



**Breaking Point**  
A legal analysis of Canadian practice in relation to ice  
breaking in the Northwest Passage

*By Seamus Ryder*

*Small Master's Thesis  
Master of Laws in the Law of the Sea  
UiT The Arctic University of Norway  
Faculty of Law  
Fall 2013  
17,991 Words*

## TABLE OF CONTENTS

ABBREVIATIONS.....	iv
--------------------	----

### PART 1

#### 1. CHAPTER I – INTRODUCTION

<b>1.1. Introduction.....</b>	<b>1</b>
1.1.1. <i>Climate Change</i> .....	1
1.1.2. <i>Marine Environmental Security</i> .....	2
1.1.3. <i>Creeping Jurisdiction</i> .....	3
<b>1.2. Objective of the thesis.....</b>	<b>4</b>
<b>1.3. Scope and outline of the thesis.....</b>	<b>4</b>
<b>1.4. Legal sources and methodology.....</b>	<b>5</b>

#### 2. CHAPTER II – THE CANADIAN MARINE ARCTIC, THE NWP, SHIPPING AND ICE BREAKING

<b>2.1. The Canadian marine Arctic (adopted from AMSA).....</b>	<b>6</b>
<b>2.2. The Northwest Passage (NWP) (adopted from AMSA).....</b>	<b>6</b>
<b>2.3. The character and scope of shipping in the Arctic.....</b>	<b>7</b>
<b>2.4. Ice breaking – some background information.....</b>	<b>8</b>

### PART 2

#### 3. CHAPTER III – ASPECTS OF THE INTERNATIONAL LEGAL FRAMEWORK FOR ARCTIC SHIPPING RELEVANT TO ICE BREAKING IN THE NWP

<b>3.1. The LOSC.....</b>	<b>9</b>
3.1.1. <i>Balancing the rights of coastal states with the navigational rights and freedoms of other states</i> .....	10
3.1.2. <i>The contested legal status of the NWP</i> .....	11
3.1.3. <i>Article 234 of the LOSC</i> .....	13
<b>3.2. The IMO.....</b>	<b>16</b>
<b>3.3. The Arctic Council and other regional instruments.....</b>	<b>16</b>

### PART 3

**4. CHAPTER IV – CANADA’S LAWS, REGULATIONS, AND PRACTICES  
RELATED TO ICE BREAKING IN THE NWP**

<b>4.1. Introduction.....</b>	<b>18</b>
<b>4.2. Regulations and Guidelines for the Canadian marine Arctic.....</b>	<b>19</b>
<b>4.3. Arctic Shipping Pollution Prevention Regulations (ASPPR).....</b>	<b>20</b>
4.3.1. <i>The Zone/Date System.....</i>	20
4.3.2. <i>Arctic Ice Regime Shipping System (AIRSS) Standards.....</i>	21
<b>4.4. When is icebreaker assistance legally required?.....</b>	<b>23</b>
4.4.1. <i>Requirements under the ASPPR.....</i>	23
4.4.2. <i>Requirements under the Zone/Date System.....</i>	25
4.4.3. <i>Requirements under the AIRSS Standards.....</i>	26
<b>4.5. Other features and requirements.....</b>	<b>27</b>
4.5.1. <i>Vessel Classes.....</i>	27
4.5.2. <i>Reporting requirements and NORDREG.....</i>	28
4.5.3. <i>Fees.....</i>	30
<b>4.6. Enforcement.....</b>	<b>30</b>

**5. CHAPTER V – THE CONSISTENCY OF CANADIAN PRACTICE IN RELATION  
TO ICE BREAKING (i.e. LAWS, REGULATIONS, POLICIES, ENFORCEMENT)  
WITH INTERNATIONAL LAW**

<b>5.1. Introduction.....</b>	<b>34</b>
<b>5.2. Comparing Canadian practice with the international regimes.....</b>	<b>35</b>
5.2.1. <i>Historic internal waters.....</i>	35
5.2.2. <i>The LOSC international straits regime.....</i>	36
5.2.3. <i>The LOSC Exclusive Economic Zone (EEZ) regime.....</i>	37
5.2.4. <i>The LOSC territorial sea regime (and non-historic internal waters providing a right of innocent passage).....</i>	38
<b>5.3 An assessment of Canadian practice in light of Article 234.....</b>	<b>40</b>
5.3.1. <i>Introduction.....</i>	40
5.3.2. <i>Foreign state immunity: the relationship between Article 234 and Article 236.....</i>	40
5.3.3. <i>Necessity of scientific evidence.....</i>	41
5.3.4. <i>Indirect discrimination.....</i>	42
<b>5.4. Summary.....</b>	<b>44</b>

**PART 4**

**6. CHAPTER VI – CONCLUSION**

**6.1. Conclusions.....45**

**BIBLIOGRAPHY.....47**

**ANNEXES**

## ABBREVIATIONS

AC	Arctic Class
ACIA	Arctic Climate Impact Assessment
ACS	Arctic Council System
AIRSS	Arctic Ice Regime Shipping System
AMSA	Arctic Marine Shipping Assessment
AOR	Arctic Ocean Review Project
ASPPR	Arctic Shipping Pollution Prevention Regulations
AWPPA	Arctic Waters Pollution Prevention Act
AWPPR	Arctic Waters Pollution Prevention Regulations
CAC	Canadian Arctic Category
CCG	Canadian Coast Guard
CDEM	Construction, Design, Equipment and Manning
CSA	Canada Shipping Act
DFO	Department of Fisheries and Oceans
EEZ	Exclusive Economic Zone
GAIRAS	Generally Accepted International Rules and Standards
IACS	International Association of Classification Societies
ICS	International Chamber of Shipping
IMO	International Maritime Organization
LOSC	United Nations Convention on the Law of the Sea
NORDREG	Northern Canada Vessel Traffic Services Zone Regulations
NSR	Northern Sea Route
NWP	Northwest Passage
PAME	Protection of Arctic Marine Environment
URs	IACS Unified Requirements for Polar Class Ships

## PART 1

### 1. CHAPTER I – INTRODUCTION

#### 1.1. Introduction

The preeminent legal scholars, Rothwell and Stephens, cite climate change, marine environmental security and creeping jurisdiction as the three most significant challenges for the international law of the sea.<sup>1</sup> To understand how they arrived at such a determination, one need simply look to the North.

##### 1.1.1. *Climate Change*

Of all contemporary challenges, during the 21<sup>st</sup> century the impact of climate change may prove to be the most significant.<sup>2</sup> The impact of climate change upon the Arctic marine environment is expected to be significant: it has been attributed to unprecedented melting of sea ice in the region. The previous record for the pan-Arctic sea ice minimum extent was set in September 2007 (4.2 million km<sup>2</sup>).<sup>3</sup> That record was nearly broken in September 2011, when the sea ice extent shrank to 4.6 million km<sup>2</sup>.<sup>4</sup> In mid-September 2012, the minimum extent reached 3.41 million km<sup>2</sup>, a new pan-Arctic sea ice minimum extent.<sup>5</sup> The last six years, 2007–12, have the six lowest minimum sea ice extents since satellite observations began.<sup>6</sup>

Of importance for this paper is key finding number six of the 2004 Arctic Climate Impact Assessment (ACIA) Synthesis Report, entitled “Reduced Sea Ice is Very Likely to Increase Marine Transport and Access to Resources”.<sup>7</sup> There is growing interest in new transportation routes that combine benefits of shorter distances, cost-effective transits and routes not troubled by maritime security concerns.<sup>8</sup> The Northwest Passage (NWP) is captured by this trend, and has been open for navigation for several summers now.<sup>9</sup> The NWP is 9,000 km shorter than the Panama Canal route and 17,000 km shorter than the Cape Horn route.<sup>10</sup> This has contributed to a steady increase in transits through the NWP, along with destination traffic associated with offshore resource activity and Arctic sea-borne tourism.<sup>11</sup>

---

<sup>1</sup> Rothwell and Stephens 2010, 25.

<sup>2</sup> Ibid.

<sup>3</sup> Environment Canada 2013.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Perovich et al. 2013, S126–S128.

<sup>7</sup> ACIA 2004, 82-85.

<sup>8</sup> Chircop 2013, 4.

<sup>9</sup> Environment Canada 2013.

<sup>10</sup> Chircop 2013, 4.

<sup>11</sup> Moleenaar 2013, 3.

### 1.1.2. *Marine Environmental Security*

A flow on impact from climate change is that marine environmental security will become an even more pressing issue.<sup>12</sup> The increase of shipping in the NWP does not mean that navigation there is comparable to other more frequently navigated routes. Sea ice will remain pervasive throughout Arctic winters and even ‘ice-free’ summers do not equate to effortless sailing through benign waters.<sup>13</sup> Under certain conditions, melting ice could make shipping more dangerous; not less.<sup>14</sup> As ice melts, the flushing or movement of ice through the channels and straits of the NWP could become more frequent. This ice presents a hazard to most vessels.

All the actual and potential impacts of marine shipping on safety, the marine environment, and marine biodiversity are also relevant for Arctic marine shipping.<sup>15</sup> The likelihood for some of these impacts to occur is higher in the NWP because of the presence of ice, lack of accurate charts and infrastructure, and in case of insufficient experience navigating in ice-covered areas.<sup>16</sup> Navigation incidents resulting in damage to ships are likely.<sup>17</sup> Because of its low temperature and circulation patterns, in the Arctic a low dissipation rate prevails for a pollutant such as oil.<sup>18</sup> Even a few ships could threaten the fragile Arctic environment, because even a small discharge of a pollutant such as fuel oil can cause significant damage.<sup>19</sup>

These considerations serve to highlight the critical importance of ice breaking services for both current and prospective Arctic shipping. The NWP has the potential to significantly influence global shipping, but only if international vessels can navigate efficiently and safely. Given the operational environment in these regions, at present and in the foreseeable future, efficiency and safety is unlikely to be achieved without the successful provision, regulation, and management of ice breaking services by and for Arctic shipping stakeholders.

---

<sup>12</sup> Rothwell and Stephens 2010, 26.

<sup>13</sup> Snider 2012.

<sup>14</sup> National Research Council 2012.

<sup>15</sup> For an account of these actual and potential impacts, see Molenaar, 2013, 4-5.

<sup>16</sup> Molenaar 2013, 5.

<sup>17</sup> Chircop 2009, 361.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

### 1.1.3. *Creeping Jurisdiction*

The 1982 United Nations Convention on the Law of the Sea (LOSC)<sup>20</sup> confirmed the legitimacy of the gradual encroachment by coastal states over their adjacent maritime zones.<sup>21</sup> However, there remains an ongoing capacity for coastal states to assert unilateral claims over some of these zones which may have considerable capacity to impact on the rights and interests of many states.<sup>22</sup> In the NWP, there are two particular dynamics at play in this regard.

The first is the ability of a coastal state to interpret the provisions of the LOSC unilaterally so as to gain as extensive a maritime claim as is possible.<sup>23</sup> This may apply with respect to Canada's drawing of straight baselines to enclose the NWP within historic internal waters (see below, at 3.1.2.). The assertion of this claim remains very contentious and has triggered protest by other states (notably, the US) which seek to protect navigational rights and freedoms in the area. The second is the capacity of some coastal states to adopt a unilateral interpretation of the LOSC so as to assert more extensive claims to sovereign rights or jurisdiction than was originally envisaged by the LOSC's framers. As will be explained (see below, at 3.1.3.), a relevant example in respect of the NWP is the interpretation of Article 234 of the LOSC. Although states purporting to exercise jurisdiction in accordance with Article 234 (here again, Canada) assert that such jurisdiction is well within that envisaged by the LOSC's framers, opponents to such jurisdiction (again notably, the US) would argue otherwise.

Safe and environmentally acceptable commercial navigation in the NWP requires rules, standards and 'best practices' more demanding than those applicable in marine regions less hazardous to navigate and possessing the appropriate infrastructure. Clearly, a high navigation standard is appropriate for Arctic navigation.<sup>24</sup> Even with a thawing Arctic, there is ice variability that requires flexible icebreaker support.<sup>25</sup> From a practical standpoint, ice breaking assistance is one of the only tools available to minimize the risk of a navigation incident in these transportation routes. This is the rationale behind Canadian laws, regulations and practice in relation to ice breaking in the NWP. However, the issues related to creeping jurisdiction introduced above have resulted in a complex and, at times, confused legal order

---

<sup>20</sup> United Nations Convention on the Law of the Sea (LOSC), Montego Bay, 10 December 1982, UN Doc. A/CONF. 62/122, (7 October 1982).

<sup>21</sup> Rothwell and Stephens 2010, 27.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Chircop 2009, 361.

<sup>25</sup> Chircop 2013, 4.



for the NWP. Rather than concentrate on the vessels potentially engaged in use of the NWP, ensuring safer and cleaner navigation, the states with interests in the Passage have instead invested energy and effort debating whether or not Canada has the right to control the NWP in the first place.

## **1.2. Objective of the thesis**

Set against the issues introduced above, the objective of this thesis is to discuss the following research questions:

- Which aspects of the international legal framework for Arctic shipping are relevant in respect of ice breaking in the NWP?
- What are the Canadian laws, regulations, and practices in relation to ice breaking in the NWP?

Though significant in themselves, the two research questions above are ancillary to the main research question, the determination of which is the main objective of this thesis. That principal research question is as follows:

- To what extent are the Canadian laws, regulations and practices in relation to ice breaking in the NWP consistent with international law?

Based on findings arising from these questions, this thesis will attempt to conclude on adequacy of the Canadian practice in relation to ice breaking in light of the challenges for the NWP related to climate change, marine environmental security, and creeping jurisdiction.

## **1.3. Scope and outline of the thesis**

This thesis consists of four parts:

Part 1, comprised of Chapters I and II, consists of this introduction and some background information. It aims to provide the reader with the context necessary to obtain a workable understanding of the Canadian marine Arctic, the NWP, the shipping that occurs therein and some basic information on ice breaking. However, spatial considerations only allow for minimal coverage. Possible terminology clarification and definitions are also provided.

Part 2, comprised of Chapter III, focuses on the first research question. Namely, it explores aspects of the international legal framework for Arctic shipping relevant in respect of ice breaking in the NWP. Again, spatial considerations do not permit an in-depth examination, so the author has selectively presented only those aspects deemed essential for the purposes of this thesis.

Part 3, comprised of Chapters IV and V, focuses on the second and third research questions. First, Chapter IV provides a presentation of the laws, regulations and practices in relation to ice breaking in the NWP. From this presentation, the author establishes the instances in which a vessel navigating in the NWP is legally required to obtain icebreaker assistance. Second, Chapter V contains an analysis of the consistency of Canadian practice in relation to ice breaking in the NWP (presented in Chapter IV) with international law in light of the aspects of the international framework for Arctic shipping (presented in Chapter III).

Part 4, comprised of Chapter VI, attempts to conclude on the adequacy of the Canadian practice in relation to ice breaking in light of the challenges for the NWP related to climate change, marine environmental security, and creeping jurisdiction.

#### **1.4. Legal sources and methodology**

In light of the objectives of this thesis, special focus was given to pertinent international and national legal instruments related to Arctic shipping. Heavy emphasis was placed on the various Canadian legislative materials related to ice breaking in the NWP. These sources were analyzed using the method identified in Article 38 of the Statute of the International Court of Justice.<sup>26</sup> An extensive literature review of legal theory and commentary in relation to the relevant instruments was also employed.

