

INTRODUCTION TO THE LEGAL AND REGULATORY FRAMEWORK FOR ARCTIC MARINE TRANSPORTATION IN CANADIAN WATERS

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Introduction & Overview

This paper reviews current literature on Arctic climate, ice conditions, and shipping. Three conclusions are derived:

1. The Northwest Passage will continue to trend towards improved shipping conditions during the late July-to-mid-October shipping window, for the foreseeable future.
2. The Government of Canada has undertaken the actions needed to ensure that the Northwest Passage will remain Canadian Internal Waters, and will be protected environmentally.
3. A business opportunity exists for a scheduled service, in which an ice-strengthened escort vessel would lead “caravans” of ocean freighters through the Northwest Passage during the shipping window.

The paper presents the conceptual business case in a product-supply-demand argument. The paper then summarizes the sovereignty issue, Canadian Arctic marine safety and environmental regulations, and relevant agency jurisdictions.

The Product

The “product” in question is a seasonal “shipping window” (late July to mid-October) marine shipping corridor which offers several advantages over other routes:

- The route is entirely within NATO waters;
- Canada has a very strong tradition of good government and rule of law (almost no risk of corruption or piracy);
- Potential to be used for a Europe-to-Asia fibre-optic line;

- The route is suitable for ships larger than the “new” Panamax (427m X 55m); and
- Distances are significantly reduced from competing routes. For example, marine distances from London to Busan Korea¹:
 - Via Panama Canal: ~23,000km
 - Via Suez Canal: ~21,000km
 - Northwest Passage (northern Canada): ~16,000km
 - Northeast Passage (northern Russia): ~13,000km

The three latter routes are shown on Figure 1.

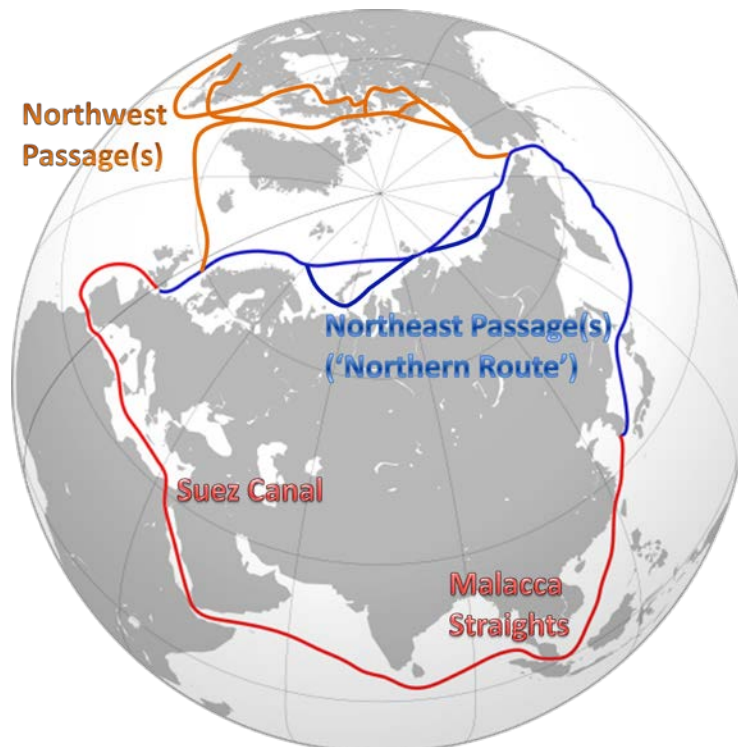


Figure 1: The Northwest Passage in Global Context

The Supply

The Northwest Passage Corridor has seen significant improvement in shipping conditions during the seasonal window every year for over a decade. The primary route north of Banks, Victoria, and Baffin Islands are now consistently free of pack ice during the shipping window. Figure 2 shows how pack ice minimums in the Arctic Ocean have shrunk considerably in the recent past.

However, with the removal of pack ice, now ice floes are able to enter the Northwest Passage from the central Arctic Ocean past Melville Island. These ice floes sometimes include multi-year ice, which are large and dense enough to present real risk to vessels. Figure 3 shows the location where ice floes are increasingly an issue. Figure 4 shows an ice floe made of first-year ice.

