any waters on or flowing through the [Crown] lands and the natural resources of the lands, and the internal waters and the territorial sea of Canada" (*CWA*, 1985). As such, NWAs do not persist beyond the 12 nautical mile territorial sea and do not attempt to override the right of innocent passage in this zone. An *Oceans Act* Marine Protected Area (MPA), however, may impose restrictions on vessel speed and anchorage, as discussed below.

4.2.7 *Oceans Act* Marine Protected Areas (Canada)

Under section 35(1) of the *Oceans Act* (1996), MPAs are defined as "an area of the sea that forms part of the internal waters of Canada, the territorial sea of Canada or the exclusive economic zone [EEZ] of Canada and has been designated… for special protection." Reasons for special protection must include at least one of the following (*Oceans Act,* 1996):

(a) the conservation and protection of commercial and non-commercial fishery resources, including marine mammals, and their habitats;

(b) the conservation and protection of endangered or threatened marine species, and their habitats;

(c) the conservation and protection of unique habitats;

(d) the conservation and protection of marine areas of high biodiversity or biological productivity;

(e) the conservation and protection of any other marine resource or habitat as is necessary…; and

(f) the conservation and protection of marine areas for the purpose of maintaining ecological integrity.

Under section 35(3), the Governor in Council, on the recommendation of the DFO Minister, may make regulations "(a) designating marine protected areas; (b) delineating zones within marine protected areas; and (c) prohibiting classes of activities within marine protected areas" (*Oceans Act,* 1996), navigation included.

The *National Framework for Establishing and Managing Marine Protected Areas* (1999) presents the general approach that DFO takes to establish and manage MPAs across Canada. The designation process begins with the identification of an Area of Interest (AOI). As soon as an AOI is identified, "monitoring ensures the ecological integrity of the area remains intact while awaiting a formal recommendation for MPA designation" (DFO, 1999). However, if the ecological integrity of the AOI is threatened by human-use activities beforehand, interim protective measures may be imposed. Examples of interim measures include the application of *Fisheries Act* regulations and fisheries closures, and/or *CSA, 2001* regulations and anchoring, navigation, and pollution restrictions. Canada cannot proceed unilaterally, however, without first seeking – and receiving - IMO approval if conservation measures (applied outside ice-covered waters) may impact the freedom of navigation in the EEZ, innocent passage in the territorial sea, or transit passage in international straits. For MPAs that restrict anchorage, see regulations for the 2017 Hecate Strait and Queen Charlotte MPA (SOR/2017-15); 2019 Laurentian Channel MPA (SOR/2019-105); and 2019 Banc-des-Americains MPA (SOR/2019-50.) For MPAs that restrict speed, see regulations for the 2006 Musquash Estuary MPA (SOR/2006-354).

In all *Oceans Act* (1996) MPAs, and according to the regulations of each, no person shall "disturb, damage or destroy… any living marine organisms or any part of its habitat." Based on emerging literature (Firestone, 2007; Haren, 2007; Williams et al., 2015; Bone, 2018), noise pollution disturbs, damages, and even destroys living marine organisms, diminishing intraspecies communication, situational awareness, and life expectancy. Sound energy, some would argue, also qualifies as a discharge (World Wildlife Fund (WWF), 2018; Halliday *et al.,* 2017). Under section 35.1(2)(a) of the *Oceans Act*, the Minister "may prohibit, in the marine protected area, any activity… that is governed by an Act of Parliament under which the Minister is responsible for the management, conservation or protection of fisheries resources." However, under section 35.1(2)(d), the Minister may also exempt from the prohibition any activity, including navigation, "by a foreign national, an entity incorporated or formed by or under the laws of a country other than Canada, a foreign ship or a foreign state." This language effectively precludes the Act from an infringement of navigation rights enshrined in international law and demonstrates a marked intention to reinforce marine navigation rights held by a foreign ship in innocent or transit passage through an MPA.

4.2.8 *Canadian National Marine Conservation Areas Act* (Canada)

A potentially powerful legal tool to control arctic shipping is the *Canadian National Marine Conservation Act (CNMCA)*. As per section 16 (3) of the *CNMCA*, "[r]egulations… that restrict or prohibit marine navigation or activities related to marine safety, to the extent that such regulations can be made on the recommendation of the Minister of Transport under the *CSA*, 2001 or the *Arctic Waters Pollution Prevention Act,* may only be made on the recommendation of the Minister [responsible for the Parks Canada Agency] and the Minister of Transport." Furthermore, under section 16 (5),

"Regulations [made under the *CNMCA*] prevail over regulations made under the *Fisheries Act*, the *Coastal Fisheries Protection Act*, the *Canada Shipping Act 2001*, the *Arctic Waters Pollution Prevention Act*, the *Canadian Navigable Waters Act*, the *Aeronautics Act or the Wrecked, Abandoned or Hazardous Vessels Act* to the extent of any conflict between them." There are currently no provisions in the Act that address shipping within National Marine Conservation Areas (NMCA), other than with regards to disposal of substances into NMCA waters. Parks Canada has proposed developing new regulatory measures that could include restricted access or no-go zones (Parks Canada, 2019). According to Parks Canada, shipping "would be limited or even eliminated from zones protecting sensitive features such as nesting areas, spawning beds, whale calving areas and cultural sites."

To date, only four NMCAs have been formally established under the Act but one is slated for Nunavut very soon. In August 2019, over 10 years since talk of the NMCA first initiated in 2007, an IIBA between the Qikiqtani Inuit Association (QIA) and the federal government was finalized for the co-management of the Tallurutiup Imanga NMCA. The contents and implementation of the pending management plan will illustrate whether co-management was truly achieved and whether the *CNMCA* is indeed the most powerful legislative tool for Inuit to manage, through zoning and prohibitions, navigation, and shipping in the NSA.

4.2.9 Conclusion

While diverse policy mechanisms influence destinational or transiting vessels passing through Canadian Arctic waters, there are several limitations with respect to their capacity to govern increased vessel traffic. Each of the policies described has been articulated to prevent pollution of the marine environment, and/or to protect the safety of vessels and crew transiting in Arctic marine environments. Transport Canada's Guidelines for Passenger Vessels Operating in the Canadian Arctic – TP13670 – offer permitting and management requirements specific to cruise ships (Transport Canada, 2018). More broadly, *NORDREG* offers clear zonation with compulsory reporting requirements for transiting vessels in exchange for information on ice conditions, vessel routing, icebreaker assistance and other government services. However, use of the *NORDREG* system is only required by vessels of 300 gross tonnage or more, and while this may apply to vessels associated with coastal resource development and certain cruise ships, smaller vessels, including pleasure crafts, are exempt from such requirements. This is not to say that vessel operators cannot choose to comply with and report to *NORDREG* and may do so to receive the associated information and services provided. While CCG maintains daily *NORDREG* reports, a lack of communication between CCG and Inuit communities presents an additional challenge around dissemination of information pertaining to vessel traffic in Nunavut waters.

Protected area designation offers an alternate policy approach with the capacity to manage increased vessel traffic through zonation aimed to protect the ecological integrity of marine areas. Any restrictions on vessel traffic that may emerge through an *Oceans Act* MPA do not supersede marine navigation rights held by foreign ships in passage through an MPA. While NWAs designated under the *CWA* require a permit for vessels to pass through, NWAs are restricted to the 12 nm territorial sea and do not supersede the right of innocent passage in this zone. NMCAs appear to be the most powerful mechanism to manage increased vessel traffic in the Arctic. Until the management plan of the Tallurutiup Imanga NMCA is released, the capacity to influence marine navigation is yet to be seen.

4.3 Policies addressing shipping impacts on marine life and the environment

4.3.1 International policy instruments

In addition to MARPOL 73/78, the IMO has several conventions relating to the prevention of marine pollution, including but not limited to: the International Convention of Oil Pollution Preparedness, Response and Co-operation (OPRC 1990), the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (LC 1972 and the 1996 London Protocol), the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments. Additionally, the 1992 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND 1992) covers liability and compensation with regards to oil pollution. These conventions, to which Canada is a signatory, provide a framework to align Canadian legislation and

regulations. While the details of each will not be elaborated on here, they will be discussed in the context of specific Canadian Acts and regulations.

4.3.2 *Ballast Water Management Regulations* (Canada)

In 1998, Bill C-15 amended the *Canada Shipping Act*, "giving Canada the authority to implement statutory, nation-wide ballast water management (BWM) regulations" (Wiley *et al.*, 2002). Shortly thereafter in September 2000, the federal government released the *Guidelines for the Control of Ballast Water Discharge from Ships in Waters under Canadian Jurisdiction*, revoking and replacing the 1989 Voluntary Guidelines. These new Guidelines are also "intended to protect all waters under Canadian jurisdiction from pathogens and other non-indigenous aquatic organisms that could be potentially harmful" (Scriven, 2014, pg. 22), but numerous classes of vessels were still exempt.

On 13 February 2004, after more than a decade of negotiations, the IMO adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC), even though the BWMC would not achieve assent for another 13 years. Subsequent BWM regulations in Canada, the *Ballast Water Control and Management Regulations* (*BWCMR*), diverged from the BWMC and came into effect on 8 June 2006. The *BWCMR* "require[s] ships to manage ballast water in such a manner as to reduce the potential of invasions." The *BWCMR* were the first nationally relevant, legally-binding (and therefore mandatory) BWM rules in Canada. The *BWCMR* applied to all foreign-bound Canadian vessels "that are designed or constructed to carry ballast water as well as all non-Canadian vessels operating in waters under Canadian jurisdiction" (Transport Canada, 2011). The Regulations reflected international rules of the era, including harmonization with the IMO BWMC.

In 2010, Canada ratified the IMO BWMC. Then, in 2017, the BWMC finally came into force (signatories needed to number 30 and account for 35% of global shipping gross tonnage). The Convention "requires all ships to implement a Ballast Water Management Plan, which must include a ballast water record book and ballast water management procedures conducted to a given standard" (BWMC, 2004). In June 2019, Canada proposed amendments to the existing *BWCMR*, which will allow Canada to meet obligations under the BWMC. To support the proposed changes to the Regulations, the Canadian guidelines were updated and renamed *A Guide to Canada's Ballast Water Regulations,* with nation-wide consultations ending as recent as September 2019. The proposed changes require that all foreign-bound vessels *and* all Canadian vessels operating exclusively in domestic waters (if 50 m in length or longer) must comply with the D-2 performance standard of the Convention as of 8 September 2024. The D-2 standard mandates the installation of a ballast water management system (used for the treatment of ballast water). Ballasted vessels operating within Canada and less than 50 m in length will be required to follow equivalent rules suited to their operations and size (Transport Canada, 2019). All Canadian vessels operating in international waters must observe the IMO BWMC (and D-2 standard).

Merchant vessels (bulk carriers, cargo ships, oil tankers) are the only types of vessels with regular ballast discharges within the eastern Canadian Arctic (Lipscombe, 2016). Milne Inlet and Churchill are the only eastern Arctic ports where ballast exchange events occur under regular operations. If inclement weather or other safety concerns prevent mid-ocean exchange outside the EEZ, however, "ships are authorized to conduct their exchange in an alternate ballast water exchange zone (ABWEZ) within Canadian waters" (Stewart *et al.,* 2015). These areas supposedly offer effective emergency alternatives to mid-ocean exchange while still providing "the best protection for Canadian waters from species introductions" (Goldsmit *et al.,* 2019). Within the eastern Canadian Arctic, the narrow passageways created by the archipelago limit navigational options for entry into the Northwest Passage (Goldsmit *et al.*, 2016). Thus, until June 2021 two separate zones were "designated for use by vessels from outside the EEZ westbound to ports in eastern Canada north of 60°N latitude: one at the entrance of Lancaster Sound and the other in Hudson Strait" (Goldsmit *et al.,* 2016, pg. 10). Scientific ecological assessment, complementary scientific peer review and local knowledge did not inform the establishment of either zone (DFO, 2015).

Most ships entering the eastern Canadian Arctic contain ballast water from temperate regions and/or other continents, so survival of non-indigenous species (NIS) in polar waters is likely low. As climate change brings warmer air north,

however, the survival potential of temperature-sensitive aquatic invasive species will notably increase. According to Goldsmit et al. (2019), “[w]hile few [aquatic invasive species] have been detected in the environment, several have been documented in surveys of ballast tanks from domestic vessels that transit regularly through Canadian Arctic waters.” A recent distribution modelling study also predicts that coastal habitats in many regions of the Canadian Arctic are already suitable for high-risk invasive species, and by mid-century climate change will increase the number of these species and extend the suitability of Arctic aquatic habitats. All these aquatic invasive species pose a serious threat to the ecosystem, Arctic food web, and fisheries-dependent cultures, lives and livelihoods.

The Hudson Strait ABWEZ was considered the highest risk for aquatic invasive species due to a relatively warmer sea surface. As climate change brings increased shipping activities and traffic (and increased use of ABWEZs), the region will undoubtedly become more vulnerable to aquatic invasive species (Smith and Stephenson, 2013). According to recent studies, nonindigenous species will persist under current and future conditions in the eastern Canadian Arctic, so "the ABWEZs must be situated in areas where species released in ballast water are least likely to reach coastal environments and where the conditions are least likely to favor their survival and establishment" (Goldsmit *et al.,* 2016, pg. 10). The community of Resolute Bay, Nunavut (at the western entrance of Lancaster Sound) advocates for the relocation or removal of the High Arctic ABWEZ altogether, and the mandatory installation of a ballast water filtration system on ships (Carter *et al.,* 2019).