State practice received considerable attention. In this regard, the author benefitted greatly from personal correspondence with two key Canadian government officials directly involved in the regulation of shipping in the NWP and the provision of ice breaking services: Mr. Craig Miller, Manager, Marine Safety, Prairie and Northern Region, Transport Canada; and Mr. Stacy Dufour, Ice Breaking Superintendent, Central and Arctic Region, Canadian Coast Guard (CCG).

An extensive literature review of legal theory and commentary was also employed. Where applicable, reference was made to scientific reports and policy documents related to the subject matter of the thesis. All sources were treated using both a descriptive and analytical method. In some scenarios, particularly when referring to the Russian Federation and the Northern Sea Route (NSR), comparative methodologies were utilized.

---

<sup>26</sup> Statute of the International Court of Justice, United Nations (18 April 1946).

## **2. CHAPTER II – THE CANADIAN MARINE ARCTIC, THE NWP, SHIPPING AND ICE BREAKING**

### **2.1. The Canadian marine Arctic (adopted from the Arctic Marine Shipping Assessment (AMSA))<sup>27</sup>**

The Canadian marine Arctic is located across the north of Canada from the Beaufort Sea in the west to Hudson Strait in the east, covering approximately 2.1 million km<sup>2</sup>. The Arctic Archipelago comprises approximately 36,000 islands. The coastal area is sparsely populated with fewer than 30,000 people. The Canadian Arctic also provides important habitat for a range of permanent and migratory species of marine mammals, seabirds and terrestrial animals such as caribou. Throughout this region there are many ecologically sensitive areas where animals gather in large numbers at certain times and may be vulnerable to impacts from shipping.

The Canadian Arctic has a long and rich history of marine use, beginning with its indigenous residents many thousands of years ago. Shipping in the Canadian Arctic has always been the safest and most economically effective means of moving goods to, from and within the region. It is a vast area with virtually no roads, no rail lines and where air services are both infrequent and very costly. There are also unique geographic and climatic conditions that make the region challenging for maritime navigation, including the presence of ice for most of the year, as well as the many narrow and shallow, often uncharted, areas through the archipelago. Canada has for many years strived to achieve a balance between development and environmental protection in its Arctic areas and for this purpose has a unique and extensive regulatory scheme in place to enhance marine safety and environmental protection in its Arctic waters. This thesis will explore the aspects of this regulatory scheme that relate to ice breaking in the NWP.

### **2.2. The Northwest Passage (NWP) (adopted from AMSA)<sup>28</sup>**

The NWP is the name given to the various marine routes between the Atlantic and Pacific oceans along the northern coast of North America that span the Canadian Arctic Archipelago (Annex 1). All passages have common eastern and western approaches. In the east, ships must proceed through the Labrador Sea, Davis Strait and Baffin Bay - the exception is for Route 5, which requires a transit through Hudson Strait. In the western approaches ships proceed through the Bering Sea, Bering Strait, the Chukchi Sea and the Beaufort Sea before deciding

---

<sup>27</sup> Arctic Marine Shipping Assessment (AMSA) 2009, 112.

<sup>28</sup> Ibid. 20-21.

which route to follow. In general, the operating season is short - from late July to mid-October - depending on the route and year. Of the various passages, Routes 1 and 2 are considered deep water ones, while the others have limiting shoals and rocks restricting the draft of vessels to less than 10 meters.

### **2.3. The character and scope of shipping in the Arctic**

Arctic shipping has been increasing as natural resource development and economic ties between the Arctic and the global economy expand. These are, in turn, connected with two trends that are expected to continue in the near future, the potential effects of global warming (see above, at 1.1.1.) and with development in science and technology. Greater marine access and potentially longer seasons of navigation are also expected with the retreat of Arctic sea ice.<sup>29</sup> This emerging Arctic shipping is characterized by:

- new marine systems supporting offshore hydrocarbon exploration and resource development;
- expanding marine tourism;
- summer marine transportation routes that support hard minerals and mining operations, and modest but growing levels of trans-Arctic cargo movement;
- more scientific voyages in the central Arctic Ocean;
- potential increases in fishing in coastal waters such as Baffin Bay/Davis Strait;
- a general increase in the summer presence of a wide variety and sizes of vessels around the Arctic basin; and
- other related developments.<sup>30</sup>

Arctic shipping is understood to include a wide range of vessels from icebreakers, tankers, offshore support vessels, container ships, fishing vessels, bulk carriers, ferries, tug-barges and cruise ships, to government ships, research vessels and more. This range is consistent with the AMSA.<sup>31</sup> Also, Arctic shipping may take different forms. AMSA identified four modes, or types of voyages undertaken in the marine Arctic, which will be employed for the purposes of this paper. They are destinational transport; intra-arctic transport; trans-Arctic transport or navigation; and cabotage.<sup>32</sup>

While the definitions and descriptions provided above encompass all shipping occurring in the marine Arctic, for the most part, this thesis will only focus on shipping occurring in and

---

<sup>29</sup> AOR Final Report 2013, 24.

<sup>30</sup> Ibid.

<sup>31</sup> AMSA 2009, 11.

<sup>32</sup> Ibid, 12.

along the NWP. Additionally, because of the international law focus of this paper, in examining the laws, regulations and practices in relation to ice breaking in the NWP, greater attention will be given to those modes of shipping likely to be undertaken by foreign-flagged vessels (ie. destination, intra-, and trans-arctic shipping). However, it should be noted that both foreign-flagged and domestic vessels may participate in the various modes of Arctic shipping occurring in the NWP, and that the ice breaking regime found therein does not necessarily distinguish between the various modes or the nationalities of vessels.

#### **2.4. Ice breaking – some background information**

Government and private icebreakers are an essential asset in the development of the Arctic. Generally, icebreakers are able to carry out the following roles: maintenance of shipping tracks in ice-covered waters, close escort of shipping in ice, provision of ice information, sovereignty support/representation, search and rescue, environmental response, command platform for emergency response, medical evacuation in remote areas, harbour breakout, electrical power supply, science platform, constabulary function (maritime security), transporting cargo (northern re-supply and logistic support) and fisheries conservation and protection.<sup>33</sup>

For the purpose of this thesis, ice breaking means route assistance for vessels navigating in ice-covered waters, including: escorting ships and organizing convoys to travel through ice-infested waters; freeing beset vessels to allow them to proceed; maintaining channels and tracks in shore-fast ice to shipping; and standing by in areas where requests for route assistance is likely. This interpretation corresponds with the definition given to ice breaking in the Canadian ice navigation regime.<sup>34</sup> The other aspects of ice breaking and ice navigation, although dealt with by Canada's ice navigation regime, are outside the scope of this paper and will only be considered to the extent that they are incidental to the meaning of ice breaking detailed immediately above.

---

<sup>33</sup> AMSA 2009, 180.

<sup>34</sup> Canadian Coast Guard 2012a, 6.

## PART 2

### 3. CHAPTER III – ASPECTS OF THE INTERNATIONAL LEGAL FRAMEWORK FOR ARCTIC SHIPPING RELEVANT TO ICE BREAKING IN THE NWP

#### 3.1. The LOSC

The international legal framework for Arctic shipping is a component of the international law of the sea, governing all uses and resources of the sea. Accompanying and including customary international law, the cornerstone of the international law of the sea and the so-called “constitution for the oceans”<sup>35</sup> is the LOSC. The LOSC provides a comprehensive regime for the law of the sea which reaffirmed well settled areas of the law but also expansively developed other areas of the law and in some instances established completely new international law.<sup>36</sup> As Canada is a party to the LOSC, its laws, regulations and practices in relation to ice breaking in the NWP must be consistent with the Convention.

The LOSC applies to marine areas throughout the world, including the Arctic. As a matter of law, all Arctic states, including Canada, are bound to the rules contained in the LOSC, with the exception of the US, which is not yet a party to the Convention. However, the US has recognized that many parts of the LOSC, notably those relating to navigation and overflight, reflect customary international law, and so it too may be indirectly bound by relevant LOSC provisions.<sup>37</sup> Reference can also be made to the Ilulissat Declaration of 2008, in which all five Arctic Ocean coastal states embraced the international law of the sea and its application to the Arctic Ocean.<sup>38</sup>

It is important to recognize that both the LOSC and general international law of the sea are multi-dimensional. The same is true for the legal framework for shipping, Arctic or otherwise. This means that the framework concurrently addresses multiple subjects, such as marine environmental protection, maritime safety, security, and navigational rights and freedoms, and touches on a wide range of ocean governance challenges. However, navigational rights and freedoms are the interests at the core of this thesis. Although Canadian laws, regulations and practices in relation to ice-breaking in the NWP undoubtedly have impacts on the Arctic marine environment, its marine biodiversity, maritime safety, security, and other areas, an in-depth consideration of these impacts is beyond the scope of this paper. Instead, the predominant focus will be on whether or not these laws, regulations, and practices

---

<sup>35</sup> Koh 1982.

<sup>36</sup> Rothwell and Stephens 2010, 14.

<sup>37</sup> See, eg., President Barack Obama 2013, 10.

<sup>38</sup> Ilulissat Declaration, adopted at the Arctic Ocean Conference, Ilulissat, Greenland, 28 May 2008, [3].

unjustifiably deny, hamper, impair, or suspend the navigational rights and freedoms of third states under the international law of the sea.

### 3.1.1. *Balancing the rights of coastal states with the navigational rights and freedoms of other states*

The LOSC reflects the development of customary international law relating to freedoms, jurisdiction and sovereignty throughout the world's oceans. *Inter alia*, it sets out a carefully calibrated balance between the interests of coastal states on one hand, and the rights of flag states and the interests of the international community (to freedom of navigation and overflight throughout the world's oceans), on the other - Arctic Ocean and the NWP included.<sup>39</sup> In exchange for generous provisions preserving freedom of navigation by all nations, coastal states are afforded certain rights to protect their sovereignty, sovereign rights, authority, and jurisdiction seaward; thus affecting the legal status of the surface of the ocean waters, the water column, the seabed and the airspace above the water.<sup>40</sup>

Accordingly, in relation to Arctic shipping in the NWP, Canada, as a coastal state, can prescribe laws, regulations and practices in relation to ice breaking. To be consistent with the LOSC, such laws, regulations and practices must be attributable to the protection of sovereignty and certain sovereign rights, authority, and jurisdiction, as granted by the LOSC, and must be compatible with the navigational rights and freedoms protected by the Convention. Analysis of oceans claims and jurisdictions under the LOSC begins from properly drawn, normal or straight baselines. Typically, the normal baseline for measuring the breadth of maritime zones is the low-water line along the coast of the territory.<sup>41</sup> Waters landward of baselines are internal waters, an area in which the coastal state exercises complete and absolute sovereignty.<sup>42</sup>

The coastal state's maritime zones capable of directly affecting Arctic shipping are internal waters, territorial seas, and exclusive economic zones. However, some navigational rights and freedoms are preserved for all other states within these zones: In the territorial sea, a right of innocent passage remains;<sup>43</sup> In the EEZ, freedom of navigation applies.<sup>44</sup> In ice-covered waters, these navigational rights and freedoms are subject to a special coastal state power to regulate international navigation for the purposes of prevention, reduction and

---

<sup>39</sup> Kraska 2007, 270.

<sup>40</sup> Ibid, 271.

<sup>41</sup> LOSC, Article 5.

<sup>42</sup> LOSC, Article 8(1).

<sup>43</sup> LOSC, Article 2.

<sup>44</sup> LOSC Article 17.

control of marine pollution from vessels (see below, at 3.1.3.).<sup>45</sup> A significant legal issue is the extent and content of coastal state regulation of international shipping with regard to innocent passage in the territorial sea and transit passage through straits used for international navigation.<sup>46</sup>

### 3.1.2. *The contested legal status of the NWP*

The subject of coastal state regulation of international shipping within the NWP is complex because the legal status of large areas of water in Canadian Arctic areas, where the emerging trade route is found, is contested. Canada claims the waters are enclosed by straight baselines and that they are historic internal waters.<sup>47</sup> This would make the route subject to national sovereignty, effectively placing those areas beyond any right of international navigation. However, some states (notably, the US), claim that this route includes straits used for international navigation and that, as a result, those straits are subject to the international regime of transit passage.<sup>48</sup>

The latter characterization potentially constrains the coastal state in regulating international navigation,<sup>49</sup> including prescribing and enforcing laws, regulations, and practices in relation to ice breaking in the NWP. For example, transit passage (unlike innocent passage) may not be suspended.<sup>50</sup> This rule may call into question laws which prohibit international vessels from navigating in parts of the NWP without ice breaker assistance. Also, if those waters are not internal, coastal States are constrained in the types of fees they can levy on international ships, as only fees for service rendered can be levied, and not merely for passage.<sup>51</sup> Issues may arise if it is unclear how a particular fee is structured or which services it relates to. This may be the case in the Russian Federation's NSR, where ice-strengthened vessels which may not require ice breaker assistance are nonetheless required to pay a fee to transit the route. While not yet an issue in the NWP, it may become one if Canada implements a user-pays approach in the NWP in the future. Further, strait states (here, Canada), and user states can be expected to cooperate on navigation and safety aids in straits subject to transit passage.<sup>52</sup> This aspect of the transit passage regime has proven to be very difficult to implement in practice in other international straits, such as the Strait of Malacca, where strait

---

<sup>45</sup> LOSC, Article 234.

<sup>46</sup> Chircop 2013, 20.

<sup>47</sup> Ibid.

<sup>48</sup> Ibid.

<sup>49</sup> Ibid; See also Kraska, 2007, for an overview of the US position in this regard.

<sup>50</sup> LOSC, Articles 44 and 45.

<sup>51</sup> LOSC, Article 26.

<sup>52</sup> LOSC, Article 43.



states and user states disagree on the content of their obligations, and more specifically, the apportionment of costs among parties.<sup>53</sup>

The purpose of this thesis is not to analyze in-depth the legitimacy of the various competing claims surrounding the legal status of the NWP, or whether or not the transit passage regime applies to the area. Countless leading scholars have already discussed the complex legal arguments supporting the Canadian position as well as opposing views. Rather, irrespective of the outcome of the legal debate regarding the specific status of the NWP, the aim is to focus on the laws, regulations and practices in relation to ice breaking prescribed by Canada for foreign vessels navigating in those routes. Indeed, whether Canada is successful in asserting absolute sovereignty over Arctic waters as their internal waters, or whether a right of transit passage is found to exist through the NWP as a recognized international strait (or, in the alternative, a right of innocent passage on the basis that Canadian straight baselines are not consistent with the LOSC and the historic waters claim is dismissed), Canada, as a coastal state or strait state, is nonetheless attributed important powers and prerogatives. These powers mean that, like it or not, user states and strait states will have to co-operate if Arctic shipping is hoped to develop in the NWP. As Chircop explains:

It is not realistic to expect [...] Canada [...] to withdraw from their positions on the legal status of those waters. The more likely scenario is for States to continue to agree to disagree and for the Arctic States in question to develop practical frameworks and arrangements to facilitate international navigation through those waters to promote development of their northern regions.<sup>54</sup>

While not mentioned above, the 1988 Arctic Cooperation Agreement<sup>55</sup> is an example of an agreement to disagree currently in practice in the NWP. It demonstrates the capacity and willingness by Canada and the US to overlook legal disputes and collaborate in functional terms. Canada respects US icebreaker traffic through the NWP while both states maintain their position on the legal status of the passage.<sup>56</sup> As will be explored in the following chapters, the need for practicality often takes precedence over conflicting legal positions in the Arctic; there seems to be a silent understanding among current NWP users that Canadian laws, regulations and practice in relation to ice breaking assist safe and efficient international navigation along the routes in question, whether or not states can agree on the legal status of those waters.