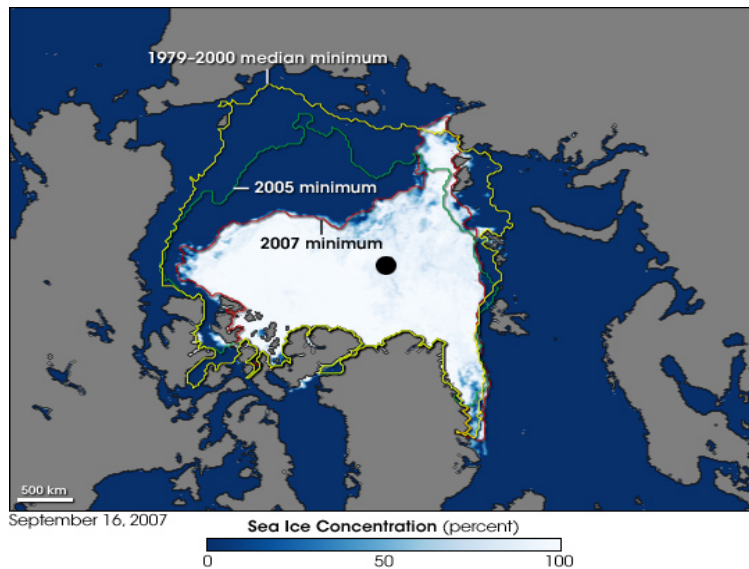


Figure 2: Arctic Ocean Ice Minimums 1979-2007

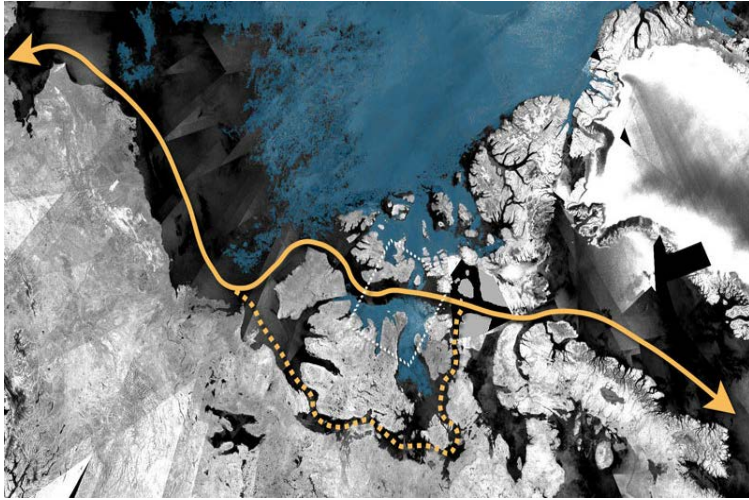


Figure 3: The Area Bordered by a White Dotted Line Indicates Area of Concern for Ice Floes during the Shipping Window



Figure 4: Example of a Summer Ice Floe, of First-Year Ice. Multi-year Ice Pieces are Thicker and More Dangerous.

The Demand

In 2010, Frederic Lasserre of Quebec's Laval University undertook a thorough survey of international shipping companies, in order to quantify commercial interest in the Northwest Passage. His study indicated an extremely low interest in the route, for the following reasons:

1. Expense of ice-reinforcement of hulls of shipping vessels, and paying higher fuel costs for ocean freighters.
2. Uncertainty of scheduling, due to unpredictability of ice floes.
3. Very high insurance rates for shipping in the Arctic.

All of these issues could conceptually be addressed through the icebreaker-led caravan idea mentioned in the introduction. This concept involves an icebreaker leading a single file of ocean freighters through the Northwest Passage. The icebreaker would clear a path through any ice floes, while providing an on-site emergency responder.

The caravan concept not been discussed in the literature, however is considered the only and logical course of possible action by staff at Transport Canada (TC) and the Canadian Coast Guard (CCG). No detailed business assessment has been made of the caravan concept, in part because no commercial-size icebreakers are available for private hire in Canada, and those that are available for hire in Russia have been subsidized to an unknown degree. Based on Panama Canal transit fees of \$3 to \$4.50 per UMS Ton (1 UMS Ton \approx 100 sq ft.), which according to Wikipedia translate to about \$54,000 average per freighter, a Northwest Passage service would have to charge no more than an average of about \$75,000 per crossing per freighter to be strongly competitive.