According to Goldsmit *et al.* (2016), the Lancaster Sound and Hudson Strait ABWEZs were unlikely to prevent coastal biota released during an exchange from reaching and colonizing suitable habitats. Both areas are ecologically and biologically significant, with strong currents capable of cycling NIS from deep ABWEZs to coastal waters (Goldsmit *et al.,* 2018). Even if these zones are rarely used, they should instead be in places where the risk of coastal dispersal and colonization is the lowest, if not impossible. To reduce the risk associated with NIS introduction, ABWEZs for use by foreign vessels entering the eastern Canadian Arctic from outside the EEZ should instead “be situated offshore of the 1000 m depth contour in waters between latitudes 57° and 75°N, and longitudes 56° and 73°W" (Stewart *et al*., 2015, pg. 52). The Hudson Strait ABWEZ was east of 70° west longitude where the water is sometimes only 300 m deep and in the High Arctic the Lancaster Sound ABWEZ was east of 80° west longitude where the water is also only at least 300 m deep. In June 2021, Canada released new *Ballast Water Regulations* to replace the *BWCMR*, which updated the designated ABWEZs in the eastern arctic to two separate zones along the Davis Strait (Fig. 2) in offshore areas over 1000 m depth. The new ABWEZs align with community and scientific recommendations that suggested moving ABWEZs to offshore areas to reduce the risk of coastal dispersal and colonization of aquatic invasive species.

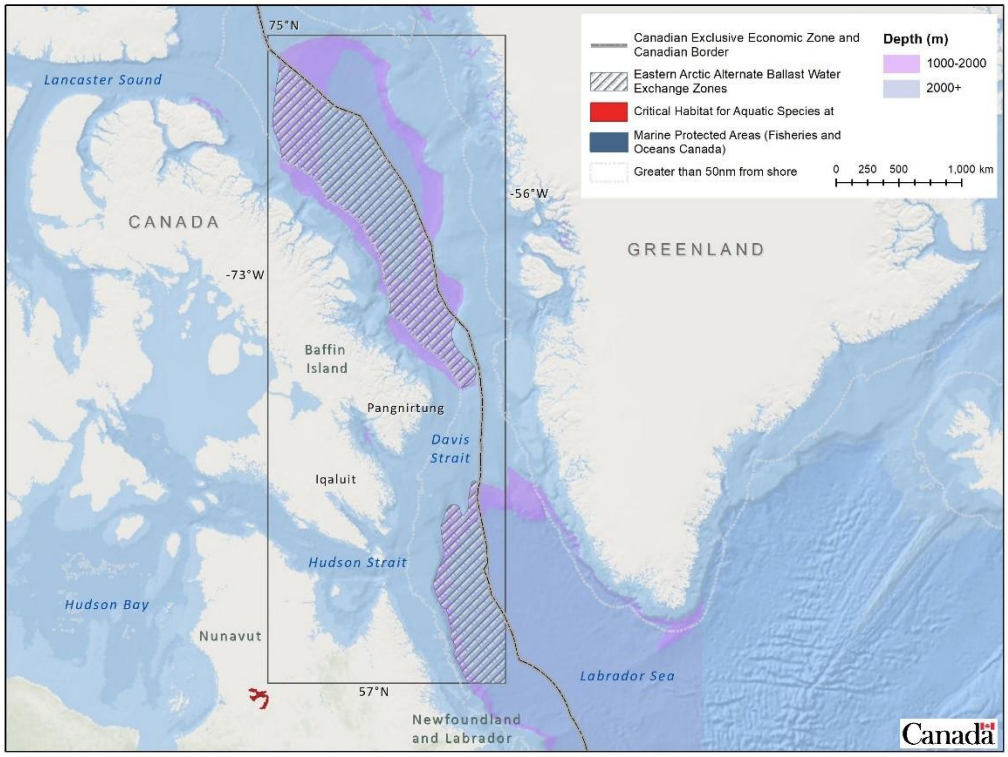

Figure 3 Eastern Canadian Arctic alternate ballast water exchange zones (Transport Canada, 2021a)

4.3.3 *Arctic Waters Pollution Prevention Act*, *Arctic Waters Pollution Prevention Regulations*, and *Arctic Shipping Safety and Pollution Prevention Regulations* (Canada)

Whereas the *CSA, 2001* is the principal legislation governing safety of marine transportation and protection of the marine environment, the *Arctic Waters Pollution Prevention Act (AWPPA) (R.S.C. 1985)* is the principal legislation governing pollution prevention in Canadian arctic waters. The "Arctic exception" clause (also known as Article 234) in UNCLOS gave international legal recognition to the *AWPPA*, a unilateral action taken (and passed) by Canada in 1970. UNCLOS came into force in 1982 and Canada ratified the treaty in 2003. The *AWPPA* informed Article 234 of UNCLOS and Article 234 of UNCLOS finally validated the *AWPPA* in international law.

The *AWPPA* (1985) is a 'zero discharge' act, which states, "no person or ship shall deposit or permit the deposit of waste of any type in the Arctic waters." There are exceptions: "oil may only be discharged for the purposes of saving life or preventing the loss of a ship; damage from stranding, collision or foundering; or through the exhaust of an engine or through leakage from an underwater machinery component necessary to ship function." Domestic waste and industrial waste deposits are only permitted with the appropriate authorizations under federal legislation. Sewage dumping is also permissible, but under certain conditions only (See the *ASSPPR*, subsections 20(1) to (3)). Prior to the Polar Code, though, "it was permissible to release [all] untreated sewage into Canadian Arctic waters from on board any ship, perhaps the only domestic standard that was lower than a MARPOL standard" (Chircop *et al.*, 2018, pg. 446). The *ASSPPR* replaced this allowance with the Code's operational discharge requirements for certain vessels.

Transport Canada has limited capacity to enforce the prevention of waste-stream discharges (Parson, 2012) as pollution prevention officers, enforcers of the Act, do not patrol Nunavut waters. This puts the onus on communities to whistle-blow (or simply witness) offences committed under the Act, and then on the operator to prove that any discharge does (or does not) include any deleterious waste, both of which are extremely difficult (Vard Marine Inc., 2018). This lack of

monitoring and enforcement capacity is further diminished by the absence of a comprehensive network of port authorities in the territory. The *ASSPPR* does not apply to government vessels either, so icebreakers, the Canadian Coast Guard, research vessels, and military vessels, among others, are excluded, another significant limitation of the Act and the *ASSPPR*. This mirrors the exceptions in the Polar Code for government vessels used on non-commercial service.

4.3.4 *Marine Liability Act* and the Ship-source Oil Pollution Fund (Canada)

Reform of the *Canada Shipping Act* into the *CSA, 2001* effectively moved liability provisions into the *Marine Liability Act (MLA), 2001*. As such, the *MLA, 2001* is "largely a consolidation statute, collecting together statutory liability issues such as apportionment of liability, limitation of liability, civil liability for pollution, and liability for carriage of passengers" (Bishop, 2009). The *MLA, 2001* represents many of the important advances in Canada's oil spill prevention, response, liability, and compensation regime. Under the *MLA, 2001*, "the shipowner is liable for (1) loss or damage resulting from an escape from the ship wherever it may occur, except that compensation for impairment of environment other than loss of profit from impairment, is limited to costs or reasonable measures of reinstatement, and (2) the costs of preventative measures and any further loss or damage caused by those measures" (Chircop *et al*., 2016, pg. 936). As the leading legislation on civil liability for ship-source pollution, the *MLA, 2001* enables the recovery of "economic loss suffered by those who depend directly upon earnings from coastal and sea-related activities" (Chircop *et al.,* 2016, pg. 936). Part 7 of the *MLA, 2001* governs the administration of the Ship-Source Oil Pollution Fund (SOPF), a fund established over 30 years ago today. The SOPF is "available to pay for claims for oil pollution damage or anticipated damage caused by the discharge of oil from all classes of ships on" all Canadian waters (Government of Canada, n.d.a.).

In April 1989, amendments to the *Canada Shipping Act* transformed the Maritime Pollution Claims Fund (MPCF) into the SOPF. Previously, in April 1971, the *Canada Shipping Act* was amended to include Part XX, establishing the MPCF. The SOPF provides "an additional level of compensation over that of the international conventions and also meets claims that are not covered by the conventions, such as mystery spills" (Government of Canada, n.d.b.). The MPCF was a fund of last resort, only to be used when all other legal remedies against a shipowner had been exhausted. The SOPF, in contrast, is a fund of last or first resort, at the election of the claimant. Compensation from the SOPF "provides claimants with an alternative to the court system and covers the limited gaps in shipowner liability, in lieu of or in addition to compensation from shipowners or their insurers" (Government of Canada, 2019). Both funds embody the polluter-pays principle often enshrined in national and international law.

Recent amendments mark long-awaited developments in the compensation framework for oil pollution damages (and threats of damage) in Canada. Legislative amendments to the *MLA, 2001* came into force in December 2018. Most significant among them was the removal of the per-incident liability cap, so the indemnification of claims against the SOPF, if liable, is now unlimited to the full extent of proven damages. The amendments further "added a new simplified and fast-tracked process for most claims up to $35,000 … [and] clarified that certain forms of economic loss (including loss of revenue) are compensable" (Government of Canada, n.d.), among others. Such damages, however, cannot always be quantified. According to Chircop *et al.* (2016), "difficulties arise over assessment and quantification of damage to the marine environment since it does not have a discernible or easily quantifiable market value.... [C]laims will only be accepted if a claimant has suffered an assessable economic loss" (pg. 937).

The SOPF is unique from the International Oil Pollution Compensation Funds, as the former covers claims (for property damages, economic losses or clean-up costs related to pollution damage or anticipation of pollution damage) against all classes of ships, from any type of oil incident (persistent or non-persistent) and, as mentioned previously, even mystery spills. According to the Government of Canada (2019), however, "[i]n order to be successful, claims must be for a compensable kind of damage…, and any damages claimed must have a causal link to the oil pollution incident in question, which must be caused by a ship" (pg. 11). Any impacted person (or group) is eligible to file a claim, and Article 107(2) of the *MLA, 2001* specifies eligible claimants related to loss of income specifically in the fisheries and aquaculture sectors. In the SOPF Compensation Handbook (Government of Canada, 2020), "[s]ubsistence, cultural, recreational, and

ceremonial losses, as well as lost access to traditional resources" (pg. 6) are recoverable fisheries-related damages under the fund. However, recoverable damages must still be numerated, with a proven "cost of the replacement [value]" (Government of Canada, 2020, pg. 6). Information in that same handbook, as prefaced in the preamble, "does not constitute legal advice and does not substitute any provision in the Marine Liability Act, its regulations, or any other applicable laws of Canada" (Government of Canada, 2020).

4.3.5 *Fisheries Act* and the *Marine Mammal Regulations* (Canada)

On June 21, 2019, the new *Fisheries Act* received royal assent and became law. The new Act provides protection to all fish and fish habitat, including the "protection against the death of fish, other than by fishing and the harmful alteration, disruption or destruction of fish habitat." Indigenous rights are recognized under the new Act, so far as Indigenous knowledge must inform habitat decisions; adverse effects of decisions on the rights of Indigenous peoples must be considered; and Indigenous knowledge must be protected when provided in confidence to the Minister. Under the Act, the deposit of deleterious substance is prohibited. A deleterious substance is "any substance [or any water that contains a substance] that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water" (s. 34.1). If the deposit or discharge was caused by or otherwise attributable to a vessel, the *CSA, 2001* (Part 8 or 9) applies instead.

The *Marine Mammal Regulations* are given force under the *Fisheries Act*. Under the Regulations, no one is permitted to disturb a marine mammal unless authorized to do so under the Act or the Regulations. Disturbances include feeding a marine mammal; swimming or interacting with a marine mammal; moving, enticing, or causing a marine mammal to move from the immediate vicinity in which it is found; separating a marine mammal from members of its group or going between a marine mammal and a calf; trapping a marine mammal or its group between a vessel and the shore or between a vessel and one or more other vessels; or tagging or marking a marine mammal. To reduce the threat of vessel presence, disturbances also include approaching a marine mammal within a certain distance or season as set out in Schedule VI, including an approach distance of less than 100 m for whales, dolphins, or porpoises. If a whale, dolphin, or porpoise is in resting position or with its calf, an approach distance of 200 m in all Canadian fisheries waters from January 1 to December 31 is mandated. However, Schedule VI restrictions do not apply to a vessel in transit.