---

<sup>53</sup> See, eg. Beckman 1998, 350.

<sup>54</sup> Chircop 2013, 20.

<sup>55</sup> Canada and United States of America, *Agreement on Arctic Cooperation*, Ottawa, Canada (11 January 1988).

<sup>56</sup> McDorman 2009, 3.

### 3.1.3. Article 234 of the LOSC

Article 234 of the LOSC, a provision negotiated mostly between Canada, the US and the former Soviet Union,<sup>57</sup> provides another dimension to coastal state regulation of international shipping in the Arctic. Under Article 234, coastal states enjoy jurisdiction to regulate international navigation within their ice-covered EEZs that goes beyond coastal state jurisdiction found in any other marine region.<sup>58</sup> Generally, prescriptive jurisdiction by coastal states cannot be more stringent than the level of ‘generally accepted international rules and standards’ (GAIRAS).<sup>59</sup> These refer to the technical rules and standards laid down in instruments adopted by regulatory bodies, in particular, the International Maritime Organization (IMO - the competent international organisation for the establishment of international rules and standards for maritime safety, security, and marine environmental protection from shipping). It is likely that the rules and standards laid down in legally binding IMO instruments that have entered into force can be regarded as GAIRAS.<sup>60</sup> However, since Article 234 makes no reference to GAIRAS or any competent international organization,<sup>61</sup> coastal states are in a position to adopt higher standards for international navigation in ice-covered waters than those generally adopted through the IMO and without the requirement to do so through that organization.<sup>62</sup>

Certain conditions must be satisfied in order to exercise jurisdiction under Article 234 and the rule is accompanied by possible uncertainties. First, it is only applicable to areas “where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation”.<sup>63</sup> Although the extent of sea ice in the NWP is decreasing (or altogether vanishing) in summer months, the longer winter season still keeps the route ice covered for most of the year, so it is anticipated that Canada can exercise Article 234 powers all year round in those areas. Second, there must be a risk of “major harm to or irreversible disturbance of the ecological balance”,<sup>64</sup> which in the NWP is satisfied by the fragile Arctic environment, where, ie., the ability to address spills is limited, either because of the presence of ice or because a spill occurs in a remote area where timely response is not possible (see above, at 1.1.2.). Third, Article 234 refers to

---

<sup>57</sup> See McRae 1987, 98-114.

<sup>58</sup> Center for Oceans Law and Policy, University of Virginia 2013.

<sup>59</sup> LOSC, Articles 21(2), 39(2) and 211(5).

<sup>60</sup> Molenaar, 2013, 9.

<sup>61</sup> Cf. LOSC, Article 211.

<sup>62</sup> Center for Oceans Law and Policy, University of Virginia 2013.

<sup>63</sup> LOSC. Article 234.

<sup>64</sup> Ibid.

jurisdiction to be exercised “within the limits of the exclusive economic zone”.<sup>65</sup> It is not clear whether the scope of the article is also intended to include the territorial sea, but it is submitted that the provision should be interpreted as indicating the outer limits of the EEZ as the extent of such scope, but not to exclude the territorial sea.<sup>66</sup> Fourth, the laws and regulations to be adopted pursuant to Article 234 must be “non-discriminatory... [and] have due regard to navigation... based on the best scientific evidence”.<sup>67</sup> All conditions must be met and adopted rules cannot be arbitrary as otherwise they may be challenged. This requirement is particularly relevant to this thesis and should be kept in mind. Fifth, and linked to the requirement of best scientific evidence, laws and regulations adopted pursuant to Article 234 must be for the purpose of regulation of vessel-source pollution. An issue is whether Article 234 provides merely an extended pollution jurisdiction in the NWP or whether such jurisdiction can also include safety regulation.<sup>68</sup> In order for Canadian laws, regulations, and practices in relation to ice breaking in the NWP to be a valid exercise of jurisdiction under Article 234, they must be linked to regulation of vessel-source pollution.

In some instances the safety and pollution jurisdictions are intertwined, especially in the Arctic, but there can be safety matters that are unrelated to pollution, such as rules regarding life saving equipment.<sup>69</sup> As already mentioned, rules related to navigation and safety that lack an environmental purpose fall squarely within the auspices of the IMO, and unless adopted in cooperation with that organization, a coastal state could not impose rules on international shipping cooperation that go beyond GAIRES.<sup>70</sup> Therefore, if Article 234 is interpreted restrictively for environmental purposes, Arctic coastal states need to find a complementary balance between domestic environmental regulation and maritime safety regulation through the IMO.<sup>71</sup> Canada has learned this the hard way in the context of Canada’s 2010 Northern Canada Vessel Services Zone Regulations (NORDREG),<sup>72</sup> which established mandatory reporting requirements for vessels of 300 gross tonnage or more, vessels engaged in towing and vessels carrying pollutants or dangerous goods entering or leaving Canadian Arctic waters.<sup>73</sup> The US has objected to the NORDREG regulations,

---

<sup>65</sup> Ibid.

<sup>66</sup> Molenaar 1998, 419; Molenaar 2013, 13; see also, Pharand 2007, 47.

<sup>67</sup> LOSC, Article 234.

<sup>68</sup> Chircop 2013, 21; Chircop 2009, 371.

<sup>69</sup> Ibid, 22.

<sup>70</sup> LOSC, Articles 21(2), 39(2) and 211(5).

<sup>71</sup> Chircop 2013, 22.

<sup>72</sup> Northern Canada Vessel Traffic Services Zone Regulations (NORDREG), SOR/2010-127.

<sup>73</sup> Chircop 2013, 22.

questioning their consistency with international law, stating that the regulations, among other things:

- infringe the freedom of navigation within the EEZ and the right of innocent passage in the territorial sea;
- do not meet the Article 234 obligation “having regard to navigation”;
- have a disputed scientific basis (as they claim the areas in question are not necessarily ice-covered for most of the year); and
- at a minimum, need to be proposed and adopted at the IMO, as the US holds the view that the NWP constitutes a strait used for international navigation.<sup>74</sup>

At the outset of this paper (see above, at 1.1.2.), a description was provided of the harsh and dangerous operational environment in the NWP, where a high likelihood of marine incidents exists even in relatively ice-free summer months. The extreme fragility and vulnerability of the Arctic marine environment has also been described (see above, at 1.1.2.). It is the author’s view that the combination of these two factors suggests that allowing non-ice-strengthened vessels to navigate freely without ice breaker assistance is an accident (and an environmental disaster) waiting to happen. As such, the author submits that laws and regulations related to ice breaking requirements for international ships may be considered consistent with the environmental protection purpose of Article 234. Such a conclusion alone will not protect Canadian laws, regulations and practice in relation to ice breaking from challenge. That will always depend on a specific analysis of such jurisdiction. As will be explained (see below, at 4.5.4.), Canada has linked its laws, regulations and practices in relation to ice breaking in the NWP with the NORDREG regulations. As such, the continuing debate surrounding NORDREG regulations may have an impact on Canada’s ice breaking practice and policy, even if such practice and policy is consistent with international law when considered alone. This will also be explored (see below, at 4.5.4.).

Finally, the LOSC does not explicitly address the scenario of water that are both ice-covered and subject to the regime of transit passage, as the case may be if the NWP is considered to be, wholly or partly, straits used for international navigation.<sup>75</sup> However, many commentators argue (and the author tends to agree) that the stand-alone Article 234 in the separate Section 8 of Part XII supports the dominance of Article 234 over transit passage.<sup>76</sup> The International Chamber of Shipping (ICS) and (possibly) the US support the opposite

---

<sup>74</sup> Ibid.

<sup>75</sup> Molenaar 2013, 13.

<sup>76</sup> Ibid.

view.<sup>77</sup> For the time being such discussion may remain purely academic, because, as stated earlier in this chapter (see above, at 3.1.2.), Canada and its rival claimants do not seem willing to give up their various positions on the status of the NWP, and seem to prefer a cooperative approach to Arctic shipping, rather than a confrontational one.<sup>78</sup>

### **3.2. The IMO**

Some comments have already been made regarding IMO's role in developing GAIRAS and the implications this may have for Canadian laws, regulations and practices in relation to ice breaking in the NWP (see 3.1.3., above). There are many IMO instruments relevant to Arctic shipping, containing various obligations and measures that can be broadly categorized as (a) discharge and emission standards, (b) construction, design, equipment and manning (CDEM) standards, (c) navigation standards, (d) Particularly Sensitive Sea Area Guidelines and (e) other standards.<sup>79</sup>

There are several instruments related to the construction standards of vessels operating in the polar regions, developed and adopted with the auspices of the IMO (see below, at 4.5.1.). However, none of these IMO instruments contain standards or measures directly related to ice breaking. This is significant, as it means that, in the case of ice breaking, the IMO, typically the competent international organization for matters related to shipping, may not directly contribute to the formation or adoption of GAIRAS in this regard.

Of course, as already discussed (see above, at 3.1.3), the issue of GAIRAS and the IMO can be avoided altogether if Canada justifies laws and regulations in relation to ice breaking as a valid exercise of jurisdiction under Article 234 of the LOSC. This appears to be part of the contemporary policy and practice of Canada in the NWP, despite the uncertainty surrounding the provision.<sup>80</sup>

### **3.3. The Arctic Council and other regional instruments**

The Arctic Council is a high-level forum established by means of the 1996 Ottawa Declaration.<sup>81</sup> This non-legally binding instrument indicates it is not an international organization and implies that it cannot adopt legally binding decisions or instruments. Nonetheless, the mandate of the Arctic Council is very broad and relates to "common Arctic

---

<sup>77</sup> Ibid.

<sup>78</sup> In relation to the US preference in this regard, see Molenaar 2013, 13.

<sup>79</sup> See Molenaar 2013, 15-19 for an overview of IMO instruments and their relationship with Arctic shipping.

<sup>80</sup> McDorman 2012, 415; Solski 2013, 213.

<sup>81</sup> The Declaration on the Establishment of the Arctic Council (the Ottawa Declaration), Ottawa, Canada, (19 September 1996).

issues” with special reference to “issues of sustainable development and environmental protection in the Arctic”.<sup>82</sup> Marine shipping falls squarely within this broad mandate and the Arctic Council has produced output that relates specifically to marine shipping as well as less specific or more indirectly relevant output.<sup>83</sup> Further, Molenaar has introduced the concept of the Arctic Council System (ACS) to clarify that legally binding instruments such as the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (Arctic SAR Agreement)<sup>84</sup> and the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (Arctic MOPPR Agreement)<sup>85</sup>, and their institutional components, can be part of the Council’s output even though they are not (and in fact could not be) formally adopted by it.<sup>86</sup>

Similar to the discussion on IMO instruments and ice breaking (see above, at 3.2), there is no legally binding instrument from the Arctic Council directly related to measures and standards regarding ice breaking in the Arctic. Theoretically, it could be possible for the Arctic Council to support work on a legally binding instrument in respect of laws, regulations and practice in relation to ice breaking in the NWP which could impact Canadian jurisdiction. However, as this has not yet materialized, it will not be explored further in this paper.

The above does not mean that the Arctic Council is not relevant to ice breaking practice and policy in the Arctic. First, it remains the primary political forum for cooperation on such matters in the Arctic region. Canada has recently assumed the Chair of the Arctic Council and may be reasonably expected to use this position in the forum to advance existing and future laws, regulations and practices in relation to ice breaking in the NWP. Second, the Council has produced important output for Arctic marine shipping, such as the Arctic Marine Shipping Assessment (AMSA) and the recent Arctic Ocean Review (AOR), both of which contain recommendations that touch on ice breaking practice and policy. A number of these recommendations have been implemented by the Arctic states or have supported negotiations of new instruments.<sup>87</sup> In future, such output could provide the political impetus for regional instruments related to ice breaking standards and measures in the NWP.

---

<sup>82</sup> Molenaar, 2013, 21, citing the Ottawa Declaration, Article 1.

<sup>83</sup> Ibid.

<sup>84</sup> Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (Arctic SAR Agreement), Nuuk, Greenland, (12 May 2011).

<sup>85</sup> Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (Arctic MOPPR Agreement), Kiruna, Sweden, (15 May 2013).

<sup>86</sup> Molenaar 2013, 23; Molenaar 2012, 553-595.

<sup>87</sup> Ibid.

### PART 3

#### 4. CHAPTER IV – CANADA’S LAWS, REGULATIONS, AND PRACTICES RELATED TO ICE BREAKING IN THE NWP

##### 4.1. Introduction

As presented earlier (see above, at 2.2, 3.1.2.), the NWP lies within the centre of the Canadian Arctic Archipelago. It is claimed by Canada to be internal waters, over which Canada exercises full sovereignty. Regulatory control, in accordance with this sovereignty, involves several Canadian government institutions sharing different responsibilities. The regulation of shipping in the NWP is overseen by Transport Canada, a department of the Canadian federal government. However, the actual provision of ice breaking services is conducted by the Canadian Coast Guard (CCG), a special agency of the Government of Canada’s Department of Fisheries and Oceans (DFO).<sup>88</sup> The CCG owns and operates the federal government’s civilian fleet and provides key maritime services for the use and development of Canada’s maritime zones in three oceans and its internal waterways.

Under the authority of the Oceans Act,<sup>89</sup> the CCG provides ice breaking and ice management services to support the movement of ships in Canadian maritime zones. The presence of a viable, guaranteed ice breaking service is one of the most important factors in sustaining the Canadian Arctic economy and communities, not only because maritime shipping is the most economical method of transporting large amounts of goods, but also from the perspective of linking these communities to the rest of Canada.<sup>90</sup> However, for the time being, the availability of these services in the Arctic is limited solely to the summer navigation season.<sup>91</sup> This not only reflects the reality of current shipping in the NWP, but also the limited capability of the CCG’s ice breaking fleet. In the winter months, all CCG icebreakers are occupied with icebreaking and ice management services in the southern Canadian waterways, namely maintaining established shipping routes in the St. Lawrence Seaway, the Gulf of St. Lawrence and the waters surrounding the Atlantic provinces of Canada. In addition, none of the CCG icebreakers are sufficiently ice-strengthened or powerful enough for Arctic winter sea ice.<sup>92</sup> For the foreseeable future, there are no plans to expand ice breaking services for year-round shipping Canada’s maritime zones in the Arctic.<sup>93</sup>

---

<sup>88</sup> Dufour 2013.

<sup>89</sup> Oceans Act (S.C. 1996, c.31), s.41(1)(a)(iii).

<sup>90</sup> Canadian Coast Guard 2012a, 1.

<sup>91</sup> Ibid.

<sup>92</sup> Dufour 2013.

<sup>93</sup> Ibid.

## 4.2. Regulations and Guidelines for the Canadian marine Arctic

Arctic shipping in Canada is governed by several pieces of legislation. Principally these are the *Arctic Waters Pollution Prevention Act* (AWPPA) and its regulations,<sup>94</sup> the *Canada Shipping Act 2001* (CSA),<sup>95</sup> the *Marine Liability Act*,<sup>96</sup> the *Marine Transportation Security Act*,<sup>97</sup> the *Coasting Trade Act*<sup>98</sup> and the *Canada Labour Code*.<sup>99</sup> It is beyond the scope of this paper to analyze this entire body of legislation. For the purpose of examining Canada's laws and regulations in relation to ice breaking in the NWP, the AWPPA and its regulations are of most relevance.