Other factors to consider on the long-range demand side:

- Due to piracy off the coasts of Somalia, Sumatra Island in Indonesia, and Mindanao in the Philippines, insurance rates for the Suez Canal-Malacca Strait route are rapidly rising.

- The Panama Canal expansion will capture a good portion of cargo trade between Asia and Europe/eastern North America, which will increase available capacity at west coast ports.
- The Northeast Passage across northern Russia has a less complex ice regime than the Northwest Passage, easier access to icebreakers, but far lower quality and reliability of governance.
- Overall world cargo trade by sea will only increase with time.
- China has identified the Northwest Passage as being of particular strategic importance to China's economic interests.
- A scheduled caravan-and-escort service through the Northwest Passage would have almost unlimited capacity.

The Sovereignty Question

The entirety of the Northwest Passage through the Arctic Archipelago is treated as internal waters by the Canadian government, and referred to as such by the Canadian military. A number of major international governments, most notably the United States and the European Union, consider it to be an international waterway subject to Canadian environmental and economic regulations, but without the legal ability to actually halt any non-Canadian vessels. Complicated legal arguments for and against have been prepared and will not be reviewed here. The Government of Canada is pursuing diplomatic channels to secure eventual international recognition of full sovereignty.

Also to support its claim, the Canadian government is building a permanent military base near the northern tip of Baffin Island, and is conducting large annual arctic marine war games. It has announced a 30-year, \$35-billion budget to upgrade Canada's Arctic fleet of coast guard and navy vessels. This will include 8, 379' armed patrol vessels with ability to travel through 3' thick and operate up to 270 days between resupply runs. The Canadian Rangers, a mainly-Inuit

paramilitary group who patrol the north by snowmobile and boat, are expanding their activities.

CCG presently has 2 heavy icebreakers, 4 medium icebreakers, and 10 light icebreakers. Of the light icebreakers, 7 are high-endurance. The Navy does not have ice-breaking ability.

International Regulatory Regime

This section will be brief, since Canadian regulations apply and international ones do not. The Canadian Government is working with the various international bodies to harmonize Canadian Arctic shipping regulations with international ones.

The following quote from AMSA (2009) provides an excellent summary of the international regulatory regime for Arctic shipping:

“The Law of the Sea, as reflected in the United Nations Convention on the Law of the Sea (UNCLOS), provides a fundamental framework for the governance of Arctic marine navigation and allows coastal states the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered waters (Article 234). The International Maritime Organization (IMO) is the competent UN agency with responsibility for issues related to the global maritime industry. IMO has been proactive in developing voluntary Guidelines for Ships Operating in Arctic Ice-covered Waters, which continue to evolve. The International Association of Classification Societies (IACS) has also developed non-mandatory Unified Requirements for their members that address ship construction standards of the Polar Classes, which are defined in the IMO Guidelines. There are no uniform, international standards for Ice Navigators and for Arctic safety and survival for seafarers in polar conditions. And, there are no specifically tailored, mandatory environmental standards developed by IMO for

vessels operating in Arctic waters. Mandatory measures, drawn up in accordance with the provisions of customary international law as reflected in UNCLOS, would be an effective way to enhance marine safety and environmental protection in Arctic waters. Expanded Arctic marine traffic increases the possibility of, for example, introducing alien species and pathogens from ballast water discharge and hull fouling.”

Canadian Arctic Shipping Regulations (Summary)

Ships entering the [Canadian Arctic] are subject to Canada’s *Arctic Water Pollution Prevention Act*. This act creates 15 regulatory zones that may restrict vessel navigation if there is ice present. These navigation restrictions are found above 60°N. Vessels are categorized into 1 of 9 classifications according to their ability to withstand and break ice. These classifications are E to A, and CAC4 to CAC1. Class E is suitable for open water only, while Class A can break consolidated thin first-year ice pack. CAC 4 can break medium ice, while CAC1 can travel through consolidated multi-year ice.

For example, in Hudson Bay Zone around the Port of Churchill, Vessels of Type A & B Class are permitted into the zone from June 25 to November 30. Vessels of Type C Class are permitted from July 1 to November 15. Type D and E are never permitted without pre-registered escort by an appropriate ice-strengthened vessel.