4.3.6 Conclusion

Key community concerns with regards to vessel impacts on the environment include ship-sourced pollution in the form of ballast, bilge, grey water, sewage, and garbage; HFO and oil spills are also a concern. Much of the legal framework governing Arctic shipping has been framed in terms of minimizing negative environmental impacts and vessel and crew safety. The new *Ballast Water Regulations* and ABWEZs released in 2021 are more in line with scientific advice, and address community concerns over ballast water impacts by moving the ABWEZs to offshore areas at depths of over 1000 m (Fig. 2). Similarly, the *AWPPA* and *ASSPPR* have a zero-discharge approach to prevent the dumping of waste into Arctic waters. While most waste streams are covered by this, there are exceptions with regards to sewage under certain conditions (*ASSPPR*, subsections 20(1) to (3)). The biggest challenge with the *Ballast Water Regulations* and the *AWPPA/ASSPPR* is capacity for monitoring and enforcement as enforcers of the Act/regulations do not patrol Nunavut waters. Any offence witnessed must be reported, and then the operator must prove that any discharge does or does not include deleterious waste (Vard Marine Inc., 2018).

The SOPF covers claims for damages, losses or cleanup costs related to pollution damage against all classes of ships, from any type of oil incident. While this is strong coverage, recoverable damages require quantification of damage to the marine environment, which poses a significant challenge. While the *AWPPA/ASSPPR* address prevention of oil pollution by ships, management of HFO is not directly addressed through these regulations. In June 2019, draft amendments to MARPOL 73/78 Annex I (addition of a new regulation 43A) were approved to introduce a prohibition on the use and carriage for use as fuel of HFO by ships in Arctic waters on and after 1 July 2024. The ban in its current form

has been criticized as too weak, with exemptions for double-hulled and arctic-flagged ships preventing a total ban on HFO use and carriage until 2029 (Barford & Gamble, 2021; ICC, 2020b).

Key community concerns with regards to vessel impacts on marine life are mainly related to vessel noise and speed, as well as ice breaking. The *Fisheries Act* and *Marine Mammal Regulations* therein prevent the disturbance of marine mammals through required setback distances of 100m for whales, dolphins, and porpoises. While this can help reduce the impacts of vessel noise and speed, these regulations do not apply to vessels in transit. Regulations associated with protected areas described in section 3 may offer an alternative approach to managing vessel noise and speed in certain areas. One of the biggest challenges is with regards to monitoring and enforcement, which, along with policies addressing increased vessel traffic, put the onus on community members to observe and report any regulation violations due to the limited presence of enforcement officers.

5 Jurisdictional Scan

5.1 Canadian Jurisdictions:

Broadly, shipping governance in Canada is subject to the interacting and interdependent policies described in the previous section; however, instruments exist outside of Nunavut that may offer different approaches to governing shipping with regards to management of increasing vessel traffic, minimizing and mitigating impacts on the environment and marine life, and in monitoring and enforcement of regulations. To highlight these different approaches, regions have been selected in other areas of Inuit Nunangat, as well as regions outside of Arctic waters. Policies from the Inuvialuit Settlement Region (ISR), Nunatsiavut and Nunavik, including their respective land claims agreements, are highlighted. Additionally, policies from First Nation territories without settled land claims are also described, including Haida Gwaii off the coast of BC, and the Heiltsuk Nation along the central coast of BC. Given the scope of regions included in this scan, policies will range from land claim agreements and marine protected area legislation to governance arrangements and voluntary agreements (i.e., voluntary protection zones for shipping). The intention of the scan is to demonstrate the array of policy options available and to identify what mechanisms may be useful in mobilizing Nunavummiut values and concerns into shipping governance in Nunavut waters.

Prior to discussing specific jurisdictions, it is important to address some overarching mechanisms that can contextualize shipping governance in Canada and the Canadian Arctic. While not held under one specific piece of legislation, the federal government's $1.5 billion Oceans Protection Plan (OPP) was established in 2016 to strengthen marine safety systems and protect coastal ecosystems (Transport Canada, 2020a). Unlike any of the policies previously identified, this plan has a strong emphasis on Indigenous partnerships for providing advice on marine transportation governance in the following areas: understanding the combined effects of shipping; creating local vessel control areas; and updating/modernizing regulations to respond to community-specific issues related to marine traffic. The plan states that funding will be provided for marine safety equipment and infrastructure in northern coastal communities. The OPP also has a strong emphasis on marine pollution prevention and response, and the respective federal departments have been working with several coastal communities, including three communities in Inuit Nunangat – Tuktoyaktuk, Cambridge Bay, and Nain– to develop and pilot an Enhanced Maritime Situational Awareness system (EMSA) (Transport Canada, 2021b; Transport Canada 2020b). This system is helping to provide communities with real-time location data for marine vessels in local waters through a user-friendly web platform. This will be described further in the following sections on the Inuvialuit Settlement Region and Nunatsiavut – particularly in relation to monitoring and enforcement.

Another mechanism that may influence shipping governance in the future is Canada's Arctic and Northern Policy Framework (the Framework; Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) 2019a), which is being co-developed by the Government of Canada and northern partners using a whole-of-government approach. The first phase of the Framework was launched in September 2019 and includes a vision, goals, and objectives. Of these, goal 5 is that Canadian Arctic and northern ecosystems are healthy and resilient; with goal 5, objective 9 aiming to ensure safe

and environmentally responsible shipping (CIRNAC, 2019). While the implications of this have yet to be seen, the next stage of the Framework will be co-developing governance mechanisms and a co-implementation plan (CIRNAC, 2019b). Thus, northern community partners involved in co-developing the Framework may have influence on the future of shipping governance in some capacity. Looking to other existing mechanisms to govern shipping, specific regions in Canada offer different insights that may help address concerns around increased vessel traffic, minimizing or mitigating impacts on the environment and marine life, and efforts for improved monitoring and enforcement.

5.1.1 Inuvialuit Settlement Region

The ISR is in the Western Canadian Arctic and was designated under the Inuvialuit Final Agreement (IFA) 1984. The ISR includes 435,000 square kilometers in the Mackenzie Delta, Beaufort Sea, and Amundsen Gulf area and approximately 90,600 square kilometers of land, including 12,980 square kilometers of subsurface mineral rights (Government of Northwest Territories, n.d.). The IFA indicates under section 3.(3) that settlement legislation will prevail to the extent of any conflict/inconsistency with provisions of other federal, territorial, provincial, or municipal law, or any by-law or regulation. While the Inuvialuit do not have exclusive title nor jurisdictional authority over waters contained within the ISR, the IFA sets forth provisions for co-management arrangements: 11.(5) Establishes Environmental Impact Screening Committee; 11.(22) Environmental Impact Review Board; 12.(46) Wildlife Management Advisory Council (North Slope); 14.(45) Wildlife Management Advisory Council (Northwest Territories); and 14.(61) Fisheries Joint Management Committee. Under these formal co-management arrangements, Community Conservation Plans have been established, which outline community working group recommendations for policy guidance and resource management. Within these conservation plans, each community has outlined community-specific concerns and recommendations pertaining to shipping (Environmental Impact Screening Committee, n.d.). While these demonstrate a linkage between co-management arrangements, community concerns, and shipping, direct policy or governance influence is limited to the extent of influence that co-management arrangements can have, whereby all decisions are subject to Ministerial discretion.

The goals underpinning the IFA are to preserve Inuvialuit cultural identity and values within a changing northern society; to enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society; and to protect and preserve Arctic wildlife, environment, and biological productivity. Recognizing increases in marine vessel traffic in the ISR, particularly an increase in the number of cruise/tourism related vessels in Inuvialuit waters, the goals and values outlined in the IFA have been the foundation for developing a Cruise Ship Management Plan (2020-2023) for the ISR, which focuses on optimizing “economic, cultural, and social opportunities as Arctic vessel traffic increases” (Inuvialuit Regional Corporation (IRC), 2020 p. 6). Each community in the ISR was consulted, with resulting values and recommendations being used to develop the Management Plan. The plan applies to cruise ships, expedition cruise ships, and commercial yachts, and while elements of the plan apply to other vessel categories, it does not explicitly cover them. The plan expresses that Inuvialuit are more concerned about yachts (pleasure crafts), which are not subject to the same strong regulations and permitting systems that larger vessels are, and which are not explicitly covered by the Management Plan.

The Plan recommends that vessel operators comply with the voluntary Low Impact Shipping Corridors (LISCs) put forth by Transport Canada, the Canadian Coast Guard, and the Canadian Hydrographic Service, to help minimize/mitigate hazards to the ships or to the environment, and to aid in Search and Rescue, should an incident occur. The Management also outlines procedures to follow when transiting during the open water season, during which time Inuvialuit hunters and harvesters will be active on the water. Further, the plan specifically states that Operators should avoid transiting through the two MPAs in the ISR, both of which were established to conserve and protect important ecological regions. If transit must occur through the MPAs, it must be continuous and with reduced speeds (IRC, 2020).

In terms of impacts that cruise/tourism vessels may have on the environment, the plan discourages the use of scrubbers, which is one method that vessels may pursue to adhere to greenhouse gas reduction regulations under MARPOL 73/78.

While aiding to reduce atmospheric sulfur emissions and improve air quality, scrubbers generate wastewater which has high toxicity and acidity. Additional potential pollution is deferred to existing regulatory mechanisms. Regarding bilge and wastewater from ships, the plan states that cruise ships must meet or exceed standards set out in the *CSA, 2001*, *Vessel Pollution and Dangerous Chemical Regulations,* and adhere to the Pollution Prevention Guidelines for the Operation of Cruise Ships Under Canadian Jurisdiction section 14. Dumping of garbage or waste is prohibited, and guidelines in sections 7-28 of Pollution Prevention Guidelines for the Operation of Cruise Ships Under Canadian Jurisdiction is referenced for proper waste disposal. While addressed within the ISR Cruise Ship Management Plan (2020-2023), these regulations also apply to vessels operating in waters around Nunavut.

To assist with monitoring activities and minimizing/mitigating potential negative impacts on marine environments and marine life, the Management Plan identifies that through a Memorandum of Understanding (MOU) between the Cruise Ship Operator and the IRC, Operators will hire Inuvialuit guides, who in addition to guiding will monitor for "marine mammals and other wildlife, illegal dumping/disposal of waste, littering, and any unscheduled stops" (IRC, 2020 p. 18). Additional monitoring and enforcement are deferred to federal and territorial regulations and respective agencies, with whom operators must work to ensure compliance.

Other policies in the ISR include two different MPAs regulated through DFO and designated under section 35(3) *Oceans Act* – the Anguniaqvia niqiqyuam Marine Protected Area (ANMPA) and the Tarium Niryutait Marine Protected Area (TNMPA, which includes Niaqunnaq Marine Protected Area; Okeevik Marine Protected Area; and Kittigaryuit Marine Protected Area). The ANMPA permits shipping within its boundaries in accordance with the *CSA, 2001* and the *AWPPA*. Under the ANMPA regulations, any vessels transiting within the bounds of the ANMPA for the purpose of scientific research or monitoring activities, educational activities, or commercial marine tourism activities must submit an activity plan to the Minister for review and approval. Officially designated in 2016, a management plan for the ANMPA is still being developed (DFO, 2019).

Regulations for the TNMPA prohibit activities or people from disturbing, damaging, or destroying marine organisms or any part of their habitat. Section 7 of the regulations identify exemptions for what shipping activities may be carried out in the TNMPA, including scientific activity in accordance with Fisheries Act, geophysical operation, exploratory drilling for oil and gas; oil and gas production; construction, decommissioning, or maintenance of oil and gas pipeline; and movement or other activity of a ship for the purpose of public safety, law enforcement or national security, exercise of Canadian sovereignty, emergency response. In the TNMPA Management Plan, the importance of shipping for Inuvialuit communities is acknowledged, while balancing that with the conservation objectives of the TNMPA. The plan acknowledges the role of non-regulatory mitigation measures to help address increased transportation through the TNMPA, which is not directly regulated through the MPA's legislation. Thus, the plan identifies shipping corridors within the MPA boundaries that ships must stay confined to from break-up to August 15, regardless of if other routes may be shorter (DFO and Fisheries Joint Management Committee, 2013). Both the ANMPA and TNMPA have issued a Notice to Mariners requesting voluntary avoidance and slow-down areas, which in 2019 was in effect for the duration of the shipping season (June 1-October 31) (CCG, 2019). This approach could be framed as one aiming to mitigate potential negative impacts of increased vessel traffic (as opposed to minimizing traffic itself)

In terms of monitoring and enforcement, DFO has the responsibility of ensuring compliance and enforcement of the *TNMPA Regulations* (2010) and the *ANMPA Regulations* (2016) through responsibilities outlined under the *Oceans Act* and the *Fisheries Act*. In both the ANMPA and TNMPA shipping activities are permitted to the extent that they do not harm or damage marine organisms or habitat, and specific exemptions to the prohibitions have been made. The policies of these MPAs aim to mitigate negative impacts on the environment and marine life, rather than directly minimizing any increases in vessel traffic.

Another mechanism that addresses shipping governance in the ISR is the Beaufort Sea Integrated Ocean Management Plan (IOMP; implemented in 2009), which aims to manage a Large Ocean Management Area (LOMA) encompassing the

marine region of the ISR. In 2007, the following vision was determined for the plan: “the Beaufort Sea ecosystem is healthy and supports sustainable communities and economies for the benefit of current and future generations” (Beaufort Sea Partnership 2009 pp. vi). Rather than acting as another regulatory layer, to realize this vision the plan aims to integrate goals from different management partners (Beaufort Sea Partnership, 2009) through the collaboration of representatives from Indigenous communities, and various government departments, including Transport Canada, and the CCG (Beaufort Sea Partnership, 2009; Beaufort Sea Partnership, n.d.). While directed to address a variety of goals, the management plan itself acknowledges potential increases in shipping activities in the region and proposes monitoring and enforcement of pollution prevention regulations through ship inspection and air patrols/satellite imagery. Such efforts would be designated to DFO, Transport Canada, Environment and Climate Change Canada, and the National Energy Board.