Through the AWPPA, 'Marine Safety', a branch of Transport Canada, is responsible for ensuring navigation in the NWP preserves and protects the sensitive northern ecosystem. Under the AWPPA there are several regulations that affect vessel navigation in the Arctic. The following are among the more important regulations:

- *Arctic Shipping Pollution Prevention Regulations* (ASPPR);<sup>100</sup>
- *Shipping Safety Control Zones Order*;<sup>101</sup>
- *Arctic Waters Pollution Prevention Regulations* (AWPPR);<sup>102</sup>
- *Navigation Safety Regulations*;<sup>103</sup>
- *Ship Station (Radio) Regulations*;<sup>104</sup>
- *Charts and Nautical Publications Regulations, 1995*;<sup>105</sup>

The AWPPA and its AWPPR provide measures to prevent pollution from ships, and in particular, the deposit of waste into Arctic waters.<sup>106</sup> The AWPPA's ASPPR deal with construction and operational aspects of navigating in the Arctic, including the need for *Ice Navigators*.<sup>107</sup> The ASPPR also contains the *Zone/Date System*, which is a system dividing the Arctic into 16 *Shipping Safety Control Zones*, each with fixed opening and closing dates for ships of various ice capabilities.<sup>108</sup> The Arctic Ice Regime Shipping System (AIRSS)<sup>109</sup>

---

<sup>94</sup> Arctic Waters Pollution Prevention Act (AWPPA) (R.S.C., 1985, c. A-12).

<sup>95</sup> Canada Shipping Act, 2001 (S.C. 2001, c. 26), s. 8.

<sup>96</sup> Marine Liability Act (S.C. 2001, c. 6).

<sup>97</sup> Marine Transportation Security Act (S.C. 1994, c. 40).

<sup>98</sup> Coasting Trade Act (S.C. 1992, c. 31).

<sup>99</sup> Canada Labour Code (R.S.C., 1985, c. L-2).

<sup>100</sup> Arctic Shipping Pollution Prevention Regulations (ASPPR) (C.R.C., c. 353).

<sup>101</sup> Shipping Safety Control Zones Order (C.R.C., c. 356).

<sup>102</sup> Arctic Waters Pollution Prevention Regulations (AWPPR) (C.R.C., c. 354).

<sup>103</sup> Navigation Safety Regulations (SOR/2005-134).

<sup>104</sup> Ship Station (Radio) Regulations, 1999 (SOR/2000-260).

<sup>105</sup> Charts and Nautical Publications Regulations, 1995 (SOR/95-149).

<sup>106</sup> See AWPPA, *Summary Description*; AWPPR, *Summary Description*.

<sup>107</sup> ASPPR, *Summary Description*.

<sup>108</sup> See Shipping Safety Control Zones Order, Schedule II; ASPPR, Schedule VIII.



was introduced as a more flexible system that uses the actual ice conditions to determine whether entry is allowed in an ice regime.<sup>110</sup> The *Zone/Date System* and the AIRSS operate in parallel to one another (see below, at 4.3.1., 4.3.2.).

### 4.3. Arctic Shipping Pollution Prevention Regulations (ASPPR)

As stated, the ASPPR mainly governs construction and operational aspects of navigating in the Arctic, including the need for *Ice Navigators* and *Arctic Pollution Prevention Certificates*.<sup>111</sup> Depending on the size of a ship, its cargo, its construction standards, the zone in which it seeks to navigate and the date of such intended navigation, the ship will be subject to either the *Zone/Date System*, the AIRSS, or, if neither of those systems applies, the remaining general provisions of the ASPPR. In general, the ASPPR only apply to a ship of 100 gross tons or more, however sections 28 to 30 (referring to sewage and oil deposits) apply to every ship.<sup>112</sup> The *Zone/Date System* has a narrower application, applying to ships of 100 gross tons or more and carrying oil in a quantity in excess of 453 m<sup>3</sup>.<sup>113</sup> The AIRSS also applies to all ships of 100 gross tons or more and carrying oil in a quantity in excess of 453m<sup>3</sup>, but is only applicable outside of the fixed opening and closing dates for ships of various ice capabilities under the *Zone/Date System* (see below, at 4.3.1., 4.3.2.).

#### 4.3.1. The *Zone/Date System*

The ASPPR introduces the *Zone/Date System* in which the Arctic waters are divided into sixteen *Shipping Safety Control Zones*, with a schedule of earliest and latest entry dates for each zone corresponding to specific categories of vessels.<sup>114</sup> *Zone 1* has the most severe ice conditions and *Zone 16* the least.<sup>115</sup> Annex 3 contains a map of the Canadian Arctic illustrating the sixteen *Shipping Safety Control Zones* (excerpt from Schedule II of the *Shipping Safety Control Zones Order*). The map is designed to be used with the Dates of Entry table from Schedule VIII of the ASPPR.<sup>116</sup> Schedule V of the ASPPR provides a comparison of various classification societies' *Ice Strengthening Class* or open-water designation for *Types A, B, C, D and E Ships* to assist with the use of the *Zone/Date System*.

---

<sup>109</sup> Arctic Ice Regime Shipping System (AIRSS) Standards, 1998, TP 12259, Marine Safety, Transport Canada, Ottawa.

<sup>110</sup> AIRSS, *Foreword*.

<sup>111</sup> ASPPR, *Summary Description*.

<sup>112</sup> *Ibid*, Section 3.

<sup>113</sup> *Ibid*, Sections 6(1) and 6(2).

<sup>114</sup> *Ibid*, Section 6(3)(a).

<sup>115</sup> Nossal 1987, 226.

<sup>116</sup> ASPPR, Sections 6 and 26; Schedule VIII.

Using the table in Schedule VIII of the AWPPA, an operator can determine the legal periods of entry into the various Zones.<sup>117</sup> AIRSS is currently used only when making access decisions outside of these established dates.<sup>118</sup>

Under the ASPPR, no ship carrying more than 453m<sup>3</sup> of oil shall navigate in any of the zones illustrated unless the ship itself meets prescribed construction standards as either a *Polar Class* ship, *Arctic Class* (AC) ship, a *Canadian Arctic Category* (CAC) ship or a *Type A, B, C, D or E* ship.<sup>119</sup> The *Type E* designation refers to an open-water ship.<sup>120</sup> Again, for those ships carrying less than the 453m<sup>3</sup> of oil, the *Zone/Date System* does not apply, however, the remainder of the ASPPR regulations still do.<sup>121</sup> For newly constructed ships, it is now recommended that vessels are built to standards based upon *Polar Classes* (PC) set out in the IACS *Unified Requirements for Polar Ships*.<sup>122</sup> Owners of ships built to polar standards of other Classification Societies and national authorities can apply for PC equivalency on a case-by-case basis, as may owners of vessels previously classified under the existing Canadian system for AC or CAC vessels.<sup>123</sup> More information is provided below (at 4.5.1.).

#### 4.3.2. Arctic Ice Regime Shipping System (AIRSS) Standards

Referenced in the ASPPR, the AIRSS standards were developed to enhance the safety and efficiency of shipping operations in the Canadian Arctic.<sup>124</sup> The standards characterize the relative risk which different ice conditions pose to the structure of different ships.<sup>125</sup>

While the *Zone/Date System* is based on rigid controls, the AIRSS emphasizes the responsibility of the master for the safety of the ship.<sup>126</sup> This provides a more flexible framework to assist in decision-making. Both systems are presently working in parallel, allowing operators to navigate outside the *Zone/Date* limits when ice conditions permit. Operators are able to use the *Zone/Date* scheme to generally plan voyages in the Arctic while being encouraged to avoid dangerous ice conditions through the use of the AIRSS. The application of the AIRSS requires an *Ice Navigator* and the use of all available ice information.<sup>127</sup>

---

<sup>117</sup> Ibid.

<sup>118</sup> Ibid, Section 6(3); AIRSS, Section 1.

<sup>119</sup> ASPPR, Section 6(1).

<sup>120</sup> Ibid, Schedule V; Canadian Coast Guard 2012b, 17.

<sup>121</sup> ASPPR, Section 3.

<sup>122</sup> Transport Canada, 2009.

<sup>123</sup> Ibid.

<sup>124</sup> AIRSS, *Foreword*.

<sup>125</sup> Ibid.

<sup>126</sup> Ibid.

<sup>127</sup> Ibid, Sections 1 and 2.

The AIRSS is based on the concept that ice conditions can be quantified through a arithmetic *Ice Numeral* calculation which indicates whether or not a given set of ice conditions (regimes) will be safe for a particular vessel. A wide range of ice navigation parameters including visibility, vessel speed and manoeuvrability, the availability of an icebreaker escort and the knowledge and experience of the crew must be considered when applying the AIRSS.<sup>128</sup>

The AIRSS is a four-step process.<sup>129</sup> First, the user vessel characterizes the ice regime. The ice regime is a region of ice with more or less consistent ice conditions. The ice regime takes into account several important factors of the ice; its concentration, thickness, age, state of decay, and roughness.

Second, the vessel's class-dependant *Ice Multipliers* are obtained. Because different vessels have different capabilities in ice-covered waters, each vessel is assessed and assigned to a vessel class. This rating reflects the strength, displacement, and power of the vessel (see below, at 4.5.1.). The relative risk of damage to a vessel by different types of ice is taken into account using "weighting" factors called *Ice Multipliers*.

Third, the information about the ice regime and the *Ice Multipliers* is combined to determine the *Ice Numeral*. (The *Ice Numeral* is a calculation that relates the strength of the ship to the danger presented by different ice regimes.)

Finally, the *Ice Numeral* is used to decide whether the vessel should proceed or take an alternative route. Ice regimes that are not likely to be hazardous have zero or 'positive' *Ice Numerals*; whereas, those regimes that could be dangerous have 'negative' *Ice Numerals*. As always, the safety of the ship ultimately remains the responsibility of the master.

Intentional entry into a negative ice regime outside the *Zone/Date System* is prohibited.<sup>130</sup> The master may consider taking one of the following actions:<sup>131</sup>

- Selecting another route;
- Obtaining more recent and/or higher quality ice information;
- Waiting for improved weather or ice conditions;
- Requesting the assistance of an icebreaker through NORDREG.

When entry is permitted, mariners should select an operating speed that will allow them to avoid damage from ice.<sup>132</sup> When AIRSS is used for voyages outside of the existing *Zone/Date*

---

<sup>128</sup> Ibid, *Foreword*.

<sup>129</sup> Ibid, *A short guide to the steps in applying the Arctic Ice Regime Shipping System*.

<sup>130</sup> ASPPR, Section 6(3)(a); AIRSS, Section 4.

<sup>131</sup> Canadian Coast Guard 2012b, 23.

<sup>132</sup> Ibid.

*System*, there is a requirement for ships to submit an Ice Regime Routing Message and the After Action Report through NORDREG.<sup>133</sup>

The above is only a brief summary of the regulatory regime for shipping in the NWP. Spatial constraints do not allow for a detailed account of the *Zone/Date System* and AIRSS and their complex components. While at face value these regulations may appear onerous and daunting, they offer a fair degree of flexibility for vessels seeking to navigate the NWP, at least when it comes to ice breaking requirements.

#### **4.4. When is icebreaker assistance legally required?**

##### *4.4.1. Requirements under the ASPPR*

Recall that, under the ASPPR, different (but parallel) systems govern operational aspects of a vessel's navigation depending on the size of a ship, its cargo, its construction standards, the zone in which it seeks to navigate and the date of such intended navigation (see above, at 4.3.). Namely, these are the *Zone/Date System*, the AIRSS, or, if neither of those systems applies, the remaining general provisions of the ASPPR. Accordingly, the system that applies to a particular vessel determines whether or not requirements exist for icebreaker assistance.

There are different requirements for icebreaker assistance (or a lack thereof) under the *Zone/Date System* and the AIRSS. These are described below (at 4.4.2, 4.4.3.). However, apart from these systems, the ASPPR itself contains a requirement for icebreaker assistance. Section 6(4) of the ASPPR provides:

- (4) No Type B ship carrying oil in a quantity in excess of 453 m<sup>3</sup> shall navigate in Zone 6 during the period commencing on August 1 and terminating on August 24 in any year unless
  - (a) an icebreaker available for escort duties is located in or in the vicinity of Zone 6; and
  - (b) where the ship carries oil as cargo, it is escorted by an icebreaker that has on board the means to effect an immediate response to an oil spill.<sup>134</sup>

At the time of writing, this is the only provision found in any of the relevant Canadian laws, regulations related to Arctic shipping where a requirement to obtain icebreaker assistance is expressly provided for and still in force. As will be discussed (see below, at 4.4.2., 4.4.3), there are no such requirements under the *Zone/Date System*, and, although a requirement may arise under the AIRSS, it does so indirectly on a case-by-case basis which considers a wide range of factors.

---

<sup>133</sup> ASPPR, Sections 6(3) and 6(3.1) ; AIRSS Section 9.

<sup>134</sup> ASPPR, Section 6(4).

The rationale behind Section 6(4) of the ASPPR is not entirely clear. The requirement for icebreaker assistance in the provision appears to be based on a vessel's construction, its cargo, an intention to navigate in *Zone 6* and the date such navigation is intended to take place. While the provision's application to vessels carrying relatively large amounts of oil as cargo is reasonably understood from a pollution prevention standpoint, the same cannot be said about the decision to single out only *Type B* ships from the several other classes that may operate in the NWP, especially *Type C, D and E* vessels, which generally have lesser ice capability. Further uncertainty arises from the fact that the requirement for icebreaker assistance in the provision only arises in *Zone 6*. Earlier (see above, at 4.3.1.) it was explained that the NWP and surrounding Arctic waters were divided into 16 zones based on their ice conditions. *Zone 1* typically has the most severe ice conditions and *Zone 16* has the least. By these standards, *Zone 6* can be expected to have moderate to severe ice conditions, but certainly not the most severe when compared to *Zones 1-5*. Therefore, it is unclear why *Zone 6* is the only zone where vessels meeting the other criteria of the provision in question are required to obtain icebreaker assistance. It is also puzzling to consider the dates during which the requirement applies: From 1 August to 24 August of any year. Considering the summer navigation season in the Canadian Arctic generally runs from June to November, and that Arctic sea ice reaches its minimum extent in September (the sea ice would already be well on its decline in August), the significance of the dates chosen warrants scrutiny. An increased need for ice breaking during the relevant dates is not an obvious justification for the requirement found in Section 6(4).

The author submits that other factors than those immediately apparent must have combined to influence Section 6(4)'s peculiar criteria in this regard, such as *Zone 6*'s central location in the region (see map in Annex 3), or the historical volume of *Type B* vessel traffic carrying oil in the area during the provision's relevant dates. In personal communications with Transport Canada's Manager of Marine Safety, Prairie and Northern Region, the author was informed that many of the ASPPR's provisions were based on specific but limited economic projects or activities that were taking place or foreseeable at the time the regulations were first adopted. Within the ASPPR, environmental issues specific to these projects seem to be addressed by provisions with a rather particular scope of application prescribing certain operational requirements for ships. Many of these projects or activities have reached completion or were discontinued some years ago, and as such, the provisions are no longer relevant, have been repealed or no longer reflect the present reality. Reference can be made to Section 6 (7) of the ASPPR, which provides:

(7) From the day on which this subsection comes into force to *December 31, 2001*, no Arctic class 3 ship carrying oil in a quantity in excess of 453 m<sup>3</sup> shall navigate in that part of zone 1 that consists of the southern approaches through the Byam Martin Channel or Erskine Inlet to Cameron Island during the periods beginning on August 1 and ending on August 14 and beginning on September 16 and ending on September 30, unless [...] (emphasis added by author)

The navigation restrictions found in Section 6(7) no longer apply because the provision itself included a date for the expiration of its application which has since lapsed. It seems apparent that the restrictions contained in the above provision were drafted to accomplish a specific purpose or objective that would be no longer necessary after expiration of a certain date. Without obtaining specific information on the subject, the author must assume the requirement for icebreaker assistance found in Section 6(4) is also based on specific, calculated needs. This is an important factor in the legal validity of the restrictions under international law and will be explored in the following chapter.