Vessels operating in any zone outside of the specified shipping window dates are subject to the Arctic Ice Regime Shipping System (AIRSS). AIRSS is administered by TC Marine Safety. AIRSS considers vessel condition and crew experience, including presence of an Ice Navigator, to determine the ability of a vessel to enter a zone.

Since July 1 2010, all vessels larger than 300 gross tones, in all seasons, sailing into northern Canadian waters — in a designated area known as the Northern Canada Vessel Traffic Services (NORDREG) zone — must provide Canadian authorities with information such as

the ship's ice class, where they are going, how much oil they are carrying, and whether they have any hazardous materials on board.

In the event of an environmental emergency, the legal principle of the polluter pays will apply. The CCG expects all vessels entering the Arctic to have, or have ready access to (from a first responder company), spill containment. If an environmental emergency gets out of hand, CCG will respond as it deems appropriate. Such response will initiate cost-recovery mechanisms by the Government of Canada against the shipping company in question.

Existing regulations are flexible enough to permit the caravan concept. If the ocean freighters are led by an appropriate ice-strengthened and equipped vessel², and if all vessels travelling in the caravan have a qualified Ice Navigator on-board, lower standards for hull strength and on-board safety and environmental emergency equipment are permitted. CCG will not provide escort services for a fee, as community resupply and emergency response are always given highest priority.

Canada is encouraging the international community to adopt the above regulations into a "Polar Code", which would apply throughout the Arctic.

Environmental and Planning Policy Considerations

The position of the Government of Canada is best summarized in the preface to the *Arctic Water Pollution Prevention Act*, which states:

"Parliament ...is determined to fulfil its obligation to see that the natural resources of the Canadian arctic are developed and exploited and the arctic waters adjacent to the mainland and islands of the...arctic are navigated only in a manner that takes cognizance of Canada's responsibility for the welfare of the Inuit ... and the preservation of the peculiar ecological balance that now exists..."

The legislative and regulatory regime of the Canadian Arctic, taken as a whole, is bewildering. Fortunately, clear marine policy exists in most cases, as discussed in the next 3 sections.

Jurisdiction Relating to Crown Lands and Waters

In the three territories of Canada, most land is Crown (government-owned). Jurisdiction for almost most Crown land, including surface and subsurface rights, and including the beds of all waterbodies, is managed by the federal Department of Aboriginal Affairs and Northern Development (ANAC, formerly INAC). Most private land is held by designated Aboriginal organizations, but these rights do not include the beds of saltwater bodies.

A confusing mix of agencies oversee wildlife and environmental protection. Environment Canada (EC) oversees migratory birds and environmental contamination. Fisheries and Oceans Canada (DFO) oversees fish, miscellaneous sea life, and marine mammals. Various territorial agencies oversee terrestrial mammals. There is considerable agency overlap with some animals, especially polar bears. Be clear: if there is a way to hurt an animal or damage its habitat, there is at least one regulation or law (or several) to protect that animal or that habitat.

When freeze-up is complete, the ice surface is treated more as land than water by the environmental laws, especially where terrestrial animals use the ice as a bridge. These laws are strict, and require high levels of consultation with Aboriginal groups before any icebreaking can occur. This factor alone makes commercial breakage of solid icepack unfeasible in almost all cases.

TC typically oversees port facilities, although maintenance of said facilities are commonly handled by ANAC. Territorial agencies are also playing an increasing role in port maintenance and construction.

CCG, now part of DFO, has also at various times been part of TC. Much of its work relates to enforcement of TC policies, and much of the best expertise on CCG is in TC.

Parks Canada (PC), now part of EC, has also at various times been part of ANAC or Canadian Heritage. PC manages National Marine Conservation Areas (NMCAs). Sea-bottom ownership rests with PC in NMCAs, while co-management with Aboriginal groups is implemented to the extent possible, and conservation is a primary goal. Where a NMCA is located on a shipping corridor, regulations impacting such shipping must be jointly agreed to by EC (represented mainly by PC) and TC. This will generally mean additional environmental protection protocols over and above the TC regulations.

Relevant Non-Federal Entities, Their Roles, and the Environmental Assessment Process

Although land claims do not cover marine areas *per se*, the co-management principles written in the comprehensive land claims require considerable aboriginal involvement and consultation before any new activities can commence.

Of key import are the Inuvialuit Final Agreement (IFA) and the Nunavut Land Claims Agreement (NLCA).