The Tuktoyaktuk Hunters and Trappers Committee in the ISR is currently piloting a different type of initiative with monitoring and enforcement capacity. Under the OPP, EMSA initiatives have been rolled out (Transport Canada, n.d.; Transport Canada, 2020b), developed based on representatives from Indigenous communities, Transport Canada, and the CCG. This initiative aims to equip community members with a digital platform to help support local and collaborative planning, analysis and decision making by providing them with real-time vessel traffic data, and ice and weather conditions. While not a policy mechanism, this program has the potential to put information in the hands of communities, to better integrate them into shipping management initiatives in their regions.

To conclude, the ISR has a unique set of circumstances that have been developed since initiating discussions for the land claim, which have allowed for collaborative mechanisms to emerge both within and outside of regulatory contexts. These mechanisms have provided space for Inuvialuit interests to be expressed in formal planning and management contexts, all of which acknowledge the potential impacts (positive and negative) that increased vessel traffic in the region may bring. While each of the mechanisms previously described aim to mitigate negative impacts on the environment and/or marine life, they do not explicitly aim to minimize those impacts through limiting the number of vessels transiting in the region. Lastly, regulatory responsibilities have been designated in terms of monitoring and enforcement, with this responsibility landing on the relevant federal departments. Non-regulatory mechanisms such as EMSA may be able to strengthen local monitoring and enforcement, particularly through building capacity in communities – however due to the early stages of piloting this program, evidence of this success is yet to be determined.

5.1.2 Nunavik

The Nunavik Inuit Land Claims Agreement (NILCA) identifies the Nunavik Marine Region (NMR; Schedule 3-3) as a fundamental and integral component of Nunavik. The NILCA establishes the Nunavik Marine Region Planning Commission (NMRPC), the Nunavik Marine Region Impact Review Board (NMRIRB), and the Nunavik Marine Region Wildlife Board (NMRBW), all of whom advise and make recommendations to government agencies in various capacities pertaining to wildlife management and harvesting, including marine management (s. 5.4.21) of areas outside of the NMR. Within the NMR, these boards provide advice to departments around mitigation measures and required compensation from commercial and industrial developers which cause damage to wildlife habitat (s. 5.2.4). Further, the NMRIRB, in reviewing project/development proposals, has the primary objective to “protect and promote the existing and future well-being of the persons and communities resident in or using the NMR, and to protect the ecosystemic integrity of the NMR” (7.2.5). Proposals undergoing review may be related to mining and resource development, often which utilize marine vessels as a primary mode of transportation to and from development sites. As such, the NILCA creates space for input on shipping in this regard, underscored by motivations to protect socio-cultural and ecosystemic integrity. While not directly involved in policy making, this participatory and advisory role is reinforced through the earlier James Bay and Northern Quebec Agreement (JBNQA; 1975), which aims to protect the environment, ecosystem, wildlife resources, and sociocultural values of Inuit (Makivik Corporation, 2006).

While increased vessel traffic in the region is acknowledged, there is less emphasis on tourism vessels and more on commercial/resource development related shipping. One key management issue in Nunavik that has been highlighted by Makkovik Corporation (the Nunavik Inuit representative organization), is polar bear management. Managed through the NMRWB, polar bears are an important species for Inuit, and shipping has been identified as a potential threat to conservation of the species. While routine (open water season) shipping is of little concern to date, increased vessel traffic linked to community and resource development and related risks associated with ice-breaking, ship strikes, noise, and potential contamination all pose threats to polar bears, and require mitigation measures to be put in place (Makivik Corporation, 2017). The draft Polar Bear Management Plan identifies this need; however, specific mitigation measures are not included. While the NMRWB may provide advice pertaining to this issue, the ultimate policymaking and governance authority still rests with federal agencies. Ultimately, despite this, the spirit and intent of the land claims (NILCA and JBNQA) coupled with the reconciliation agenda of the federal government provide a foundation for Nunavik Inuit to influence shipping policy, especially in regards to managing/mitigating impacts on marine life (and species of cultural importance) and the environment.

5.1.3 Nunatsiavut

Located in northeastern Labrador, along the gateway to the Eastern Canadian Arctic, the self-governing region of Nunatsiavut was created through signing the Labrador Inuit Land Claims Agreement (LILCA) in 2005. The agreement set forth title to the Labrador Inuit Settlement Area (LISA), including the Zone, which are tidal waters of the LISA. Through the LILCA, self-government was established, at the heart of which is the ability to make laws. While the power and scope of authority is set forth in the LILCA and does not include jurisdiction over waters adjacent to the Zone, the spirit of the agreement encourages consideration of Nunatsiavut positions with regards to managing these waters. Within the LILCA, several provisions are outlined specific to marine shipping, starting with section 6.5, where the Minister shall consult the Nunatsiavut Government prior to establishing marine navigation services in the zone (6.5.1 (a)), or issuing approvals or exemptions under the *Navigable Waters Protection Act* in the Zone (6.5.1 (b)). Section 6.7.3 outlines IIBAs in the Zone, accounting for one that provides for any matter connected with a Major Development in the Zone, including associated marine transportation.

Voisey's Bay is a nickel-copper-cobalt mine located within the area of the LILCA, however it is not under title or jurisdiction of the Nunatsiavut Government. Nonetheless, there are provisions within the LILCA regarding an IIBA for Voisey's Bay (8.5), requiring that it include provisions "to shipping in the Zone that is directly associated with the Voisey's Bay Project, including matters of concern to Inuit with respect to the shipping route, the shipping season and winter shipping through land fast sea ice "(8.5.6). Additionally, section 8.6.6. outlines that Canada shall consult the Nunatsiavut Government in relation to "(a) the establishment by Canada of marine navigation services; (b) subject to section 8.6.7, the issuance of approvals or exemptions under the *Navigable Waters Protection Act*; and (c) hydrographic surveys along the shipping routes to and from the Voisey's Bay Area". And finally, 8.6.8 requires Canada and the Province to consult the Nunatsiavut Government "prior to providing advice to the Developer or a Subsequent Developer regarding: (a) all significant elements of the marine transportation management plan relating to the Voisey's Bay Project, including but not limited to winter shipping, shipping routes, oil spill emergency response plans, search and rescue plans, concentrate loading procedures, navigational aids and pilotage requirements; and (b) any voluntary agreements that may be reached in relation to shipping by the Developer or Subsequent Developer, including an agreement supporting the applicable principles of the "Arctic Ice Regime Shipping System (AIRSS) Standards" referred to in the [*ASSPPR*]". Such provisions ensure that the Nunatsiavut Government is involved in shipping governance as it pertains to the Voisey's Bay mine, which is one of the larger sources of commercial vessel traffic within the Zone. The specific reference to *matters of concern to Inuit* with respect to shipping routes, seasons, including winter shipping through land fast ice – uniquely demonstrates how Inuit values and priorities were reflected in legislated policy for Nunatsiavut.

Marine transportation is also addressed in Chapter 14: Harvesting Compensation (in relation to Development activities), section 14.4 Marine Transportation. Specifically, section 14.4.2 indicates that in "respect of commercial marine transportation in or through the Labrador Inuit Settlement Area or Waters Adjacent to the Zone other than marine transportation to which this chapter applies under subsection 14.3.1(c; marine transportation related to developments in Labrador Inuit Lands, developments in the LISA, or petroleum exploration or development in the Zone), Inuit are entitled to Compensation for losses or damages of the kind set out in section 14.5.1 under federal and Provincial Laws. Subject to section 14.4.3, provision for such Compensation under federal or Provincial Laws in the Labrador Inuit Settlement Area and Waters Adjacent to the Zone shall provide protection for Inuit at least as favourable as that afforded to Harvesters in other marine areas under federal or provincial Laws". This implies liability of the developer similar to that outlined in federal or provincial laws with the same level of protection afforded to Harvesters in other marine areas. A final section of the LILCA worth discussion is 17.11 regarding powers of the Nunatsiavut Government in regards to environmental protection. The Nunatsiavut Government may make laws in relation to the protection of the environment in Labrador Inuit lands and the Inuit communities (17.11.1; note that the LISA and the Zone are not included in this). However, if there is a conflict between an Inuit Law and a federal or Provincial Law, the federal or Provincial Law will prevail to the extent of the conflict (17.11.3).

Emerging out of the LILCA and intending to fully implement Chapter 6 regarding Ocean Management, the Imappivut Marine Plan was initiated in 2017 through the signing of a Statement of Intent by the Nunatsiavut Government and the Government of Canada to begin an ocean management initiative in the Labrador Sea. Central to this plan is ensuring Labrador Inuit interests are at the forefront of decision-making, developing research, monitoring, and stewardship activities to address community priorities (Imappivut, n.d.). While in the early stages still, this plan will cover coastal and marine areas included in the LILCA, as well as develop a co-management plan out to the 200-mile EEZ. This structure could potentially bring Inuit concerns into shipping governance impacting Nunatsiavut. However, the full extent of this is yet to be seen as the plan is still in the early stages of development.

Presently, monitoring and enforcement is relatively limited in the region, particularly at the community level. The largest coastal community, Nain, is also taking part in the EMSA pilot initiative ((Transport Canada, n.d.; Transport Canada, 2020b), which may help bring more information into the hands of community members to assist with monitoring, enforcement, and future decision-making. Both the LILCA and the Imappivut Marine Plan offer different policy approaches to marine governance that Inuit have pursued in the region, focusing on Inuit values and concerns as critical to effective decision-making and management. Although not central to these policies, they both address mechanisms to manage increased vessel traffic and minimize/mitigate negative impacts on the marine environment – although the scope of authority has yet to be fully tested or expressed in this regard. This case offers a window into how shipping has been addressed through a land claim agreement – the LILCA – and where/how Inuit perspectives may play a larger role in shipping governance.

5.1.4 Haida Gwaii

Haida Gwaii is an archipelago located about 100km west off the northern coast of BC, with a population of about 5,000 people living in 7 communities. Occupied by the Haida people since time immemorial, Haida Gwaii is considered one of the more remote populated regions in Canada. The Haida Nation is strongly tied to the marine environment, and healthy oceans are emphasized as supporting cultural and economic prosperity. The Council of the Haida Nation (CHN) has been involved with the collaborative government-to-government arrangement – the Marine Planning Partnership for the North Pacific Coast (MaPP). Under this bilateral governance arrangement, the Haida Gwaii Marine Plan was jointly developed between the Province of BC and the CHN (CHN and Province of BC, 2015). While shipping governance falls outside of the jurisdictional authority of the Province of BC and the CHN, the plan identifies increased shipping traffic as a key issue/concern (CHN & Province of BC, 2015 p. 19), and suggests integrated management through the Pacific North Coast Integrated Management Initiative (PNCIMA) or collaborative governance through marine planning for Gwaii Haanas National Marine Conservation Area Reserve as options to bridge the jurisdictional divide (Haida Nation &

Province of British Columbia, 2015 p. 21). This is particularly important to better address and respond to marine pollution and spills, which is a high priority for the islands and the region overall (Haida Nation & Province of British Columbia, 2015). Section 6.6 of the Haida Gwaii Marine Plan specifically addresses governance objectives and strategies related to marine pollution and spills, emphasizing collaboration with relevant agencies and local governments to promote high environmental standards for the marine industry (strategy 1.1B).

The Gwaii Haanas National Marine Conservation Area Reserve was established through the Gwaii Haanas Marine Agreement (CHN & Government of Canada, 2017) and is legislated under Schedule 2 of the *Canada National Marine Conservation Areas Act*. The Gwaii Haanas Management Plan (2018) includes an objective (4.3) to work with relevant agencies to manage and monitor vessel traffic to minimize impacts to Gwaii Hanaas. Under this goal, one of the targets is to encourage large vessels to transit sufficiently off-shore to allow for adequate response time and to prevent accidents (CHN & Government of Canada, 2018). The plan also presents zoning, designated to achieve ecological and cultural objectives. Marine strict protection zones or Daanaay Kuuyada (precious area). The framework does not directly address whether commercial shipping activities are permitted within the Daanaay Kuuyada (CHN & Government of Canada, 2017).

Haida Gwaii is located along a number of favoured shipping routes, experiencing marine traffic vessels in 'innocent passage' along the great circle route. These include large vessels coming to ports along the North coast of BC, as well as ferry and cruise ship traffic and smaller vessels (CHN, n.d.). Due to its isolated location, there is a lack of capacity to respond to marine emergencies, and after the Russian cargo vessel *Simushir* lost power and drifted within 5.6 miles of the coast of Haida Gwaii in 2014, there was a resounding push to increase the ability of local communities to respond to such incidents. Emerging from this incident, the CHN and other governments launched a number of marine shipping and safety initiatives relating to existing shipping and vessel traffic in Haida Gwaii waters, all of which are being driven by the Haida Gwaii Marine Plan (CHN, n.d.). One of the initiatives aims to support monitoring shipping traffic around Haida Gwaii – the Haida Gwaii Marine Awareness project – for which the CHN is working with Transport Canada to pilot the EMSA system (Transport Canada, 2020b). This system shows near real-time vessel traffic data, as well as other marine and coastal information. Ultimately, the goal is to improve information sharing to support collaborative decision-making and improve capacity to respond to marine emergencies in Haida waters.