#### 4.4.2. *Requirements under the Zone/Date System*

As outlined above (see 4.3.1.), under the *Zone/Date System* a vessel's right to navigate in a particular area is based strictly on the class of the vessel, the zone in which it seeks to navigate, and the corresponding range of dates navigation in that zone is permitted based on the first two criteria. If such vessel is of sufficient class for the particular zone and date, it may navigate in that zone freely, with no requirement to obtain icebreaker assistance. However, if the vessel does not satisfy the zone and date criteria, under the *Zone/Date* system the vessel is not permitted to navigate in the area and obtaining ice breaking services provides no remedy to the situation. Even if icebreaker assistance could be acquired, the vessel is nonetheless prohibited from navigating in such a zone. The potential or actual acquisition of ice breaking services is given no weight in the *Zone/Date System's* operation. Therefore, it can be said that the *Zone/Date* system entails no requirement for ice breaking assistance.

It is evident that such a system alone is inadequate. The fixed limits of the *Zone/Date System* are largely incompatible with the highly variable Arctic sea ice and the volatile operational environment found in the NWP.<sup>135</sup> The *Zone/Date* System also fails to reflect the present reality in the NWP brought on by climate change. The veracity of the *Zone/Date System* has been investigated by Transport Canada. They found that:

...there are very large variations in the ice conditions from year-to-year. An examination of several years of data has shown that the Zone-Date System allows vessels into ice regimes which have a high potential to damage the vessel and it often restricts vessels from entering regions where the ice conditions are favourable for a

---

<sup>135</sup> Timco, Collins, and Kubat 2009, 7.

safe passage. The large annual variations are not taken into account by this system - it has fixed (rigid) entry dates that often do not reflect the severity of the ice.<sup>136</sup>

In the *Zone/Date System*, regardless of which regime is applied to the NWP – internal waters, transit passage, innocent passage, freedom of navigation subject to jurisdiction under Article 234, or any combination thereof– there is a significant risk of an unacceptable outcome both for Canada and ships navigating in the area. Legal issues surrounding these outcomes are discussed in the following chapter (see below, at 5.3.3.). Canada’s apparent recognition of the *Zone/Date*’s weakness is demonstrated by the adoption of the parallel AIRSS standards.

#### 4.4.3. Requirements under the AIRSS Standards

As mentioned, the AIRSS works in parallel to the *Zone/Date System*. Again, under the current regulatory framework, the AIRSS applies to any ship 100 gross tons or more and carrying oil in a quantity of excess of 453m<sup>3</sup>, outside of the fixed opening and closing dates for ships of various ice capabilities under the *Zone/Date System*. However, unlike the *Zone/Date System*, the AIRSS can require a vessel to obtain ice breaking assistance in some scenarios.

Referring to the fourth step of the AIRSS process (described above, at 4.3.2.), if a ship conducts the required calculations for a particular ice regime, and the resulting *Ice Numeral* is negative, the ship is not allowed to proceed along its elected course through that ice regime. Unless the ship selects another route or waits for the ice conditions to improve, the only way the ship can continue along its elected route is to acquire ice breaking assistance, so as to alter the relevant ice regime in hopes of producing a positive *Ice Numeral* along the ship’s course<sup>137</sup>. Ships requesting icebreaker assistance must send an official request via the NORDREG reporting system.<sup>138</sup> The request is relayed to the CCG ice breaking superintendent to be assessed.<sup>139</sup> If mandated by assessment, an icebreaker is then deployed and can usually meet the ship within 24 hours.<sup>140</sup>

Importantly, the assisting icebreaker itself must be able to produce a positive Ice Numeral along the requesting ship’s course through the relevant ice regime in order to comply with the AIRSS.<sup>141</sup> CCG icebreakers are not subject to the *Zone/Date System* or the AIRSS, but the mere presence of an icebreaker is not enough to secure entry into an ice regime.<sup>142</sup> Recall that under the AIRSS, a ship must always encounter a positive Ice Numeral along its

---

<sup>136</sup> Ibid.

<sup>137</sup> AIRSS, Section 8.5.

<sup>138</sup> AIRSS, Section 9.

<sup>139</sup> Dufour 2013.

<sup>140</sup> Dufour 2013.

<sup>141</sup> Miller 2013.

<sup>142</sup> Ibid.

route if it wishes to continue.<sup>143</sup> As an icebreaker breaks up the ice regime and frees a path, a positive Ice Numeral is usually created ahead of the requesting ship, but this may not always be the case.<sup>144</sup> In the scenario where ice breaking assistance cannot achieve a positive Ice Numeral, intentional entry by a ship into the negative ice regime remains prohibited.<sup>145</sup> This is also the case if ice breaking assistance cannot be obtained.<sup>146</sup>

While the scientific basis for restrictions on the navigation of vessels is improved under AIRSS, like the *Zone/Date* System, the AIRSS scientific veracity has been inspected and led to a recommendation that the system should be modified.<sup>147</sup> This may affect the status of the system under international law. A discussion of possible legal issues surrounding the AIRSS requirements is found in the following chapter (see below, at 5.3.3.).

## 4.5. Other features and requirements

### 4.5.1. *Vessel Classes*

Ice strengthening appropriate for the conditions encountered is fundamental to safe operation in ice. Ice classes indicating capability in ice have been established by many organizations. Currently, the ice breaking regulations and standards discussed above are based on a mix of unique *Canadian Arctic Categories* (AC & CAC), and *Types* that are based on the Finnish-Swedish (*Baltic*) Rules. Vessels designed to any other ice class are only considered for equivalency on a case-by-case basis. However, since the adoption of these regulations and standards, the IACS *Unified Requirements (URs) for Polar Class Ships (UR I1, I2 and I3)*<sup>148</sup> took effect. The URs were connected to an agreement that IMO would develop overall guidelines for ships operating in ice-covered waters. The result was the *IMO Guidelines for Ships Operating in Arctic Ice-covered Waters*,<sup>149</sup> in December 2002. It was also agreed that details of hull and machinery construction would be coordinated through IACS, and the (then draft) URs are referenced in the IMO Guidelines. The AC, CAC and *Type* classes utilized by the ASPPR and its systems are not consistent with the URs.

---

<sup>143</sup> ASPPR, Section 6(3)(a); AIRSS, Section. 4.

<sup>144</sup> Miller 2013.

<sup>145</sup> ASPPR, Section 6(3)(a); AIRSS, Section 4.

<sup>146</sup> Miller 2013; Dufour 2013.

<sup>147</sup> Timco, Collins, and Kubat 2009, 1.

<sup>148</sup> International Association of Classification Societies (IACS), Requirements for Polar Class, London, United Kingdom, (October 2007)

<sup>149</sup> Guidelines for Ships Operating in Arctic Ice-Covered Waters, IMO MSC/Circ. 1056, MEPC/Circ. 399, (23 December 2002).



The Guidelines and URs both utilize seven *Polar Classes* - PC 1 through PC 7 (see Annex 2).<sup>150</sup> PC 1 is the most capable class, capable of year-round operation in all ice conditions. PC 6/7 are for use in summer/autumn operations in medium/thin first-year ice, which may include old ice inclusions.<sup>151</sup> The lowest classes, *PC 6* and *PC 7*, can be considered as ‘polarized’ versions of the top two *Baltic* classes and the top classes represent levels of capability that have not yet been provided by commercial cargo-carrying vessels.<sup>152</sup> The IMO *Polar Shipping Guidelines*,<sup>153</sup> adopted in 2009, update the above-mentioned Guidelines and extend their application to Antarctic waters in the ongoing work towards the development of an international code of safety for ships operating in polar waters (the Polar Code).

These international efforts to harmonize classifications and standards for Arctic vessels are not presently taken into account in the current Canadian regulations. However Transport Canada has indicated its intent to do so, indicating that it will work towards revising the ASPPR and other regulations and standards to reflect the new classifications.<sup>154</sup> As an interim measure, new ships built to these URs will be assigned a *PC* notation ranging from *PC1* to *PC7*.<sup>155</sup> A *PC* notation may also be assigned to an existing vessel by applying to an IACS-recognised classification to have the vessel assessed in accordance with the URs for *PC* ships.<sup>156</sup> Nonetheless, the lack of harmonization between the Canadian laws and regulations and global standards, like the IACS URs and IMO Polar Guidelines, could be perceived as a weakness in the regime related to ice breaking in the NWP. This will be explored in the following chapter (see below, at 5.3.4.)

#### 4.5.2. Reporting requirements and NORDREG

Specific to the purposes of this thesis, ships should contact the following relevant government organizations prior to an Arctic voyage:

- 1) Marine Safety, Transport Canada, Prairie and Northern Region – Marine Safety has up-to-date information relating to marine regulations applicable to ships operating in the region and is responsible for all vessel approval. The ship are encouraged to have a

---

<sup>150</sup> Transport Canada 2009.

<sup>151</sup> Ibid.

<sup>152</sup> Ibid.

<sup>153</sup> Guidelines for Ships Operating in Polar Waters, IMO Assembly Resolution A.1024(26), (2 December 2009).

<sup>154</sup> Transport Canada 2009.

<sup>155</sup> Ibid.

<sup>156</sup> Ibid.

general vessel itinerary that determines whether it falls within legal entry limits for the various *Shipping Safety Control Zones*.<sup>157</sup>

2) The CCG, Central & Arctic Region - ships are encouraged to provide the CCG with an itinerary early in the planning process. The CCG uses this information in combination with other submissions in the spring to plan the deployment of their icebreaking resources for the upcoming season.<sup>158</sup>

In addition to these general reporting requirements, which are largely non-mandatory, there are more specific, mandatory requirements associated with Canada's NORDREG regulations (see above, at 3.1.3.). The NORDREG regulations apply to every ship of 300 tonnes gross tonnage or more; to vessels engaged in towing or pushing another vessel if the combined tonnage of 500 tonnes or more; to vessel that are carrying as cargo, a pollutant or dangerous goods or towing or pushing a vessel that is carrying pollutant or dangerous goods.<sup>159</sup> NORDREG is a mandatory vessel traffic services system that also provides mariners with information pertaining to ice conditions, vessel routing, icebreaker assistance and other government services.<sup>160</sup> Mariners may obtain ice information and access shipping support services by sending a message through NORDREG, and are in fact required to do so in order to obtain ice breaking assistance under the ASPPR and AIRSS.

The disputed validity of the NORDREG regulations was also introduced earlier in this paper (see above, at 3.1.3.). Connected in part to this dispute, the regulations have suffered from non-compliance, which further complicates their status under international law.<sup>161</sup> Vessels that are required to obtain icebreaker assistance under the ASPPR and AIRSS are required to request such services through NORDREG and must also provide an after report to NORDREG after such services are obtained and navigation under icebreaker escort is conducted. This requirement can be viewed as an attempt by Canada to increase participation and compliance with the NORDREG regulations and consequently address their disputed status under international law.<sup>162</sup> However, by connecting ice breaking requirements to NORDREG through mandatory reporting requirements, Canada may run the risk of having such ice breaking requirements dragged into the ongoing dispute surrounding the NORDREG regulations.

---

<sup>157</sup> Canadian Coast Guard 2012b, 6.

<sup>158</sup> Ibid.

<sup>159</sup> NORDREG, Section 3.

<sup>160</sup> Canadian Coast Guard 2012b, 6.

<sup>161</sup> Miller 2013; Dufour 2013.

<sup>162</sup> Ibid.

#### 4.5.3. Fees

An important feature of the ice breaking and support services provided by the CCG in the NWP is that such services are provided with no fee for the user.<sup>163</sup> Instead, the costs involved with ice breaking in that area are absorbed by the CCG, which is funded by Canadian federal government revenue. This is somewhat remarkable when one considers the high cost involved in ice breaking operations in remote areas of the Canadian Arctic. It is in contrast to winter ice breaking in Southern Canada, where users must pay a substantial fee for ice breaking services.<sup>164</sup> It also serves as a point of comparison between ice breaking in the NWP and ice breaking in the NSR. Ships navigating the latter route must obtain a permit which often includes mandatory ice breaking as a condition of navigation. Substantial fees are attached to mandatory ice breaking services, even if ice breaker assistance may not be necessary in light of ice conditions or vessel construction.<sup>165</sup>

The absence of fees for ice breaking in the NWP has both positive and negative implications. Legal issues that fees attract have already been introduced (see above, at 3.1.2.), and it is positive that Canada can avoid these issues entirely. Since most of the current shipping is of vital importance to remote Canadian Arctic settlements and communities, the lack of fees can be viewed as one less obstacle for supporting these communities and connecting them to the rest of the nation. Conversely, the absence of fees for ice breaking comes at a great expense, not only to the CCG and the other agencies involved, but also Canadian tax-payers. In various ways, it seems to make sense that a user should have to bear the cost of their activities in the NWP. Such fees could then in turn be used for *inter alia* economic, community and infrastructure development in the Canadian Arctic region. At present the question of fees in the NWP is more of a policy issue rather than a legal one, but this may change in the future. In a conversation with Stacy Dufour, Icebreaking Superintendent with the CCG, the author learned that major changes could be coming in relation to fees for ice breaking services in the NWP. Future implementation of fees is currently being explored by the agency.<sup>166</sup>

#### 4.6. Enforcement

To assert sovereignty over Arctic waters (and prescribe stringent navigation and ice breaking requirements for foreign vessels on the basis of such sovereignty) is one thing, but for Canada

---

<sup>163</sup> Dufour 2013; Canadian Coast Guard 1998.

<sup>164</sup> Ibid.

<sup>165</sup> Solski 2013, 22.

<sup>166</sup> Dufour 2013.

to enforce it is quite another. Spatial considerations do not permit a thorough examination of Canada's enforcement of laws and regulations in the NWP, but some observations can be made.<sup>167</sup>

As introduced at the outset of this chapter, Transport Canada has regulatory oversight over laws and regulations related to Arctic shipping and ice breaking in the NWP (see above, at 4.1.). However, aside from some limited powers to issue vessels with monetary penalties, without a fleet of vessels, equipment, or other similar resources, Transport Canada relies on other agencies to *inter alia* board and inspect vessels; prevent vessels from navigating in prohibited areas; ensure vessels do not continue in areas without icebreaker escort if they are required to have such assistance; and otherwise physically enforce laws and regulations in relation to ice breaking in the NWP. The Canadian Armed Forces, the RCMP, and the CCG share defence and constabulary functions in the Canadian Arctic.<sup>168</sup> However, only the CCG is capable of navigation in most of the Arctic, being the only one agency of the three with ice-strengthened ships and personnel competently trained in ice navigation.<sup>169</sup> In light of differences between the mandates of the three agencies and the imbalance in their respective Arctic navigational capabilities, the CCG is the paramount agency for the enforcement of laws and regulations in relation to ice breaking in the NWP.