The IFA does not provide much direction on shipping or marine issues, even though the western portion of the Northwest Passage is in the Inuvialuit Settlement Area. However, the environmental assessment regime in Inuvialuit is delegated to the Canadian Environmental Assessment Agency (CEAA). Under CEAA, the shipping component of a major project in Canada, such as an ore mine, could be assessed for environmental impact as part of the permitting process. There is also some disagreement within the federal government as to whether new or expanded deep-water ports whose primary function is not community resupply (for example, if Canada established a new deepwater port on the Arctic coast, whose

primary purpose was international trade), should be assessed only for the port facilities, or whether potential impacts from the resulting shipping should be assessed. Fortunately for the marine industry, the sentiment is leaning towards the former.

The NLCA is a more recent document than the IFA and has a greater potential impact on the Northwest Passage as an international shipping corridor. Three regional Designated Inuit Organizations (DIOs) and the territorial Nunavut Tunngavik Inc. (NTI)³ formally represent the Inuit voice in affairs. While technically these organizations do not have jurisdiction over marine shipping regulations during the open-water window, their strong role in conservation during the freeze, and their role as representatives of the local population, make it necessary for any commercial shipping company to keep these organizations fully involved from start to finish. Also, some of the best Ice Navigators will be Inuit.

The NLCA also created a number of Institutes of Public Governance (IPGs), including the Nunavut Planning Commission (NPC), Nunavut Impact Review Board (NIRB), and Nunavut Wildlife Management Board (NWMB). The IPGs report ultimately to the Minister of ANAC. Appointments to these IPGs are made by the DIOs, and the federal and territorial governments. Collectively the IPGs undertake most of the development decisions in Nunavut (for example, NIRB replaces CEAA). While marine shipping on its own is excluded from IPG review, shipping associated with projects in Canada is not. As well, the IPGs are designated to collectively form an Arctic Marine Council (AMC), which would identify gaps in needed policy while making regulatory recommendations to the agencies with jurisdiction. The formation of the AMC has been delayed up to now, due to a disagreement on funding between the IPGs and ANAC. Regardless, the IPGs have created a Terms of Reference for the AMC.

Both the IFA and NLCA include provisions for Impact Benefit Agreements (IBAs), in which proponents of new projects in Canada are required to negotiate IBAs with the relevant DIO for employment and training of Inuit. While this will not impact shipping directly, it will apply to new marine facilities.

Nunavut territorial jurisdiction does not include marine shipping.

Other Environmental Considerations

Marine shipping through the Northwest Passage during the open water season does not represent particular unknown issues. Hiring ice-strengthened ships to clear ice floes in order to allow unimpeded travel by international cargo ships also does not initiate any particular concerns or regulatory challenges.

Those mariners who would operate on the North need to respect that the ecology of the north is far less resilient than that in warmer climes; as such small spills, alien species introductions, and uncontrolled bilge water dumps, which might have minimal impact in the south, can have unexpected and unacceptable consequences.

Arctic ecologists believe that inadequate scientific research has been conducted to understand the network of impacts from northern development in general. They cite such potential concerns as:

- The sound from freighters could move whales away from feeding areas or into areas of increased ice hazard,
- Bilge water dumps could increase numbers of bottom-feeders, which could upset populations of edible fish,
- Pressure waves from icebreakers in March or April could flood seal burrows in the icepack, thereby freezing seal pups,
- And many others.

Finally, the reader should be aware that talks to establish the Lancaster Sound National Marine Conservation Area are now at an advanced stage. This area is a very large polynya⁴, very important to whales, polar bears, and traditional harvesting. Lancaster Sound is the eastern entrance to the Northwest Passage, north and northwest of the northwest tip of Baffin Island.

Recommendation

That a serious business feasibility study be undertaken on the concept of a scheduled ice-strengthened vessel leading caravans of ocean freighters through the Northwest Passage from late July to mid-October every year.

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- Nunavut Wildlife Management Board (NWMB)
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Endnotes

¹ As per GoogleEarth

² “Appropriate” would mean wide enough to clear ice floes for the cargo vessels, or two icebreakers operating together.

³ Not to be confused with Inuit Tapiriit Kanatami (ITK), which represents all Arctic Aboriginal persons in Canada

⁴ An area of oceanic upwelling that stays ice-free year-round.