Another marine shipping and safety initiative for Haida Gwaii is the establishment of a Voluntary Protection Zone (VPZ) for Shipping (CHN, 2020), which is a part of the Proactive Vessel Management Initiative under the OPP (Transport Canada, 2020c). The VPZ is supported through the collaborative governance structure of the Reconciliation Framework Agreement for Bioregional Oceans Management and Protection, in which Schedule B relates to shipping, marine safety, and ocean protection (Pacific North Coast Nations and Government of Canada, 2018). This collaborative effort between the CHN, the Government of Canada, and the maritime shipping industry has culminated in the VPZ, under which all vessels of 500 gross tonnage (or greater) transiting along the west coast of Haida Gwaii will observe a minimum distance of 50 nm from shore. Exemptions to this include cruise vessels, which are asked to observe a minimum distance of 12 nm from shore; vessels transiting between Pacific Northwest Ports (Washington, BC, Alaska), which are asked to observe minimum distance of 25 nm from shore, and tugs, barges, and fishing vessels, which are fully exempt. Co-led by the CHN and Transport Canada, the initiative aims to "reduce risk of accidents should a vessel lose propulsion or break down, as it will increase the amount of time available for repair and for responders to assist before environmental damage occurs" (Transport Canada, 2020c). The VPZ was initiated September 1, 2020, and thus is in very early stages of being piloted. However, within the first month there was relatively high adherence to the VPZ, with 85% of vessels transiting within 200nm of Haida Gwaii remaining outside of the VPZ (CHN, 2020).

All the initiatives described here share a common conceptualization of the marine space – that is a shared space of cultural, economic, ecological and biological significance, requiring collaborative governance to effectively address the rights of Indigenous peoples as affirmed in s. 35 of the Constitution. Policy mechanisms range in scope and jurisdictional

authority, yet the spirit and intent of each emphasizes collaborative governance with regards to shipping in Haida waters. This unique framing and the circumstances that it has emerged from is enabling the CHN and Haida values to be mobilized into shipping governance. While still early in the lifecycle of the initiatives, the policy mechanisms discussed here acknowledge the risks associated with increased vessel traffic and the need to manage those risks in a way that both minimizes and mitigates potential negative consequences to the marine environment and marine life. Monitoring and enforcement are also priorities, and while enforcement capabilities are less clear, monitoring could be greatly enhanced through the EMSA pilot program. Whether or not this program, or one similar, is able to continue, will greatly impact the success of monitoring in communities, and the potential role for the CHN in shipping governance moving forward.

5.1.5 Heiltsuk First Nation

The Heiltsuk Nation is located on the central coast of BC, with territory encompassing 35,553 km^2 from the southern tip of Calvert Island, up Dean and Burke Channels to Kimsquit and the head of Deans Inlet to the northeast, and up the Mathieson and Finlayson Channels to the north (Heiltsuk Tribal Council, n.d.a). Heiltsuk territory is included in the region encompassed by the Marine Planning Partnership for the North Pacific Coast (MaPP), and the Heiltsuk, Kitasoo/Xai'Xais, Nuxalk, and Wiukinuxv Nations and the Province of BC have developed the Central Coast Marine Plan (2015). While the plan doesn't hold any legislative authority, it establishes a framework for joint management of marine and coastal areas and provides policy direction. While not central to the plan, vessel traffic as a potential source of marine pollution is identified, with objectives including ensuring preparedness and response capacity for marine accidents and spills, and to improve policies/laws/infrastructure to minimize ecological impacts of marine activities. To achieve these objectives, suggested strategies in the plan require collaboration with federal agencies (Heiltsuk, Kitasoo/Xai'Xais, Nuxalk, Wuikinuxv Nations & Province of British Columbia, 2015).

A year after the Central Coast Marine Plan was released, the *Nathan E. Stewart*, operated by Kirby Corporation, ran aground in Heiltsuk territory, sinking and spilling 110,000 litres of diesel fuel, lubricants, heavy oils, and other pollutants (Heiltsuk Tribal Council, n.d.b). The Heiltsuk Nation determined that the governments of Canada and BC, as well as Kirby Corporation did not pursue a meaningful post-spill response, concluding that the measures included in the *MLA, 2001 and the* SOPF proved to be inadequate. This led to the Heiltsuk Nation pursuing legal recourse through applying their own traditional laws - Ğviḷás – and underlying principles, to manage recovery from the spill. Dáduqvḷá qṇtxv Ğviḷásax̌ - the Heiltsuk adjudication report - was released in 2018 as an assertion of self-governance and authority over their territory, and in response to the "failure of the responsible federal and provincial agencies to recognize Heiltsuk jurisdiction during and in the aftermath of the Spill" (Heiltsuk Tribal Council, 2018 p. 6). The report aligns s.35 of the Canadian Constitution affirming the Aboriginal right to self-government, and it aligns with the 2018 "Principles Respecting the Government of Canada's Relationship with Indigenous Peoples", Principle *4: Self-government, which sa*ys in part: "Recognition of the inherent jurisdiction and legal orders of Indigenous nations is therefore the starting point of discussions aimed at interactions between federal, provincial, territorial, and Indigenous jurisdictions and laws" (Department of Justice, 2018). The adjudication report, informed by an investigation report Heilstuk released in 2017 (Heiltsuk Tribal Council, 2017a), and a study of policies including the *MLA, 2001*, SOPF and other precedents, were used to inform a Notice of Civil Claim filed by Heiltsuk[c].

The detailed assessment that took place to determine the repeated breach of traditional laws is included in Appendix II of the adjudication report -Dáduqvḷá qṇtxv Ğviḷásax̌ (Heiltsuk Tribal Council, 2018). However, a brief overview will be outlined here. A review committee was formed – Dáduqvḷá – who identified and described the Ğviḷás legal framework. They then identified misconduct that happened around the sinking of the Nathan E. Ste*wart to determine* if relevant laws were breached as a result of that misconduct. A portion of this involved assessing what harms or losses were caused by the breach of Ğviḷás and determining who was at fault. Then, the committee determined potential

[c] http://www.heiltsuknation.ca/wp-content/uploads/2018/10/Heiltsuk-Notice-of-Civil-Claim.pdf

consequences to the wrong-doer, and whether the breach and its resulting impacts could be remediated. Based on this process, a number of recommended actions were proposed, including filing the Notice of Civil Claim in 2018.

Through the process previously described, the Dáduqvḷá also developed a proposal for an Indigenous Marine Response Centre (IMRC; Heiltsuk Tribal Council, 2017b), which has the underlying objective of striving for excellence in oil spill clean-up and prevention. The proposed IMRC was designed to align with the goals of the OPP, recognizing the need to put Indigenous communities at the forefront of efforts to protect oceans and communities that rely on them. It shares the top priority of creating "a world-leading marine safety system that improves responsible shipping and protects Canada's waters, including new preventive and response measures" (Heiltsuk Tribal Council, 2017b; Transport Canada, 2020a). If implemented, the IMRC would be strategically located to respond to incidents within the region within 5 hours or less, as compared to other jurisdictions averaging 7.5 hours (Heiltsuk Tribal Council, 2017b). As of December 2019, the Heiltsuk had met with Transport Deputy Minister to agree to a phased approach to creating the IMRC, where following a strategic planning phase, plans will be implemented on the ground with a community response team (Coastal First Nations, 2020).

The Heiltsuk case offers a unique perspective into how Indigenous concerns interact with shipping policy. Particularly, propelled by the incident of the *Nathan E. Stewart* sinking, the Heiltsuk concluded that existing policy mechanisms were not substantial enough to account for their concerns, turning to their traditional laws to demonstrate that. The process of making this claim was supplemented by aligning each of their own resulting policy mechanisms with existing frameworks or agreements put forth by the Canadian government, particularly the OPP, which recognizes the livelihood and cultural ties that coastal communities have to the ocean. While the Dáduqvḷá qṇtxv Ğviḷásaǩ (2018) and the Notice of Civil Claim (2018) demonstrate capacity to challenge existing and seemingly inadequate policy, the proposed IMRC exemplifies a strategy to manage increasing vessel traffic in the region, strengthening monitoring and response capacity to hopefully minimize/mitigate potential threats vessels may pose to the marine environment.

5.1.6 Conclusion

The Canadian jurisdictions included in this section demonstrate different approaches to managing increased vessel traffic and potential impacts on marine life and the environment. While some legal and regulatory measures are encompassed within land claims agreements and/or protected area management, other non-regulatory options offer a more direct way that Indigenous groups can influence shipping policy. Particularly in the OPP and the Framework, interest in partnering *with* Indigenous groups to govern shipping demonstrates a commitment that is lacking in the language of the regulations and legislation described in the previous sections. Similarly, co-management or integrated management arrangements for species, protected areas and/or marine (spatial) plans offer a more direct way to bring Indigenous perspectives into shipping-related decision-making contexts.

The approaches to vessel traffic management for the ISR, Nunavik, Nunatsiavut, and Haida Gwaii demonstrate preventative approaches along with those that mitigate potential negative impacts on the environment/marine life. Increasing the amount of information shared between the federal government and impacted community members is an important enabler of this, and the outcome of the EMSA pilot initiative will demonstrate the extent to which this approach could be successful in other communities. Increasing communication between vessel owners/operators and communities can also support prevention of negative impacts on the environment and marine life. Strategies such as creating a memorandum of understanding (as has been done in the ISR with cruise vessel operators) or utilizing existing communication channels such as the CCG Notice to Mariners can both be seen as ways of supporting and strengthening communication between vessel operators and communities.

The Heiltsuk case offers an approach to responding to negative environmental impacts after an incident where the regulatory and legislative mechanisms fail to account for concerns and negative impacts. The outcome of the civil claim by the Heiltsuk Tribal Council will set a precedent for the potential application of traditional laws as a means of influencing national policies and legal recourse after a shipping incident.

5.2 International Jurisdictions

5.2.1 Alaska (USA)

Alaska has 229 federally recognized tribes, many of which are in coastal regions of the state and whose cultures, wellbeing, and livelihoods are deeply tied to marine and coastal areas. Executive Order 13175: "Consultation and Coordination with Indian Tribal Governments" was issued in 2000. A key principle of this order is the recognition of the right of "Indian tribes to self-government. As domestic dependent nations, Indian tribes exercise inherent sovereign powers over their members and territory. The United States continues to work with the Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian tribal treaty and other rights" (Sec. 2 (b)). Further, this order also outlines a number of policy-making criteria to be adhered to when making policies that have tribal implications, indicating that Sec. 3 (c) "[w]hen undertaking to formulate and implement policies that have tribal implications, agencies shall … (2) where possible, defer to Indian tribes to establish standards; and (3) in determining whether to establish Federal standards, consult with tribal officials as to the need for Federal standards and any alternatives that would limit the scope of Federal standards or otherwise preserve the prerogatives and authority of Indian tribes" (Executive Office of the President, 2000). Consultation is required through this Executive Order, thus providing the impetus for federal agencies governing shipping in Alaskan waters to consult with Alaskan tribes.

Looking to environmental protection, there are several laws in place in the US that implement provisions of MARPOL 73/78. Outside of legislative frameworks, there are other projects that aim to assess oil spill risks and aid decision-making and planning for coastal communities. One such project is taking place through the Alaska Ocean Observing System (AOOS), entitled "Synthesizing [automatic identification system (AIS)] ship tracking data, GNOME oil spill model results, and subsistence use information into a unique, interactive tool to aid research and planning in coastal communities bordering the Alaska Beaufort Sea". Recognizing limited and even insufficient response capacity for major oil spills in the region, the project integrates vessel traffic data, estimated oil spill impacts, and subsistence use data along the Beaufort Sea coast to create a tool for planners and community members to strengthen risk assessment and mitigation planning. This project, while formally completed in 2018, has made the tool and data products publicly available with the intention to support long-term monitoring programs (AOOS, n.d.).

This strong oil spill prevention and response system emerged from a weaker framework, which in 1989 was insufficient to minimize or mitigate the impacts of the Exxon Valdez grounding, resulting in a spill of approximately 11 million gallons of crude oil into Prince William Sound. At the time, stockpiles of spill response equipment were buried under 10 ft. of snow. While existing regulations were in place, they did not compel an adequate and functional spill response (Johnson, 2019). As such, following the 1989 spill, a law was enacted in 1990 requiring a 300,000-barrel response capacity to be in place within 72 hours of a spill (DeCola and Robertson, 2018). This law makes evident the limitations of response capacity by requiring only a set amount of boom, skimmers, and vessels to be available, where regulatory interpretations may delay response (DeCola and Robertson, 2018). While the regulatory response to the Exxon Valdez spill specifically emphasized oil carriers and terminals, the legislative approach offers insights into strengthening response capacity overall. Primarily, having provisions using direct language and removing interpretive vagueness helped propel the law to be more or less 'self-implementing'. This prescriptive approach changed spill response planning standards for the industry, and incentivized prevention much more than previous response planning standards (DeCola and Robertson, 2018).