The CCG's ice breaking fleet is currently made up of two "heavy" icebreakers rated between AC 3-4.<sup>170</sup> Four "medium" icebreakers, are only rated AC 2-3 and are therefore may have limited ice navigational capabilities in large parts of the Arctic archipelago at any time of the year. Nonetheless, CCG personnel maintain these vessels can cope with the current volume of traffic in the NWP.<sup>171</sup> As Lalonde states:

While Canada does not own any vessel which can navigate the M'Clure Strait in January, neither are there any foreign vessels foolhardy enough to attempt a crossing at that time of the year. Basically, Canadian Coast Guard vessels are present when foreign vessels are interested in navigating the Northwest Passage.<sup>172</sup>

It should also be noted that any CCG vessel navigating in the Arctic has a pollution prevention officer on board, empowered to enforce the AWPPA (under Articles 14-17 of that Act).<sup>173</sup> In the event of an infraction of any of the relevant laws and regulations established under the AWPPA by a vessel, such officers have the authority to act in order to prevent or

---

<sup>167</sup> See Lalonde 2004 for a thorough account of Canada's Arctic enforcement capabilities.

<sup>168</sup> Ibid. 104.

<sup>169</sup> Ibid

<sup>170</sup> Ibid. 120.

<sup>171</sup> Dufour 2013.

<sup>172</sup> Lalonde 2004, 120.

<sup>173</sup> Ibid, 123.

respond to environmental harm.<sup>174</sup> Most often, foreign vessels, anxious to secure the help of the CCG in the often hostile Arctic waters, will comply with any orders or directives from the pollution prevention officer on board, including ice breaking measures.<sup>175</sup> It is in the absence of such cooperation (or the absence of CCG vessels altogether) that the situation becomes more complicated.

Global warming can also be expected to complicate the situation. To date, foreign compliance has been largely determined by the need for the security provided by the ice breaking services of the CCG. As the ice diminishes, chances are that that traffic will increase at the same time as the need for Canadian ice breaking services diminishes. Accordingly, compliance with Canadian navigation and ice breaking requirements in the NWP is also likely to diminish. In fact, there have been various acts of non-compliance in the past. Anecdotal evidence from the author's personal communications with Transport Canada and CCG officials suggests that there were some 15 acts of non-compliance during the 2012 summer navigation season alone.<sup>176</sup> These acts included failures to comply with NORDREG reporting requirements, navigation in zones where vessels were prohibited from entry, and failure to request ice breaker escort when the AIRSS standards deemed such assistance necessary.<sup>177</sup>

These communications also revealed that the 'mandatory' NORDREG regulations are still, for all intents and purposes, treated as voluntary in nature by relevant government agencies.<sup>178</sup> Further, the officials with whom the author spoke were very careful to describe acts contrary to the requirements under the ASPPR, *Zone/Date System*, and the AIRRS as 'not in compliance', rather than 'illegal', 'in violation of...' or other, similar, more severe terms.<sup>179</sup> It seems to the author that Canada has adopted a very conservative approach to enforcement of laws, regulations and practices in relation to ice breaking in the NWP. This is likely necessary in light of Canada's limited operational capability in the marine Arctic, its precarious legal claims in relation to the area, and the limits imposed by the LOSC.

The above reality leaves Canada ill-equipped to meet future challenges (ice breaking or otherwise) in the NWP. It also supports the continuation of a theme in the Canadian Arctic: Canada is not yet prepared for anything but the *status quo* in the NWP in terms of enforcement capabilities; nor is Canada in an adequately secure legal position to willingly bring or defend its purported jurisdiction over navigation in the NWP before an international

---

<sup>174</sup> Ibid.

<sup>175</sup> Ibid.

<sup>176</sup> Dufour 2013; Miller 2013.

<sup>177</sup> Ibid.

<sup>178</sup> Ibid.

<sup>179</sup> Ibid.

court or tribunal. The time has therefore come to decide whether Canada is going to choose to equip itself with the means to exercise such jurisdiction or simply abdicate its responsibilities.

## **5. CHAPTER V – THE CONSISTENCY OF CANADIAN PRACTICE IN RELATION TO ICE BREAKING (i.e. LAWS, REGULATIONS, POLICIES, ENFORCEMENT) WITH INTERNATIONAL LAW**

### **5.1. Introduction**

Having provided both an account of relevant aspects of the international legal framework for Arctic shipping (Chapter III), and an account of the Canadian practice related to ice breaking in the NWP (Chapter IV), an analysis of the consistency of the Canadian practice with the international legal framework can now be attempted. However, the author cautions that such an analysis is not entirely straightforward. A principal, complicating factor is the multitude of different positions on which legal regime under the international law of the sea should be applied to the NWP. These positions are summarized and re-stated (from above, at 3.1.2.) as follows:

- (a) The waters within the Arctic Archipelago, which includes the NWP, are historic internal waters that do not provide for a right of innocent passage and over which Canada exercises absolute sovereignty; (The view of Canada)
- (b) The NWP is a strait used for international navigation through which a right of transit passage exists; (The view of the US)
- (c) The waters are non-historic internal waters that provide for a right of innocent passage; (alternative scenario, should both Canada and the US be unable to make their respective cases)
- (d) The waters are part of Canada's territorial sea or EEZ through which a right of innocent passage (territorial sea) or a freedom of navigation (EEZ) exists. (another alternative scenario, again arising if both Canada and the US are unable to make their respective cases)

Once again, it is not the intention here to assess or evaluate the merits of these legal positions. On the other hand, it is important to note that each of these positions carries with them different entitlements to jurisdiction for Canada, the coastal state, in relation to foreign vessels navigating in the NWP. Accordingly, an analysis of Canada's practice in respect of ice breaking in the NWP in light of international law can be expected to result in different outcomes depending on which legal regime is applied.

Importantly, Canada itself holds the view that the NWP is a part of its historic internal waters. Applying this view, the Canadian practice related to ice breaking may be consistent with international law even if it is only consistent with the legal regime for historic internal waters. In fact, invoking alternative legal regimes as the basis for such practice could be

detrimental to Canada's overall claim in this regard. Nonetheless, in light of the perceived weakness surrounding Canada's historic internal waters claim (see above, 3.1.2.), to protect and preserve its interests in the NWP, Canada would be well advised to consider these alternatives. Canada can best position itself by tailoring its practice in relation to icebreaking to be consistent with alternative legal regimes, while at the same time maintaining its claim to historic internal waters. While this approach should not be expected to improve the merit of the Canadian historic internal waters claim, other states may be less inclined to challenge Canadian practice that, despite its contested legal basis, is otherwise consistent with the other international regimes that may be applicable to the NWP.

## **5.2. Comparing Canadian practice with the international regimes**

### *5.2.1. Historic internal waters*

First, of the different positions listed above (at 5.1.), Canada's jurisdiction over the NWP is undoubtedly the least limited if its baselines did enclose waters already considered Canadian internal waters (position (a), above at 5.1.). Indeed, because of the relatively broad powers available to a state in accordance with full sovereignty, the Canadian practice in relation to ice breaking is *prima facie* consistent with international law. In relation to commercial vessels, Canada enjoys full sovereignty and is free to regulate their activity in its internal waters in the same way as on its land territory. Consequently, there are very few international rules limiting Canada's jurisdiction over these vessels.

The regime of historic internal waters in the NWP should be interpreted so as to reflect bilateral treaty arrangements.<sup>180</sup> Relevant here is the bilateral 1988 Arctic Cooperation Agreement (see above, at 3.1.2.) between the US and Canada. However, for the purposes of this thesis, nothing in this agreement conflicts with or constrains the Canadian practice in question. In fact, through the Agreement, in exchange for guaranteed access and transit rights for US government vessels, the US makes an express undertaking to comply with Canadian practice in relation to ice breaking in the NWP, thus *functionally* reconciling Canada's historic internal waters claim over the NWP with the US 'strait used for international navigation' position. The US undertaking to comply with Canadian practice can also be viewed as a waiver of foreign state immunity for US vessels in the NWP.

Foreign state immunity is one of the few exceptions to sovereignty over historic internal waters. Foreign state immunity provides visiting warships and foreign government ships immunity from the laws of the coastal state, and, in respect of other non-US foreign

---

<sup>180</sup> Rothwell and Stephens 2010, 55.



state vessels, that are not subject to any special agreement, may constrain Canadian practice in the NWP. To the author's knowledge this issue has not yet arisen. Presently, almost all warships and government ships engaged in surface navigation in the NWP are US-flagged, and thus have agreed to be bound by the Canadian laws and regulations in question.<sup>181</sup> Those few non-US foreign state vessels that also engage in surface navigation in the NWP have mostly complied with Canadian requirements in relation to ice breaking and navigation.<sup>182</sup> However, such compliance in this regard may be more easily attributed to practical needs rather than recognition of Canadian jurisdiction. The issue of foreign state immunity is revisited below (at 5.3.2.).

### 5.2.2. *The LOSC international straits regime*

The US position, that the NWP is an international strait subject to the right of transit passage (position (b), above at 5.1.), is certainly the least favourable to Canada in terms of exerting stringent and unilateral control over foreign vessels navigating the area. When Canadian practice in relation to ice breaking is compared to the jurisdiction of states bordering straits normally permitted under the international straits regime in Part III of the LOSC, one finds considerable divergence.

The Canadian requirements (such as the requirement to obtain ice breaker assistance to navigate certain zones under the AIRSS, or an outright prohibition on navigation in a particular zone under the *Zone/Date System*) are in excess of any applicable international regulations allowed for coastal states under Article 42(1)(a) and (b) of the LOSC. They also deny, hamper, impair, or suspend the right of transit passage set out in Articles 42(2) and 44.

An argument could be made that leading a vessel through the NWP by icebreaker escort might be similar to sea lanes or traffic schemes permitted under Article 41, but according to that provision such measures must be adopted through the IMO, and not unilaterally established.<sup>183</sup> Similarly, the unilaterally established NORDREG reporting requirements associated with the ice breaking requirements may also be argued as inapplicable to transit passage through international straits as set out in Part III of the LOSC. Application of Canadian laws to state vessels may also be inconsistent with the LOSC.<sup>184</sup> Finally, while Canada does not appear to actively exercise its enforcement jurisdiction, the

---

<sup>181</sup> Miller 2013.

<sup>182</sup> Ibid.

<sup>183</sup> LOSC, Article 41(4).

<sup>184</sup> LOSC, Articles 32 and 236.

enforcement measures provided for under the laws and regulations in relation to ice breaking in the NWP are arguably contrary to those sanctioned under Article 233 of the LOSC.

While based on the above it would appear that Canadian practice in relation to ice breaking is largely inconsistent with the international straits regime of the LOSC, some points should be considered. First, at present, the international straits regime does not seem to apply to the NWP.<sup>185</sup> Second, the LOSC confers on Canada important rights and privileges by virtue of Article 234, although there are significant interpretational uncertainties related to the provision's application to the international straits regime (see above, at 3.1.3.). If Canadian practice in relation to ice breaking in the NWP is a valid exercise of Article 234 (see below, at 5.3), such practice may be consistent with international law, even if the international straits regime is deemed to apply to the area.

### 5.2.3 *The LOSC Exclusive Economic Zone (EEZ) regime*

The Canadian-US legal positions are not an either/or situation. Both states could be unable to make their cases. In such a scenario, one alternative is that the NWP within 12 nautical miles of Canadian land territory would become a part of the territorial sea, and areas of the NWP further than 12 nautical miles from Canadian land territory would become EEZ (position (d), above at 5.1.).<sup>186</sup> There are no areas of the NWP further than 200 nautical miles from Canadian land territory, so no high seas areas would exist. Accordingly, either the territorial sea regime or the EEZ regime (both under the LOSC) would apply to those areas. The EEZ regime (to be discussed in this section) tolerates lesser coastal state jurisdiction than would be allowed under the territorial sea regime (see below, at 5.3.3.). However, both the territorial sea and the EEZ regimes tolerate greater coastal state jurisdiction than would be allowed than under the international straits regime.

The prescriptive and enforcement jurisdiction of the Articles 211 and 218-220 of the LOSC, which relate to environmental measures in the EEZ, are generally infringed by the Canadian practice in relation to icebreaking in the NWP. The freedom of navigation provided to foreign ships by Article 58(2) is also infringed. Such infringement may also be viewed as a failure by Canada to honour its obligation to have due regard to the rights of other states provided by Article 56(2).

---

<sup>185</sup>See eg., Pharand 2007, 42.

<sup>186</sup> LOSC, Articles 3 and 57.

The Canadian laws and regulations may fail to conform to GAIRAS as required under the LOSC.<sup>187</sup> CDEM standards must meet GAIRAS and should not be unilaterally prescribed. Here, it is relevant to note the inconsistency between the vessel classes used in the ASPPR's operation and the IACS UR's for *Polar Class* ships. Although the Canadian policy is to recognise the URs, they are not reflected in the actual laws and regulations itself. Sovereign immunity remains protected in the EEZ regime, and application of Canadian laws to state vessels may be inconsistent with LOSC.<sup>188</sup> Finally, it can be argued that the various navigation and ice breaking requirements should be processed through the auspices of the IMO under Article 211(1), rather than imposed unilaterally.

Based on this brief analysis, one can see that significant inconsistency with international law may arise if the EEZ regime were to be applied to Canadian practice in relation to ice breaking in the NWP. Once again, however, the effect of Article 234 has not been considered. The powers granted by that special provision may have the effect of bringing the Canadian practice in line with international law under the EEZ regime. Article 234 is considered below (at 5.3).

#### *5.2.4. The LOSC territorial sea regime (and non-historic internal waters providing a right of innocent passage)*

In the scenario where areas of the NWP are part of Canada's territorial sea (position (d), above at 5.1.), a right of innocent passage exists for foreign vessels. However, a similar right may arise in another scenario. If both Canada and the US were unable to make their respective cases, the NWP could alternatively be deemed part of Canada's non-historic internal waters where a right of innocent passage exists.<sup>189</sup> In both scenarios, the right of innocent passage is governed by Section 3, Part II of the LOSC.

When compared to the international straits and EEZ regimes, greater coastal state jurisdiction is allowed under Article 25(1) of the LOSC, in order to prevent non-innocent passage in the territorial sea. Under Article 21, provisions for navigational safety and environmental protection may be adopted by the coastal state and would arguably enjoy more than usual application in ice-covered waters. However, aspects of the Canadian practice may suspend or hamper innocent passage as it is understood by Articles 19 and 24(1). Though states may take preventative and exclusionary measures pursuant to Article 25 of the LOSC to prevent passage prejudicial to their peace, good order, or security, this is to be on a case-by-

---

<sup>187</sup> LOSC, Article 211(5).

<sup>188</sup> LOSC, Articles 32, 95, 96, and 236.

<sup>189</sup> LOSC, Article 8(2).

case basis and is not to be a universal policy. Article 25(3) allows for temporary suspension of passage for reasons of security in specified areas, but not for definite closure. For these reasons, it is unclear whether Article 25 would be compatible with the restrictions on navigation arising from Section 6(4) of the ASPPR, the *Zone/Date System*, and the AIRSS.

Again, the safety standards and CDEM standards must be GAIRES adopted through IMO conventions ratified by states representing a high percentage of the world's gross tonnage. In contrast, the 'established norms' applied by Canada here are vessel construction standards established by Transport Canada.

Ice breaker escort and assistance may be justified for reasons of navigational and vessel safety in ice-covered waters pursuant to Article 21 of the LOSC. The parallel between icebreaker assistance and sea lanes may be stronger in the territorial sea, as Article 22 of the LOSC merely requires a state to "take into account" IMO recommendations. However, coastal states can only exercise powers under Article 22 'where necessary for the safety of navigation'. The Canadian blanket requirement for ice breaker assistance arising from Section 6(4) ASPPR, on the other hand, may arguably apply when it is not needed, such as during ice-free summers.

The various Canadian enforcement measures including inspection, arrest, detention, suspension, removal, and other proceedings (even though they are rarely invoked), are in excess of international rules regarding innocent passage unless carried out in ports, the measures are taken against a vessel that is proceeding from internal waters, or the order of the state is threatened.<sup>190</sup> When acts of willful and serious pollution occur, under Article 19(2)(h) of the LOSC more stringent enforcement measures are clearly applicable, but on a case-by-case basis only. Finally, sovereign immunity remains protected in the territorial sea regime, and application of Canadian laws to state vessels may be inconsistent with LOSC.<sup>191</sup>

It appears that Canadian practice in relation to ice breaking in the NWP is also inconsistent with the innocent passage regime of the LOSC, albeit less inconsistent here than under the two previous regimes explored in this paper. Moreover, such findings indicate that, unless the historic internal waters regime is applied, the present Canadian practice in relation to ice breaking in the NWP is generally inconsistent with the coastal state powers normally granted under international law. However, once again, the findings above do not take into account the special powers granted to coastal states over ice-covered area by Article 234 of

---

<sup>190</sup> LOSC, Articles 25(2) and 211(3).

<sup>191</sup> LOSC Article 32.

the LOSC – which adds a significant dimension to the regulation of international shipping in the NWP.

### **5.3 An assessment of Canadian practice in light of Article 234**

#### *5.3.1. Introduction*

Article 234 of the LOSC was introduced earlier in this paper (see above, at 3.1.3.). For present purposes, it is important to recall that the basic purpose of the provision is to provide a coastal state with broader prescriptive and enforcement jurisdiction in ice-covered areas than in maritime zones elsewhere (with the exception of historic internal waters, where coastal state jurisdiction is the least limited).<sup>192</sup> If maintaining its claim to historic internal waters, Canada should not invoke Article 234, as such an approach could be detrimental to its claim of full sovereignty. Despite the fact that the Canadian practice in relation to ice breaking involves more stringent standards than GAIRAS and envisions a limited role for the IMO in the regulation of shipping in the NWP, it may be at any rate consistent with international law if viewed as a valid exercise of jurisdiction under Article 234. As the ambiguous wording of Article 234 indicates, however, such jurisdiction is subject to several restrictions and can only be exercised for specified purposes.

Pursuant to the discussion earlier in this paper (see above, at 3.1.3.), for the most part, the Canadian practice in relation to ice breaking in the NWP may be considered consistent with the environmental protection purpose of Article 234 and well within the limits of the jurisdiction granted by the provision. However, there are several aspects of the Canadian practice which may remain inconsistent with international law even in light of Article 234

#### *5.3.2. Foreign state immunity: the relationship between Article 234 and Article 236*

Generally, each state must regulate vessels flying its own flag in accordance with the principle of flag state jurisdiction.<sup>193</sup> Yet, the particular appeal of Article 234 for Canada is to allow the coastal state to enact laws and regulations applying to foreign vessels in a given area of the NWP. However, Article 236, which forms Section 10 of Part XII, grants sovereign immunity to state vessels with respect to all provisions of the LOSC relating to the protection and preservation of the marine environment, including Article 234.<sup>194</sup> The sovereign immunity of

---

<sup>192</sup> Molenaar 2013, 12.

<sup>193</sup> LOSC, Article 92.

<sup>194</sup> Bartenstein, 2011, 32.

flag states for their state vessels is a common feature in the LOSC.<sup>195</sup> It corresponds to a recurring request of the user states and was part of the Article 234 negotiations.<sup>196</sup>

The application of Canada's laws and regulations in relation to ice breaking in the NWP are based on vessel size/weight, cargo, and construction (see above, at 4.3.). These criteria do not distinguish between state and non-state vessels. Consequently, state vessels falling within the relevant size/weight, cargo or construction criteria would be subject to these Canadian laws and regulations. This is inconsistent with all of the legal regimes that may be applicable to the NWP, historic internal waters included.

Further, the universal application of Canadian laws and regulations in this regard is likely unwarranted. Compared to the commercial fleet, the world's fleet of state vessels is relatively insignificant and the seaworthiness of state vessels is often less problematic than that of commercial ships.<sup>197</sup> In addition, state vessels generally do not have hazardous goods aboard, except for fuel or nuclear elements for their propulsion systems.<sup>198</sup> Moreover, Article 236 itself imposes an obligation on the flag state to ensure their state vessels engage in safe navigation.<sup>199</sup>

In light of this discussion on the relationship of Articles 234 and 236, the former article does not provide an adequate basis for the application of Canadian laws and regulations to state vessels enjoying sovereign immunity. As such, the application of laws and regulations in relation to ice breaking in the NWP to foreign state vessels can be viewed as inconsistent with international law even in light of Article 234.

### 5.3.3. *Necessity of scientific evidence*

Another restriction on the powers of the coastal state is the necessity, set out in Article 234, to ensure that measures prescribed for the protection and preservation of the marine environment are based on the best available evidence (see above, at 3.1.3.). This reference is intended to guard against arbitrary restrictions on international navigation since the coastal state must be able to establish that its measures have a scientific justification.<sup>200</sup> Scientific evidence, for example, has to confirm the adequacy between adopted measures and the need for protection or compliance with the ice-covered condition.

---

<sup>195</sup> Ibid.

<sup>196</sup> Ibid.

<sup>197</sup> Ibid.

<sup>198</sup> Ibid.

<sup>199</sup> LOSC, Article 236

<sup>200</sup> Bartenstein 2011, 32.

The scientific basis of certain aspects of current Canadian practice in relation to ice breaking in the NWP has been questioned earlier in this paper (see above, at 4.4.1, 4.4.2, and 4.4.3, in relation to Section 6(4) of the ASPPR, the *Zone/Date System*, and the AIRRS, respectively). The most striking example is the *Zone/Date System*, which has been found to allow vessels into ice regimes which have a high potential to damage the vessel in some instances, and in others, often restrict vessels from entering regions where the ice conditions are favourable for a safe passage. The large annual variations in ice are not taken into account by this system - it has fixed (rigid) entry dates that often do not reflect the severity of the ice. Although more concrete scientific evidence for restrictions on navigation can be produced through the AIRSS' arithmetic calculations, the veracity of this system has also been questioned.

20 years ago, this may not have been the case for Canada, but the effects of climate change have altered the accuracy of the Canadian ice breaking regime. It is not enough for Canadian practice to have a scientific basis fixed in time. As science is in constant evolution, adjustment seems to be inherent to Article 234.<sup>201</sup> Canada should ensure that its legislation keeps pace with new scientific developments – changing distribution and understanding of sea ice included. The scientific inaccuracy of the Canadian practice in relation to ice breaking in the NWP may not be significant enough to have fatal effects on its status under international law. However, in light of the necessity of scientific evidence under Article 234, in future, as long as Canada's ice breaking regime remains scientifically flawed, its stringent restrictions on navigation in the NWP may be inconsistent with international law.

#### 5.3.4. *Indirect discrimination*

The last potential area of inconsistency between Canadian practice and international law to be mentioned in this paper relates to the requirement of non-discrimination among and against states. This requirement has been introduced earlier in this paper (see above, at 3.1.3.) but to re-iterate, Article 234 gives the coastal state the “right to adopt and enforce non-discriminatory laws and regulations.” Article 234 is found in Part XII of the LOSC, related to protection and preservation of the marine environment. Another provision, Article 227, is found in the same Part, and is important for the understanding of the non-discrimination requirement in Article 234 as it generally prohibits any discrimination by measures taken under Part XII. Bartenstein argues that “given the minimal wording [on the meaning of ‘non-

---

<sup>201</sup> Ibid, 40.

discriminatory’] in Article 234, it is advisable to resort to Article 227 to inform this aspect of the interpretation of Article 234.”<sup>202</sup>

Article 227 explicitly prohibits discrimination “in form or in fact.” The wording in Article 234, read together with Article 227, embraces two forms of discrimination - direct or indirect.<sup>203</sup> Direct or formal discrimination would clearly identify the more or less favourably treated states.<sup>204</sup> Indirect or factual discrimination, on the contrary, is not visible from the outset, but becomes apparent by the application of rules affecting some of the foreign fleets more adversely than others.<sup>205</sup>

Currently, the Canadian ice breaking regulations and standards incorporate a mix of unique *Canadian Arctic Categories* (AC & CAC), and *Types* vessel classes in their operation (see above, at 4.5.2.). Vessels designed to any other ice class are only considered for equivalency on a case-by-case basis. These regulations and standards could discriminate in fact against foreign fleets that do not have any vessels qualifying as equivalent to the Canadian classes where others do.<sup>206</sup> If such discrimination is the consequence of the prescription based solely on reasons related to the prevention, reduction, and control of marine pollution and without any considerations related to the nationality of the vessels, then the indirect discrimination is arguably justified.<sup>207</sup> Yet, if an indirectly discriminating measure were challenged by a state suggesting violation of the non-discrimination rule, Canada bears the burden of showing that the discrimination is a non-intended side effect.<sup>208</sup>

Canada could perhaps avoid this issue altogether by modifying its laws and regulations to adopt the prescriptions relating to a ship’s hull found in the IACS URs for *Polar Class* ships or the IMO *Guidelines for Polar Shipping*. These standards were developed within the auspices of the IMO (or with its support) and they can accordingly be viewed as multilateral action which enjoys the support of the competent international organization in this regard. Such standards could be viewed as GAIRAS, rather than unilateral measures adopted by Canada. As such, Canada could spare itself from the burden of showing that any discrimination is a non-intended side effect of otherwise valid measures related to the prevention, reduction and control of marine pollution. However, as the URs and *Guidelines for Polar Shipping* are only voluntary, Canada might consider it worthwhile to wait until it

---

<sup>202</sup> Ibid.

<sup>203</sup> Ibid, 41.

<sup>204</sup> Ibid.

<sup>205</sup> Ibid.

<sup>206</sup> Ibid.

<sup>207</sup> Ibid.

<sup>208</sup> Ibid.



can modify its laws and regulations upon to reflect the forthcoming Polar Code, which will contain mandatory construction standards for ships operating in polar regions.

#### **5.4. Summary**

*Prima facie*, Canadian practice in relation to ice breaking in the NWP is consistent with international law if the historic internal waters claim, held by Canada, prevails. As Canada enjoys full sovereignty over such waters, the extent of its jurisdiction over foreign ships navigating the NWP is virtually unlimited. Consistency does not necessarily equate to a valid historic internal waters claim, and as discussed, Canada should exercise caution in prescribing and enforcing laws and regulations in relation to navigational restrictions for foreign ships if it does not wish to expose its claim to challenge.

Applying any other legal regime, be it innocent passage, freedom of navigation, or transit passage, the navigational restrictions arising from the Canadian practice in relation to ice breaking in the NWP are generally inconsistent with international law. The stringent, unilateral measures go beyond that permitted under those regimes, and unduly deny, hamper, impair, or suspend the navigational rights and freedoms protected under the LOSC.

Despite this conclusion, the special powers to take broader prescriptive and enforcement measures under Article 234 may be enough to bring the Canadian practice in conformity with international law. The requirements for jurisdiction under that Article are generally fulfilled, but a conclusive determination depends on the precise limit of many of its vague, ambiguous terms. For example, the scientific inaccuracy of the Canadian ice breaking regimes may not fulfill the ‘necessity of scientific evidence’ requirement, and the incorporation of unilateral vessel construction standards in those regimes may also fail to meet the ‘non-discrimination’ requirement.

Across all regimes, historic internal waters included, the application of Canadian laws and regulations to foreign state vessels, that traditionally enjoy sovereign immunity, is inconsistent with international law. In light of Article 236, not even Article 234 can reconcile this aspect of the Canadian practice with international law. However, within historic internal waters, it may not be so definitive. Nonetheless, to avoid challenge, Canada would be advised to exclude such vessels from its jurisdiction over the NWP. As these vessels make up a small proportion of the vessels potentially operating within the NWP and generally pose few risks in terms of seaworthiness, it is a concession Canada may afford to make.

## PART 4

### 6. CHAPTER VI – CONCLUSION

#### 6.1. Conclusions

The main objective of this paper was to assess the extent to which the Canadian laws, regulations and practices in relation to ice breaking in the NWP are consistent with international law. The author admits with full disclosure that the findings in relation to this assessment are far from definitive. This outcome is reflective of the overall nature of the NWP, which has mystified explorers, mariners and legal scholars alike for as long as man has contemplated its existence. It is possible to arrive at a different determination depending on which of the many existing one takes in relation to the NWP's legal status. Add to this the many interpretational uncertainties surrounding Article 234 and the powers of coastal states to exercise special jurisdiction in ice-covered areas, and the conclusion is even more unpredictable.

The findings in the previous chapter suggest that the Canadian practice is more or less consistent with the historic internal waters regime, which, at any rate, is the regime currently held by Canada to apply to the NWP. Apply any other regime and the outcome becomes less conclusive. However, one final note should be made: even if it was concluded that the Canadian practice was wildly inconsistent with international law, it is unlikely a challenge to such practice would arise if Canada did not seek to enforce compliance with its prescriptive jurisdiction. As this paper noted (see above, at 4.6), this lackadaisical approach seems to be the contemporary policy and practice in the NWP. While such an approach may satisfy Canadian political objectives by keeping their 'creeping jurisdiction' over the NWP unscathed, one must question whether it adequately addresses the other challenges confronting the area, notably those of climate change and marine environmental security.

Climate change has impacted the Canadian marine Arctic significantly. Canadian practice may have been ahead of its time in the 1970s when the AWPPA was adopted, but the ASPPR, *Zone/Date System*, and the AIRSS implemented under that legislation may no longer sufficiently address the risks posed to the marine environment. Arctic sea ice has changed but the systems designed to regulate ice navigation have not. It is insufficient for these systems to remain static and expect them to achieve the objectives they were designed for. Canada should ensure that its practice keeps up with the needs of the Arctic environment. At the same time, if Canada seeks to develop Arctic shipping in the region, it cannot place undue restrictions on vessels seeking to operate there.

Further, it is worth questioning whether a unilateral approach, even one consistent with international law, is superior to a multilateral approach. There are many stakeholders in the Arctic, and the nature of shipping itself is international. Accordingly, unilateral standards and measures, such as the vessel construction standards currently incorporated in the Canadian ice breaking regime, may be inadequate to address the issues associated with increased shipping in the NWP. Although there is always a risk that multilateral negotiations may result in sub-par standards, there seems to be sufficient interest and willingness in the international community to take a proactive approach to those problems currently confronting the Arctic. This is made evident by the multitude of instruments emerging from the auspices of the IMO and the ACS.

Spatial considerations did not permit an examination of the topic, but the possible emergence of customary international law related to ice breaking in trans-Arctic routes, the regulation of Arctic shipping, and the interpretation of Article 234 is worth further investigation. The practice of Canada in relation to ice breaking in the NWP is remarkably similar to that of the Russian Federation in relation to ice breaking in the NSR. It could be beneficial for both states to attempt to coordinate and harmonise their practices so as to protect common interests and positions.

In closing, credit should be given to Canada and its practice in relation to ice breaking in the NWP. Much of this practice can be viewed as an innovative and progressive development of the modern law of the sea in relation to the protection and preservation of the sensitive and unique Arctic environment. Any fault that has been found in the system is to be expected as a natural consequence of taking a bold and precautionary approach to environmental issues before they materialize. The way forward, however, is to take a critical perspective of the weaknesses of the Canadian practice. Too much of it is aimed at maintaining precarious claims. As an environmental steward, Canada must focus on the needs of the vessel, the seafarer and the environment rather than pursuing or advocating politically and legally unworkable positions respecting the Northwest Passage.