5.2.2 Greenland

Greenland is an autonomous, self-governing nation within the Kingdom of Denmark. What is unique in the Greenland case, is that under the Self-Governing Act (2009), all inhabitants of Greenland are uniformly recognized as people of Greenland, thus no specific rights are granted to Inuit or other Indigenous groups. Despite the lack of formal recognition under the State, approximately 88% of the Greenlandic population identify as Greenlandic Inuit (World Population Review, 2020). As a result of the lack of legal recognition of distinct Inuit rights in Greenland, this assessment will be

framed in terms of other policy mechanisms that may or may not account for coastal community concerns regarding shipping governance. While the Greenland Government holds jurisdiction over many areas, some are still under Danish jurisdiction (Government of Greenland, n.d.). Shipping falls into a unique jurisdictional space in this context, where maritime legislation is developed by Denmark, but adapted to the conditions of Greenland. Thus, jurisdictional responsibilities are shared through ongoing contact and mutual understanding established between Greenland and Denmark, with the Government of Greenland, the Danish Maritime Authority, the Danish Geodata Agency, the Danish Meteorological Institute, the Joint Arctic Command under the Danish Armed Forces, the Greenland Police, and the High Commissioner of Greenland all holding responsibilities for navigational safety in territorial waters (Danish Geodata Agency, n.d.). One of the main overseeing bodies responsible for implementing IMO conventions is the Danish Maritime Authority.

Relevant policies governing marine safety, including management of increased vessel traffic and impacts on the environment and marine life include the Order for Greenland on the safe navigation etc. of ships; Technical regulation on the use of ice search lights during navigation in Greenland waters; Order on ship reporting systems in the waters off Greenland; Order on Notice B from the Danish Maritime Authority; Order on pilotage, etc. around Greenland; Order on the activities of pilotage service providers and the obligation of pilots in Greenland (as titled by English translations) (Danish Maritime Authority, n.d.a). While other legislation is pertinent, these have been made available in English, and thus have been included in this review. Order on Notice B from the Danish Maritime Authority enacts provisions of MARPOL 73/78 and SOLAS, as well as the Polar Code, applicable to passenger vessels of all sizes, commercial vessels 15m length and above, and recreational vessels with a length of over 24m. Chapter XIV includes measures implementing the Polar Code, while Chapters XXI-XXV address potential impacts on the environment and marine life through ship sourced pollution (Danish Maritime Authority, 2016). Out of concern for cruise vessels in Greenland waters, Denmark maintained a reservation with respect to Annex IV of the Polar Code, which permits sewage discharge under certain treatment conditions at a distance of three nautical miles from an ice shelf or fast ice and as far as practicable from areas exceeding 1/10 ice concentration. Denmark's reservation and amendments contained within the Order on Notice B introduces a prohibition against the discharge of sewage from passenger ships in the Baltic Sea (Chapter XXIV).

The Danish Maritime Authority manages a number of programs that aim to enhance navigational safety, including administering Danish Notices to Mariners and Aasiaat Radio - the Greenland coast radio which providing broadcasts for traffic lists, coastal control reports, storm warnings, weather and ice forecasts, navigational notices and warnings (Tele-Post, n.d.). Station frequencies are made publicly available, thus in addition to vessel operators having access to this service, individuals in coastal communities could in theory, tune in. The Danish Maritime Authority also initiated a program, formerly known as ArcticWeb, now called ArcticInfo and operated by the Norwegian Coastal Administration. This program is a web application tailored to collect and present relevant information to persons navigating in Arctic regions, including Greenland Waters (Danish Maritime Authority, n.d.a). The application includes bathymetry contours, navigation alerts/notices to mariners, maritime boundaries, ice, and weather information, and AIS data (publicly, AIS data is only visible for Norway, but registered users can access AIS information throughout the Arctic) (BarentsWatch, n.d.). The program and collated data are specifically aimed at fishing boats, cruise traffic, and research/expedition vessels which dominate traffic in Arctic regions (BarentsWatch, n.d.). While the program itself can support safe navigation through putting information into the hands of vessel operators, particularly those who may circumvent the usual channels given smaller vessel size, etc., the program could also be beneficial for coastal communities through providing near-real time data on navigational conditions and vessel traffic equipped with AIS monitoring systems. Additional programs to assist with monitoring marine activities administered through the Danish Maritime Authority includes access to the Danish AIS system, providing near-real time AIS data. This system is available for everyone to view at the annual cost of DKK 1150-6859 (roughly $322-$1425 CAD), depending on the access platform (web-based or proxy access respectively, the latter of which allows for more in-depth data filtration/storage/incident replays) (Danish Maritime Authority, n.d.b). Historic data is made freely available.

5.2.3 Conclusion

Internationally, Alaska and Greenland offer different examples of methods to enhance legislative responses to marine traffic and potential impacts on the environment, as well as ways of collating and enhancing available information to inform decision making. The case of the Exxon Valdez spill provoking legislative amendments to clarify language and implementation shows the importance of incentivizing incident prevention over response. Additionally, this case highlights the importance of ensuring that regulatory and legislative language does not create a barrier to responding to a marine incident. The Greenland reservation with respect to Annex IV of the Polar Code also shows a potential approach that could be adopted in Canada if cruise tourism and pleasure craft vessel traffic continues to increase in Nunavut waters, and grey water / sewage management continues to be a concern.

Both Greenland and Alaska also highlight the importance of having information systems to support vessel management and decision making, and having these systems available to Indigenous communities can help inform communities about what and when vessels are transiting, the conditions that are encountered, as well as other spatial information that could be important for local-scale decision making around travel or harvesting, for example. Sharing information through diverse media such as radio and web-based applications allows for information to reach a broader audience, particularly those who may be impacted by the presence of increased vessel traffic.

6 Recommendations

This review highlighted international, national, and regional policies and mechanisms that influence shipping in various ways. Whilst some of these approaches address concerns identified by Nunavut Inuit during the CRN workshops, there are opportunities to strengthen participation in shipping governance and address concerns further. Several recommendations have been identified based on this review, and are categorized according to regulatory/legislative measures, non-regulatory/legislative measures, and management arrangements.

4. Regulatory/legislative measures:
    4.1. Protected Area Management: Designation of future protected areas should include very clear language and zoning with respect to vessel traffic, including no-go and slow down zones. This zoning should be determined in collaboration with communities, accounting for ecologically and culturally significant areas. Co-management arrangements can ensure that at least in the context of a designated protected area, Inuit voices will be influential in this regard.
    4.2. Legal options for responding to a marine incident: Steps have been taken to strengthen legal and compensatory options following an incident of marine pollution, allowing subsistence, cultural, recreational, and ceremonial losses, as well as loss of access to traditional resources to be compensated. However, recoverable damages require a replacement cost value to be assigned. There is the potential for application of Indigenous laws, where existing policy and responses are deemed ineffective. The success of this will be determined through the work and the precedent set by the Heiltsuk Nation and should be followed moving forward.

5. Non-regulatory/legislative measures
    5.1. Beyond the required reporting of vessels adhering to *NORDREG*, communication between vessel owners/operators and communities should be improved. This could be in the form of establishing a memorandum of understanding (specifically for tourism vessels) which could help with improving monitoring of cruise vessels with respect to regulatory compliance. Required communication between vessels and communities could also be included within a memorandum of understanding.
    5.2. Presently, CCG publishes Notices to Mariners on a monthly and annual basis. The Notices typically address regulations, marine services for vessel safety, chart corrections, and other nautical publications. CCG should work with communities and their relevant organizations to highlight additional information that would be

important to include in the annual and monthly editions of Notices to Mariners. This would allow Inuit input into existing formalized channels of communication.

5.3. Based on preliminary feedback on the Enhanced Maritime Situational Awareness program thus far, the initiative seems to be a promising option to get information on vessels and conditions impacting safety into the hands of communities. It is recommended that EMSA be rolled out to other communities, and additional information sources be identified to enhance this program. Other programs may offer insights that could help strengthen EMSA such as the Alaska AOOS system and the Greenland/Denmark Barents Watch programs.

6. Management Arrangements

6.1. While Nunavut does not have jurisdictional authority with regards to shipping, the *Nunavut Agreement* affirms authority with respect to management of marine resources, including species management through the Nunavut Wildlife Management Board (NWMB). In developing species co-management plans, the NWMB can identify areas where vessels should not transit or should be subject to restrictions. Voluntary protection zones could be identified through species management plans. Similarly, voluntary zones not directly tied to marine species could be initiated through marine spatial planning initiatives supported by the Nunavut Marine Council. Both options have the potential to bridge the jurisdictional divide with regards to shipping governance.

6.2. Lastly, while there is a draft Nunavut Land Use Plan, it is recommended that the Nunavut Land Use Plan be finalized, approved, and signed by all parties. Once this occurs, the Nunavut Land Use Plan will come into effect, allowing increased authority with respect to vessel traffic related to coastal resource development.

References

IMO Conventions and Protocols

Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC), 1972 (and the 1996 London Protocol)

International Code for Ships Operating in Polar Waters (Polar Code)

International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004

International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL 73/78)

1992 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND 1992)

Canadian Acts and Regulations

Anguniaqvia niqiqyuam Marine Protected Areas Regulations (SOR/2016-280)

Arctic Waters Pollution Prevention Act. (1985.) R.S.C., 1985, c. A-12.

Arctic Shipping Safety and Pollution Prevention Act. (2017.) SOR/2017-286.

Ballast Water Control and Management Regulations. (2006.) SOR/2006-129

Ballast Water Control and Management Regulations [Repealed, SOR/2011-237, s. 15]

Canada National Marine Conservation Areas Act (S.C. 2002, c. 18)

Canadian Navigable Waters Act (R.S.C., 1985, c. N-22

Canada Shipping Act, 2001 (S.C. 2001, c. 26)

Canada Wildlife Act (R.S.C., 1985, c. W-9)

Fisheries Act (R.S.C., 1985, c. F-14)

Marine Liability Act (S.C. 2001, c. 6)

Marine Mammal Regulations (SOR/93-56)

Nunavut Land Claims Agreement Act (S.C. 1993, c. 29)

Oceans Act (S.C. 1996, c. 31)

Tarium Niryutait Marine Protected Areas Regulations (SOR/2010-190)

Wildlife Area Regulations (C.R.C., c. 1609)

Articles

Aporta, C. (2016). Markers in Space and Time: Reflections on the Nature of Place Names as Events in the Inuit Approach to the Territory. In Lovis, W.A. & Whallon, R. (eds) *Marking the Land: Hunter-Gatherer Creation of Meaning in Their Environment*, 67–88. Taylor & Francis. https://doi.org/10.4324/9781315668451-11

Aporta, C, Kane S.C., & Chircop, A. 2018. Limn: Shipping Corridors through the Inuit Homeland. *Limn*. Retrieved from https://limn.it/articles/shipping-corridors-through-the-inuit-homeland/.

Alaska Ocean Observing System. (n.d.) Arctic Oil Spill Assessment. Retrieved from https://aoos.org/project-page/projects-marine-operations/arctic-oil-spill-risk-assessment/ [Last accessed 23 June 2021]

BarentsWatch. (n.d.) ArcticInfo. Retrieved from https://www.barentswatch.no/arcticinfo/ [Last accessed 23 June 2021]

Barford, A. & Gamble, J. (2021, April 13). Ban on heavy fuel oil in the Arctic is too weak: The International Maritime Organization didn't go far enough to protect Arctic waters. *Policy Options*. Retrieved from https://policyoptions.irpp.org/magazines/april-2021/ban-on-heavy-fuel-oil-in-the-arctic-is-too-weak/ [Last accessed 2 July 2021]

Beaufort Sea Partnership. (2009). Integrated Ocean Management Plan for the Beaufort Sea. Retrieved from http://www.beaufortseapartnership.ca/integrated-ocean-management/integrated-oceans-management-plan/ [Last accessed 23 June 2021]

Beaufort Sea Partnership. (n.d.) Resources. Retrieved from http://www.beaufortseapartnership.ca/resources/ [Last accessed 23 June 2021]

Beveridge, L. 2020. Inuit Nunangat and the Northwest Passage: An Exploration of Inuit and Arctic Shipping Conceptualizations of and Relationships with Arctic Marine Spaces in Canada. In Chircop, A., Goerlandt, F., Pelot, R., & Aporta, C. *Governance of Arctic Shipping: Rethinking Risk, Human Impacts and Regulation.* Springer.

Bishop, B. (2009). Marine Liability Act – A summary of this wide-ranging consolidation statute. Retrieved from http://www.brissetbishop.com/publications/marine-liability-act-a-summary-of-this-wide-ranging-consolidation-statute/

Bone, B. 2018. Overview of marine protected areas in the eastern Canadian Arctic and their ability to mitigate current and future threats. [Unpublished Masters Thesis] Retrieved from https://dalspace.library.dal.ca/bitstream/handle/10222/75141/Bryden_B_MMMGraduateProject.pdf?sequence=1&isAllowed=y

Canadian Coast Guard. 2019, October 25. Anguniaqvia niqiqyuam Marine Protected Area (ANMPA) and Tarium Niryutait Marine Protected Area (TNMPA) – Beluga and Bowhead Whale Protection: Voluntary Avoidance and Slowdown Areas. Notices to Mariners Publication Western Edition. Retrieved from https://www.notmar.gc.ca/archive-en.php?page=west-ouest-10-19-en#ANGUNIAQVIANIQIQYUAMMARINEPROTECTEDAREA(ANMPA)ANDTARIUMNIRYUTAITMARINEPROTECTEDAREAS(TNMPA)–BELUGAANDBOWHEADWHALEPROTECTION:VOLUNTARYAVOIDANCEANDSLOWDOWNAREAS [Last accessed 23 June 2021]

Canadian Coast Guard. 2020. Notices to mariners 1 to 46: Section A – aids to navigation and marine safety. Retrieved from https://www.notmar.gc.ca/publications/annual-annuel/section-a/a5d-en.pdf [Last accessed 16 August, 2021].

Carter, N.A., Dawson, J, & Cook, A. (2019). Arctic Corridors and Northern Voices: governing marine transportation in the Canadian Arctic (Resolute, Nunavut community report). Ottawa: University of Ottawa.

Chan, F.T., Bailey, S.A., Wiley, C.J., & MacIsaac, H.J. (2013). Relative risk assessment for ballast-mediated invasions at Canadian Arctic ports. *Biological Invasions*, *15*(2), 295- 308. doi: 10.1007/s10530-012-0284-z

Chircop, A., Moreira, W. Kindred, H., & Gold, E. (2016). *Canadian Maritime Law [Second Edition]*. Irwin Law Inc.

Chircop, A., Pamel, P.G., and Czarski, M. (2018). Canada's implementation of the Polar Code. *The Journal of International Maritime Law, 24*(6) 428-450.

Clear Seas. (2020, May 27). Marine fuels: What is heavy fuel oil? Retrieved from https://clearseas.org/en/blog/marine-fuels-what-is-heavy-fuel-oil/ [Last accessed 1 Sept, 2021]

Coastal First Nations. (2020, March 7). Heiltsuk Horizon Recruits for Jobs on the Water. Retrieved from https://coastalfirstnations.ca/heiltsuk-horizon-recruits-for-jobs-on-the-water/ [Last accessed 23 June 2021]

Council of the Haida Nation (CHN) & Government of Canada. (2017). Gwaii Haanas Marine Agreement. Retrieved from https://www.haidanation.ca/wp-content/uploads/2017/03/GHMarineAgreement.pdf [Last accessed 23 June 2021]

Council of the Haida Nation (CHN) and Government of Canada. (2018). Gwaii Haanas Gina 'Waadluxan KilGuhlGa Land-Sea-People Management Plan, 2018. Retrieved from https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas/info/consultations/gestion-management-2018#section7-0 [Last accessed 23 June 2021

Council of the Haida Nation (CHN) & Province of British Columbia (BC). 2015. Haida Gwaii Marine Plan. Retrieved from https://haidamarineplanning.com/wp-content/uploads/2016/09/MarinePlan_HaidaGwaii_WebVer_21042015-opt.pdf [Last accessed 23 June 2021]

Council of the Haida Nation (CHN). (2020). Trial 2020/2021 Voluntary Protection Zone for Shipping West Coast of Haida Gwaii. Retrieved from http://haidagwaii-vpz.ca/sample-page/ [Last accessed 23 June 2021]

Council of the Haida Nation (CHN). (n.d.) Marine Planning Program. Retrieved from https://haidamarineplanning.com/issues/vessel-traffic/ [Last accessed 23 June 2021]

Council of the Haida Nation (CHN). (n.d.) Marine Shipping and Safety on Haida Gwaii. Retrieved from https://haidamarineplanning.com/wp-content/uploads/2016/09/MarineShippingandSafetyBooklet.pdf [Last accessed 23 June 2021]

Crowley, P. (2015, April 10). Baffinland decision shows Nunavut resource development regulatory system is doing its job. *WWF.* https://wwf.ca/stories/baffinland-decision-shows-nunavut-resource-development-regulatory-system-is-doing-its-job/

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2019a). Canada's Arctic and Northern Policy Framework. Retrieved from https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587 [Last accessed 23 June 2021]

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2019b). Highlights of Canada's Arctic and Northern Policy Framework. Retrieved from https://www.rcaanc-cirnac.gc.ca/eng/1567697304035/1567697319793 [Last accessed 23 June 2021]

Danish Geodata Agency. (n.d.) Authorities. Retrieved from https://eng.navigation.gl/authorities/ [Last accessed 23 June 2021]

Danish Maritime Authority. (n.d.a) Navigation in Greenland. Retrieved from https://www.dma.dk/SikkerhedTilSoes/Arktis/SejladsGroenland/Sider/default.aspx [Last accessed 23 June 2021]

Danish Maritime Authority. (n.d.b). AIS Data. Retrieved from https://www.dma.dk/SikkerhedTilSoes/Sejladsinformation/AIS/Sider/default.aspx [Last accessed 23 June, 2021]

Dawson, J., Johnston, M., & Stewart, E. (2017). The unintended consequences of regulatory complexity: The case of cruise tourism in Arctic Canada. *Marine Policy*, *76*, 71–78. https://doi.org/10.1016/j.marpol.2016.11.002

DeCola E. and Robertson, T. (2018). Alaska's oil spill response planning standard – History and legislative intent. Report to Prince William Sound Regional Citizens' Advisory Council. Retrieved from https://www.pwsrcac.org/wp-content/uploads/filebase/programs/oil_spill_prevention_planning/Alaska%27s%20Oil%20Spill%20Response%20Planning%20Standard%20-%20History%20and%20Legislative%20Intent.pdf [Last accessed 23 June 2021]

Department of Economic Development and Transportation. (2019). Annual tourism report 2018-2019. Retrieved from https://assembly.nu.ca/sites/default/files/TD-209-5(2)-EN-2018-2019-Annual-Report-Tourism.pdf [Last accessed 9 July 2021]

Department of Justice. (2018). Principles Respecting the Government of Canada's Relationship with Indigenous Peoples. Retrieved from https://www.justice.gc.ca/eng/csj-sjc/principles.pdf [Last accessed 23 June 2021]

Environmental Impact Screening Committee. (n.d.) Community Conservation Plans. Retrieved from http://www.screeningcommittee.ca/resources/reports.html [Last accessed 23 June 2021]

Executive Office of the President (2000, November 6). Executive Order 13175 Consultation and Coordination with Indian Tribal Governments. Retrieved from https://www.federalregister.gov/documents/2000/11/09/00-29003/consultation-and-coordination-with-indian-tribal-governments [Last accessed 23 June 2021]

Firestone, J. (2007). Response and Responsibility: Regulating Noise Pollution in the Marine Environment. Retrieved from https://www.researchgate.net/publication/233239060_Response_and_Responsibility_Regulating_Noise_Pollution_in_the_Marine_Environment_1

Fisheries and Oceans Canada (DFO). (1999). National Framework for Establishing and Managing Marine Protected Areas. Retrieved from https://www.dfo-mpo.gc.ca/oceans/publications/mpaframework-cadrezpm/page01-eng.html [Last accessed 23 June 2021]

Fisheries and Oceans Canada (DFO). (2010.) Review of Alternate Ballast Water Exchange Zones for vessel traffic to Newfoundland and Labrador and the Canadian Arctic. Canadian Scientific Advisory Secretariat Report 2010/026. Retrieved from http://www.dfo-mpo.gc.ca/Library/340940.pdf

Fisheries and Oceans Canada (DFO). (2015.) Risk assessment of alternate ballast water exchange zones for vessel traffic to the eastern Canadian Arctic. Canadian Scientific Advisory Secretariat Report 2015/019. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/364601.pdf

Fisheries and Oceans Canada (DFO). (2019). Anguniaqvia niqiqyuam Marine Protected Area (MPA). Retrieved from https://www.dfo-mpo.gc.ca/oceans/mpa-zpm/anguniaqvia-niqiqyuam/index-eng.html [Last accessed 23 June 2021]

Fisheries and Oceans Canada & Fisheries Joint Management Committee. (2013). Tarium Niryutait Marine Protected Area Management Plan. Retrieved from http://www.beaufortseapartnership.ca/wp-content/uploads/2015/05/tnmpa-mgmt-plan_final.pdf [Last accessed 23 June 2021]

Flynn, A. (2013). A Guide for Integrating Inuit Qaujimajatuqangit into Decision-making for Marine Shipping Development in Nunavut, Canada. [Unpublished Master's Thesis] Dalhousie University.

George, J. (2020, March 3). Nunavut's mining revenues and production up in 2019. Nunatsiaq News. Retrieved from https://nunatsiaq.com/stories/article/nunavuts-mining-revenues-and-production-up-in-2019/ [Last accessed 23 June 2021]

Goldsmit, J., Howland, K.L., & Archambault, P. (2014.) Establishing a baseline for early detection of non-indigenous species in ports of the Canadian Arctic. Aquatic Invasions, 9(3), 327–342. Retrieved from https://www.nwmb.com/en/conservation-education/list-all-documents/nunavut-wildlife-research-trust/2013-financial-reports/3-13-09-aquatic-invasive-species-surveillance/4744-aquatic-invasive-species-surveillance-3-13-09-final-report-1/file

Goldsmit, J., Nudds, S.H., Stewart, D.B., Higdon, J.W., Hannah, C.G., & Howland, K.L. (2019). Where else? Assessing zones of alternate ballast water exchange in the Canadian eastern Arctic. *Marine Pollution Bulletin, 139*, 74-90. Retrieved from https://www.sciencedirect.com/science/article/pii/S0025326X18308476

Government of Canada. (n.d.a.) Ship-Sourced Oil Pollution Fund. Retrieved from http://sopf.gc.ca/?page_id=270

Government of Canada. (n.d.b.). Impacts of the 2018 modifications to the Marine Liability Act on the Fund. Retrieved from http://sopf.gc.ca/

Government of Canada. (2019). General claims manual. Retrieved from http://sopf.gc.ca/wp-content/uploads/pdf/39-202_GeneralClaims_Manuel-EN-Web.pdf

Government of Canada. (2020). Compensation handbook for fishers, aquaculturists, and all involved in related activities. Retrieved from http://sopf.gc.ca/wp-content/uploads/pdf/EN-COMPENSATION-HANDBOOK-Fishers-Aquaculturists-All-March2020.pdf

Government of Greenland. (n.d.) Politics in Greenland. Retrieved from https://naalakkersuisut.gl/en/About-government-of-greenland/About-Greenland/Politics-in-Greenland [Last accessed 23 June 2021]

Government of Northwest Territories. (n.d.) Concluding and Implementing Land Claim and Self-Government Agreements. Retrieved from https://www.eia.gov.nt.ca/en/priorities/concluding-and-implementing-land-claim-and-self-government-agreements/inuvialuit [Last accessed 23 June 2021]

Government of Nunavut. (n.d.a) Nunavut Economy. Retrieved from https://www.gov.nu.ca/eia/documents/nunavut-economy [Last accessed 2 July 2021]

Government of Nunavut. (n.d.b). Nunavut Real GDP by Industry, 2012-2019. Retrieved from https://www.gov.nu.ca/executive-and-intergovernmental-affairs/information/economic-data [Last accessed 23 June 2021]

Halliday, W.D., Insley, S.J., Hilliard, C., de Jong, T., Pine M.K. (2017). Potential impacts of shipping noise on marine mammals in the western Canadian Arctic. *Marine Pollution Bulletin, 123*(1-2), 73-82. https://doi.org/10.1016/j.marpolbul.2017.09.027

Haren, A. (2007). Reducing Noise Pollution from Commercial Shipping in the Channel Islands National Marine Sanctuary: A Case Study in Marine Protected Area Management of Underwater Noise*, 10*(2), 153-173. https://doi.org/10.1080/13880290701347432

Heiltsuk, Kitasoo/Xai'Xais, Nuxalk, Wuikinuxv Nations & Province of British Columbia. (2015). Central Coast Marine Plan. Retrieved from http://mappocean.org/wp-content/uploads/2015/08/MarinePlan_CentralCoast_10082015.pdf [Last accessed 23 June 2021]

Heiltsuk Tribal Council. (2017a). Investigation Report: The 48 hours after the grounding of the Nathan E. Stewart and its oil spill. Retrieved from http://www.heiltsuknation.ca/wp-content/uploads/2017/10/HTC-NES-IRP-2017-03-31.pdf [Last accessed 23 June 2021]

Heiltsuk Tribal Council. (2017b). Indigenous Marine Response Centre (IMRC) Creating a World-Leading Response System. Retrieved from http://www.heiltsuknation.ca/wp-content/uploads/2017/11/HTC_IMRC-Report_Nov-15-2017.pdf [Last accessed 23 June 2021]

Heiltsuk Tribal Council. (2018). Dáduqvḷá1 qṇtxv Ğviḷásax̌ To look at our traditional laws: Decision of the Heiltsuk (Haíłzaqv) Dáduqvḷá Committee Regarding the October 13, 2016 Nathan E. Stewart Spill. Retrieved from http://www.heiltsuknation.ca/wp-content/uploads/2018/10/Heiltsuk_Adjudication_Report.pdf [Last accessed 23 June 2021]

Heiltsuk Tribal Council. (n.d.a). Territory. Retrieved from http://www.heiltsuknation.ca/about-2/territory/ [Last accessed 23 June 2021]

Heiltsuk Tribal Council. (n.d.b). Nathan E. Stewart Oil Spill. Retrieved from http://www.heiltsuknation.ca/the-nathan-e-stewart-oil-spill/ [Last accessed 23 June 2021]

Imappivut. (n.d.). What is Imappivut. Retrieved from https://imappivut.com/about/ [Last accessed 23 June 2021]

International Maritime Organization (IMO). (2005). Resolution A.982(24) Adopted 1 December 2005. Revised guidelines for the identification and designation of particularly sensitive sea areas. Retrieved from https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.982(24).pdf

Inuit Circumpolar Council (ICC). (2020a). Inuit Circumpolar Council Calls for Safe Arctic Shipping to Protect Inuit Rights and the Marine Environment – ICC Applies for IMO Consultative Status. Retrieved from 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/

Inuit Circumpolar Council (ICC). (2020b). Inuit call for stronger protections for safe Arctic shipping considering weak HFO ban passed at IMO. Retrieved from https://www.inuitcircumpolar.com/news/inuit-call-for-stronger-protections-for-safe-arctic-shipping-considering-weak-hfo-ban-passed-at-imo/

Inuvialuit Final Agreement. Retrieved from https://irc.inuvialuit.com/sites/default/files/Inuvialuit%20Final%20Agreement%202005.pdf [Last accessed 23 June 2021]

Inuvialuit Regional Corporation. (2020). Cruise Ship Management Plan for the Inuvialuit Settlement Region 2020-2023. Retrieved from https://survey.inuvialuit.com/res/Cruise_ship_management_plan_DRAFT_20201019.pdf [Last accessed 23 June 2021]

Jakobsen, I. (2016). *Marine protected areas in international law: An Arctic perspective*. Brill | Nijhoff. Retrieved from https://brill.com/view/book/9789004324084/B9789004324084-s019.xml

Johnson, A. (2019, February 15). How Alaskans redefined oil spill prevention and response. Prince William Sound Regional Citizen's Advisory Council. Retrieved from https://www.pwsrcac.org/announcements/how-alaskans-reimagined-oil-spill-prevention-and-response/ [Last accessed 23 June 2021]

Johnston, M., Dawson, J., & Stewart, E. (2019). Marine tourism in Nunavut: Issues and opportunities for economic development in Arctic Canada. In Koster, R.L., Carson, D.A. (Eds) *Perspectives on rural tourism geographies: case studies from developed nations on the exotic, the fringe, and the boring bits in between*. Springer Nature: Springer.

Johnston M., Dawson, J., Stewart, E., & De Souza, E. (2017). Strategies for Managing Arctic Pleasure Craft Tourism: A Scoping Study. [Report to Transport Canada]. Retrieved from https://www.arcticcorridors.ca/wp-content/uploads/2017/12/Pleasure_Craft_Aug2013-7_ONLINE.pdf

Kikkert, P. (2020). Geography of Nunavut. The Canadian Encyclopedia. Retrieved from https://www.thecanadianencyclopedia.ca/en/article/geography-of-nunavut [Last accessed 23 June 2021]

Kraska, J. (2016). Canadian Arctic Shipping Regulations and the Law of the Sea. Retrieved from https://link.springer.com/chapter/10.1057%2F9781137493910_3

Lalonde, S. (2018a). The debate over the legal status of the Northwest Passage. Retrieved from https://sencanada.ca/content/sen/committee/421/ARCT/Briefs/SuzanneLalonde_Briefs_e.pdf

Lalonde, S. (2018b). Canada's Influence on the Law of the Sea. *Canada in International Law at 150 and Beyond, 7*, 1-14. Retrieved from https://www.cigionline.org/sites/default/files/documents/Reflections%20no.7%20Lalonde.pdf.

Lipscombe, A. (2016.) Assessing the current and future risk of ballast-sourced species invasions in Canada's eastern Arctic under a climate change scenario. [Unpublished Master's Thesis] Dalhousie University. Retrieved from https://dalspace.library.dal.ca/bitstream/handle/10222/72728/Lipscombe_MVA_MMMgraduateproject.pdf?sequence=1&isAllowed=y

MacDonald, J. (2018). Stories and representation: Two centuries of narrating Amitturmiut history. In MacDonald, J. & Wachowich, N. *The Hands' Measure – Essays Honouring Leah Aksaajuq Otak's Contribution to Arctic Science*, 43-80. Iqualuit: Nunavut Arctic College Media.

Makivik Corporation. (2006). Nunavik Environmental Rights. Retrieved from https://www.makivik.org/wp-content/uploads/2013/02/Nunavik11.pdf [Last accessed 23 June 2021]

Makivik Corporation. (2017). Draft Polar Bear Management Plan for Québec, the Eeyou Marine Region and the Nunavik Marine Region. Retrieved from https://www.makivik.org/wp-content/uploads/2016/12/ENG_PB_Final-Draft-for-consultation.pdf [Last accessed 23 June 2021]

McCreath, M. and L. Brigham. (2018). Challenges for the Establishment of Marine Protected Areas in Response to Arctic Marine Operations and Shipping. In Hildebrand, L.P., Brigham, L.W., & Johansson, T.M. *Sustainable Shipping in a Changing Arcic*, 297-322. Retrieved from https://cil.nus.edu.sg/publication/challenges-for-the-establishment-of-marine-protected-areas-in-response-to-arctic-marine-operations-and-shipping/

Nunavut Marine Council. (2018). NMC Strategic Plan 2018-2023. Retrieved from https://www.nunavutmarinecouncil.com/wp-content/uploads/2020/10/180703-NMC_2018-2023_Strategic_Plan-OPAE.pdf [Last accessed 23 June 2021]

Oceans North Conservation Society, World Wildlife Fund Canada, & Ducks Unlimited Canada, (2018). *Canada's Arctic Marine Atlas*. Ottawa, Ontario: Oceans North Conservation Society.

Pacific North Coast Nations and Government of Canada. (2018). Reconciliation Framework Agreement for Bioregional Oceans Management and Protection. Retrieved from https://tc.canada.ca/sites/default/files/migrated/2018_rfa_eng_accessible_v2.pdf [Last accessed 23 June 2021]

Parks Canada. (2019). Protecting Canada's Marine Heritage: Proposed Policy and Regulations for Canada's National Marine Conservation Areas: Discussion Paper (May 2019). Retrieved from https://www.pc.gc.ca/en/amnc-nmca/consultation/document-travail-discussion-paper

Parson, J. (2012.) Benchmarking of best practices for Arctic Shipping. World Wildlife Fund. Retrieved from http://awsassets.wwf.ca/downloads/wwf_arctic_shipping_best_practices_report_2012_1.pdf

Pizzolato, L., Howell, S. E. L., 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), 12,146-12,154. https://doi.org/10.1002/2016GL071489

Priest, H. & Usher, P.J. 2004. The Nunavut Wildlife Harvest Study. Nunavut, Canada. Retrieved from https://www.nwmb.com/inu/publications/harvest-study/1824-156-nwhs-report-2004-156-0003/file [Last accessed 23 June 2021]

Rodon, T., & Lévesque, F. (2015). Understanding the Social and Economic Impacts of Mining Development in Inuit Communities: Experiences with Past and Present Mines in Inuit Nunangat. *The Northern Review*, 27.

Scriven, D.R., DiBacco, C., Locke, A., & Therriault, T.W. (2015.) Ballast water management in Canada: A historical perspective and implications for the future. *Marine Policy, 59*, 121-133. Retrieved from https://www.academia.edu/19309469/Ballast_water_management_in_Canada_A_historical_perspective_and_implications_for_the_future

Smith, L.C & Stephenson, S.R. (2013) New Trans-Arctic shipping routes navigable by midcentury. *Proceedings of the National Academy of Sciences, 110,* E1191-E1195. https://doi.org/10.1073/pnas.1214212110

Statistics Canada. (2017). *Nunavut [Territory] and Canada [Country]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.

https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (Last accessed 23 June 2021).

Stewart, E.J., Liggett, D., Lamers, M., Ljubicic, G., Dawson, J., Thoman, R., Haavisto, R., & Carrasco, J. (2020). Characterizing Polar Mobilities to Understand the Role of Weather, Water, Ice and Climate (WWIC) Information. *Polar Geography 43*(2–3), 95–119. https://doi.org/10.1080/1088937X.2019.1707319.

Stewart, D.B., Nudds, S.H., Howland, K.L., Hannah, C.G., and Higdon, J.W. (2015.) An ecological and oceanographical assessment of alternate ballast water exchange zones in the Canadian eastern Arctic. Canadian Scientific Advisory Secretariat Research Document 2015/037. Retrieved from http://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-5-2015-037-eng.pdf

Tele-Post. (n.d.) Coastal Radio. Retrieved from https://telepost.gl/da/privat/andre-produkter/kystradio/coastal-radio [Last accessed 23 June 2021]

Thorén, A.M. (2014). Article 234 UNCLOS and the Polar Code - The interaction between regulations on different levels in the Arctic region. University of Oslo. Retrieved from https://www.duo.uio.no/handle/10852/42108.

Transport Canada. (2011). Ballast Water Management. Retrieved from https://www.tc.gc.ca/eng/marinesafety/oep-environment-ballastwater-management-1963.htm

Transport Canada. (2018). Guidelines for Passenger Vessels Operating in the Canadian Arctic – TP 1360. Retrieved from https://tc.canada.ca/en/marine-transportation/marine-safety/guidelines-passenger-vessels-operating-canadian-arctic-tp-13670#Appendix_3

Transport Canada. (2019). Managing ballast water. Retrieved from https://www.tc.gc.ca/eng/marinesafety/oep-environment-sources-ballastwater-1722.htm#_National_and_international

Transport Canada. (2020a). Canada's Oceans Protection Plan. Retrieved from https://tc.canada.ca/en/initiatives/oceans-protection-plan/canada-s-oceans-protection-plan [Last accessed 23 June, 2021]

Transport Canada. (2020b). Enhanced Maritime Situational Awareness Initiative pilot projects. Retrieved from https://tc.canada.ca/en/marine-transportation/navigation-marine-conditions/enhanced-maritime-situational-awareness-initiative-pilot-projects [Last accessed 23 June 2021]

Transport Canada. (2020, September 3). The Government of Canada and the Haida Nation announce Voluntary Protection Zone trial on west coast of Haida Gwaii. News Release. Retrieved from https://www.canada.ca/en/transport-canada/news/2020/09/the-government-of-canada-and-the-haida-nation-announce-voluntary-protection-zone-trial-on-west-coast-of-haida-gwaii.html [Last accessed 23 June 2021]

Transport Canada. (2021a). List of Canada's designated alternate ballast water exchange area and fresh waters – TP 13617E (2021). Retrieved from https://tc.canada.ca/en/marine-transportation/marine-safety/list-canada-s-designated-alternate-ballast-water-exchange-area-fresh-waters-tp-13617e-2021#item4

Transport Canada. (2021b). Report to Canadians: Investing in our coasts through the Oceans Protection Plan. Retrieved from https://tc.canada.ca/en/initiatives/oceans-protection-plan/report-canadians-investing-our-coasts-through-oceans-protection-plan#indigenous-partnerships [Last accessed 23 June 2021]

Transport Canada. (n.d.) Oceans Protection Plan Accomplishments – Arctic Region. Retrieved from https://tc.canada.ca/sites/default/files/migrated/opp_accomplishments_arctic_en.pdf [Last accessed 23 June 2021]

Vard Marine Inc. (2018). Canadian Arctic Grey water report: Estimates, forecasts, and treatment technologies. Retrieved from http://d2akrl9rvxl3z3.cloudfront.net/downloads/vard_360_000_01_dfr_rev2_29_05_2018.pdf

VanderZwaag, D. L. (2015). The governance of Arctic Shipping: Conflict, Cooperation, Challenges. [Presentation for Warming of the Norther Conference 2-3 March 2015]. Retireved from https://umanitoba.ca/faculties/management/ti/media/docs/VanderZwaag.pdf

Wiley, C., and Claudi, R. (2002). Alien species transported in ships' ballast water: From known impact to regulations. In R. Claudi, P. Nantel, and E. Muckle-Jeffs (Eds.), Alien Invaders in Canada's Waters, Wetlands, and Forests (pp. 233–242). Natural Resources Canada, Canadian Forest Service, Science Branch, Ottawa.

Williams, R., Erbe, C., Ashe, E., & Clark, C.W. (2015). Quiet(er) marine protected areas. *Marine Pollution Bulletin,* 100(1), 154-161. Retrieved from https://doi.org/10.1016/j.marpolbul.2015.09.012

World Population Review. (2020). Greenland Population. Retrieved from https://worldpopulationreview.com/countries/greenland-population [Last accessed 23 June 2021]

World Wildlife Fund (WWF). (2018). Framework and tools for developing a low-impact shipping corridor in the arctic ocean. Retrieved from https://wwf.ca/wp-content/uploads/2020/06/Framework-and-Tools-for-Developing-a-Low-Impact-Shipping-Corridor-in-the-Arctic-2019.pdf