## BIBLIOGRAPHY

### References

- ACIA, 2004. *Impacts of a Warming Arctic: Arctic Climate Impact Assessment*. ACIA Overview report. Cambridge University Press, online: <<http://www.amap.no/documents/doc/impacts-of-a-warming-arctic-2004/786>>
- AOR Final Report, 2013. *The Arctic Ocean Review Project, Final Report (Phase II 2011-2013)*, Protection of the Arctic Marine Environment (PAME) Secretariat, online: <[http://www.pame.is/images/PAME\\_Ministerial\\_2013/AOR\\_final\\_report\\_15\\_May\\_2013.pdf](http://www.pame.is/images/PAME_Ministerial_2013/AOR_final_report_15_May_2013.pdf)>
- AMSA, 2009. *Arctic Marine Shipping Assessment 2009*, The Arctic Council, online: <[http://www.pame.is/images/stories/PDF\\_files/AMSA\\_2009\\_Report\\_2nd\\_print.pdf](http://www.pame.is/images/stories/PDF_files/AMSA_2009_Report_2nd_print.pdf)>
- Bartenstein, Kristin, 2011. "The 'Arctic Exception' in the Law of the Sea Convention: A Contribution to Safer Navigation in the Northwest Passage?", 42 *Ocean Development & International Law* no. 1-2: 22-52.
- Beckman, Robert C. 1998. "International Legal Regime Governing the Safety of Navigation and the Prevention of Pollution in International Straits, The," *Sing. J. Int'l & Comp. L.* 2: 350.
- Canadian Coast Guard, 1998. *Icebreaking Services Fee Schedule, 1998*, Canadian Coast Guard, online: <[http://www.ccg-gcc.gc.ca/eng/CCG/Ice\\_Service\\_Fee\\_Schedule](http://www.ccg-gcc.gc.ca/eng/CCG/Ice_Service_Fee_Schedule)>
- Canadian Coast Guard, 2012a. *Icebreaking Levels of Service*, Canadian Coast Guard, online: <[http://www.ccg-gcc.gc.ca/eng/CCG/Ice\\_Publications/Icebreaking\\_Services\\_Levels\\_of\\_Service](http://www.ccg-gcc.gc.ca/eng/CCG/Ice_Publications/Icebreaking_Services_Levels_of_Service)>
- Canadian Coast Guard 2012b. *Ice Navigation in Canadian Waters*, Icebreaking Program, Maritime Services, Canadian Coast Guard, online: <<http://www.ccg-gcc.gc.ca/folios/00913/docs/ice-navigation-dans-les-galces-eng.pdf>>
- Center for Oceans Law and Policy, University of Virginia, 2013. "Article 234 - Ice-Covered Areas (IV)." 2. Articles/Commentaries. Martinus Nijhoff Publishers, Martinus Nijhoff Online. 31 July 2013 DOI:10.1163/ej.LAOS\_9780792307648\_392-398
- Chircop, Aldo, 2009. "The Growth of International Shipping in the Arctic: Is a Regulatory Review Timely?", 24 *The International Journal of Marine and Coastal Law*: 356
- Chircop, Aldo, 2013. "Regulatory Challenges for International Arctic Navigation and Shipping in an Evolving Governance Environment". Presentation at the Annual Meeting of the Comité Maritime International, Beijing China, 14-19 October 2012. Revised and current until 15 February 2013; on file with author.
- Dufour, Stacy 2013. Telephone conversation with author.
- Environment Canada, 2013. "Canadian Arctic Sea Ice Reached Record Low in Summer 2012" Environment Canada. Last modified 7 March 2013, online: <<http://www.ec.gc.ca/glaces-ice/?lang=En&n=765F63E4-1>>

Koh, Tommy T. B., 1982. "A Constitution for the Oceans", adapted from statements made by the President of the Third United Nations Conference on the Law of the Sea on 6 and 11 December 1982 at the final session of the Conference at Montego Bay, online: [http://www.un.org/depts/los/convention\\_agreements/texts/koh\\_english.pdf](http://www.un.org/depts/los/convention_agreements/texts/koh_english.pdf)

Kraska, James, 2007. "The Law of the Sea Convention and the Northwest Passage", 22 *The International Journal of Marine and Coastal Law*: 257-282

Lalonde, Suzanne, 2004. "Increased Traffic Through Canadian Arctic Waters: Canada's State of Readiness", 38 *Revue Juridique Themis*: 49-124

McDorman, Ted L., 2009. *Salt water neighbors: international ocean law relations between the United States and Canada*. Oxford University Press.

McDorman, Ted L., 2012. "National Measures for the Safety of Navigation in Arctic Waters: NORDREG, Article 234 and Canada.", in M.H Nordquist, J.N. Moore, A.H.A. Soons, and H. Kim (eds) *The Law of the Sea Convention. US Accession and Globalization*. Martinus Nijhoff Publishers: 409-424

McRae, Donald, 1987. "The Negotiation of Article 234", in F. Griffiths (ed.) *Politics of the Northwest Passage*. McGill-Queen's University Press: 98-114

Miller, Craig, 2013. Telephone conversation with author.

Molenaar, Erik J., 2012. "Current and Prospective Roles of the Arctic Council System within the Context of the Law of the Sea", 27 *International Journal of Marine and Coastal Law*: 553-595

Molenaar, Erik J., 2013. "Status and Reform of International Arctic Shipping Law," in S. Cavalieri, R. A. Kraemer, E. Tedsen (eds) *Arctic Marine Governance: Opportunities for Transatlantic Cooperation*, Springer, forthcoming in 2013, on file with the author.

National Research Council, 2012. "Safe Northern Passage" National Research Council of Canada. Last modified 13 July 2012, online: [http://www.nrc-cnrc.gc.ca/eng/achievements/highlights/2007/northern\\_passage.html](http://www.nrc-cnrc.gc.ca/eng/achievements/highlights/2007/northern_passage.html)

Nossal, Kim Richard, 1987. "Polar Icebreakers: The Politics of Inertia", in F. Griffiths (ed.) *Politics of the Northwest Passage*, McGill-Queen's University Press: 216-240

Perovich, D. K., and Coauthors, 2013: [Arctic] Sea ice cover [in "State of the Climate in 2012"]. *Bull. Amer. Meteor. Soc.*, 94 (8), S126–S128.

Pharand, Donat, 2007. "The Arctic Waters and the Northwest Passage: A Final Revisit", 78 *Ocean Development & International Law*: 3-69

President Barack Obama, 2013. *National Strategy for the Arctic Region*, The White House, online: [http://www.whitehouse.gov/sites/default/files/docs/nat\\_arctic\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf)

Rothwell, Donald and Tim Stephens, 2010. *The International Law of the Sea*, Hart Publishing.

Snider, D., 2012. "The Reality of Polar Shipping", *BC Shipping News*, online: <<http://www.martechpolar.com/Publications/BCSN-Nov-12-Pg30-33-1.pdf>>

Solski, Jan, 2013. "New Legal Developments in the Russian Regulation of Navigation in the Northern Sea Route", *Arctic Review on Law and Politics*, forthcoming in 2013; on file with author.

Timco, G. W., A. Collins and I. Kubat, 2009. *Scientific Analysis of the ASPPR Hybrid System for Type B Vessels*, online: <<http://www.nparc.cisti-icist.nrc-cnrc.gc.ca>>

Transport Canada, 2009. *Ship Safety Bulletin 04/2009: IACS Unified Requirements for Polar Class Ships - Application in Canadian Arctic Waters*, online: <<http://www.tc.gc.ca/eng/marinesafety/bulletins-2009-04-eng.htm>>

## **Canadian Laws and Regulations**

Arctic Ice Regime Shipping System (AIRSS) Standards, 1998, TP 12259, Marine Safety, Transport Canada, Ottawa, online: <<http://www.tc.gc.ca/eng/marinesafety/tp-tp12259-menu-605.htm>>

Arctic Shipping Pollution Prevention Regulations (ASPPR) (C.R.C., c. 353), online: <[http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_353/index.html](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._353/index.html)>

Arctic Waters Pollution Prevention Act (AWPPA) (R.S.C., 1985, c. A-12), online: <<http://laws-lois.justice.gc.ca/eng/acts/A-12/index.html>>

Arctic Waters Pollution Prevention Regulations (AWPPR) (C.R.C., c. 354) online: <[http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_354/index.html](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._354/index.html)>

Canada Labour Code (R.S.C., 1985, c. L-2), online: <<http://laws-lois.justice.gc.ca/eng/acts/L-2/index.html>>

Canada Shipping Act, 2001(S.C. 2001, c. 26), online: <<http://laws-lois.justice.gc.ca/eng/acts/C-10.15/index.html>>

Charts and Nautical Publications Regulations, 1995 (SOR/95-149), online: <<http://laws-lois.justice.gc.ca/eng/regulations/SOR-95-149/index.html>>

Coasting Trade Act (S.C. 1992, c. 31), online: <<http://laws-lois.justice.gc.ca/eng/acts/C-33.3/index.html>>

Marine Liability Act (S.C. 2001, c. 6), online: <<http://laws-lois.justice.gc.ca/eng/acts/M-0.7/index.html>>

Marine Transportation Security Act (S.C. 1994, c. 40), online: <<http://laws-lois.justice.gc.ca/eng/acts/M-0.8/index.html>>

Navigation Safety Regulations (SOR/2005-134), online: <<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2005-134/index.html>>

Northern Canada Vessel Traffic Services Zone Regulations (NORDREG) (SOR/2010-127), online: <<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-127/FullText.html>>

Oceans Act (S.C. 1996, c.31), online: <<http://laws-lois.justice.gc.ca/eng/acts/O-2.4/index.html>>

Shipping Safety Control Zones Order (C.R.C., c. 356), online: <[http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_356/](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._356/)>

Ship Station (Radio) Regulations, 1999 (SOR/2000-260), online: <<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-260/index.html>>

## **IMO and IACS instruments**

International Association of Classification Societies (IACS), Requirements for Polar Class, Oct. 2007, online: [http://www.iacs.org.uk/document/public/Publications/Unified\\_requirements/PDF/UR\\_I\\_pdf410.pdf](http://www.iacs.org.uk/document/public/Publications/Unified_requirements/PDF/UR_I_pdf410.pdf).

Guidelines for Ships Operating in Arctic Ice-Covered Waters, IMO MSC/Circ. 1056, MEPC/Circ. 399, of 23 December 2002.

Guidelines for Ships Operating in Polar Waters, IMO Assembly Resolution A.1024(26), of 2 December 2009.

## **International conventions, multilateral and bilateral agreements and other legal instruments**

Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (Arctic SAR Agreement), Nuuk, Greenland, (12 May 2011), online: <<http://www.ifrc.org/docs/idrl/N813EN.pdf>>

Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (Arctic MOPPR Agreement), Kiruna, Sweden, (15 May 2013), online: <<http://www.state.gov/r/pa/prs/ps/2013/05/209406.htm>>

Canada and United States of America, *Agreement on Arctic Cooperation*, Ottawa, Canada (11 January 1988), <[http://untreaty.un.org/unts/60001\\_120000/30/4/00058175.pdf](http://untreaty.un.org/unts/60001_120000/30/4/00058175.pdf)>

The Declaration on the Establishment of the Arctic Council (the Ottawa Declaration), Ottawa, Canada, (19 September 1996), online: <<http://www.arctic-council.org/index.php/en/document-archive/category/4-founding-documents>>

Ilulissat Declaration, adopted at the Arctic Ocean Conference, Ilulissat, Greenland, (28 May 2008), online: <[http://www.oceanlaw.org/downloads/arctic/Ilulissat\\_Declaration.pdf](http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf)>

Statute of the International Court of Justice, United Nations (18 April 1946), online: <<http://www.refworld.org/docid/3deb4b9c0.html>>

United Nations Convention on the Law of the Sea (LOS), Montego Bay, 10 December 1982, UN Doc. A/CONF. 62/122, (7 October 1982), online:  
<[http://www.un.org/Depts/los/convention\\_agreements/texts/unclos/UNCLOS-TOC.htm](http://www.un.org/Depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm)>



## ANNEXES

### Annex 1 – Water Routes of the Northwest Passage

Route	Routing (East to West)	Physical Description	Of Note
1	Lancaster Sound – Barrow Strait – Viscount Melville Sound – Prince of Wales Strait – Amundsen Gulf.	<p><b>Lancaster Sound:</b> 80 km wide, 250 km long, deep at over 500 m.</p> <p><b>Barrow Strait:</b> 50 km wide, 180 km long, deep, string of islands west of Resolute disrupts clear navigation.</p> <p><b>Viscount Melville Sound:</b> 100 km wide, 350 km long, experiences multi-year ice from M'Clure Strait.</p> <p><b>Prince of Wales Strait:</b> minimum width of less than 10 km about half way through the Strait, 230 km long, limiting depth of 32 m.</p> <p><b>Amundsen Gulf:</b> irregular shape, 90 km wide entrance, approximately 300 km long.</p>	Suitable for deep draft navigation; the route followed by <i>St. Roch</i> in 1944 on westerly transit and the SS <i>Manhattan</i> in 1969.
2	Same as 1 but substitute M'Clure Strait for Prince of Wales Strait and Amundsen Gulf.  Collectively Lancaster Sound – Barrow Strait – Viscount Melville Sound is known as Parry Channel.	<b>M'Clure Strait:</b> 120 km wide at east end, 275 km long to Beaufort Sea, deep at over 400 m, experiences multi-year ice from Arctic Ocean.	SS <i>Manhattan</i> attempted this route in 1969 but was turned back. Russian icebreaker <i>Kapitan Klebnikov</i> succeeded in a passage in 2001. In September 2007 was clear of Arctic pack ice for a limited time since satellite photos have been available; there was more ice in 2008.
3A	Lancaster Sound – Barrow Strait – Peel Sound – Franklin Strait – Larsen Sound – Victoria Strait – Queen Maud Gulf – Dease Strait – Coronation Gulf – Dolphin and Union Strait – Amundsen Gulf.	<p><b>Lancaster Sound and Barrow Strait:</b> see Route 1.</p> <p><b>Peel Sound:</b> 25 km wide, deep at over 400 m at south end.</p> <p><b>Franklin Strait:</b> 30 km wide.</p> <p><b>Larsen Sound:</b> depths vary between 30 and 200 meters.</p> <p><b>Victoria Strait:</b> 120 km wide, at southern end is blocked by Royal Geographical Society Islands, worst ice conditions along the mainland coast of Canada.</p> <p><b>Queen Maud Gulf:</b> eastern entrance 14 km wide, but widens into an irregular area with width of up to 280 km before narrowing to 14 km at entrance to Dease Strait; numerous islands, reefs and shoals.</p> <p><b>Dease Strait:</b> 14 – 60 km wide, 160 km long.</p> <p><b>Coronation Gulf:</b> over 160 km long, many islands.</p> <p><b>Dolphin and Union Strait:</b> 80 km wide at Amundsen Gulf, 150 km long, caution should be exercised in passage, several soundings of less than 10 m have been recorded.</p> <p><b>Amundsen Gulf:</b> see Route 1.</p>	Of the 3A, 3B and 4 routes, this is considered the best option but with a draft limit of 10 m.
3B	A variation of 3A. Rather than following Victoria Strait on the west side of King William Island, the route passes to the east of the island following James Ross Strait – Rae Strait – Simpson Strait.	<p><b>James Ross Strait:</b> 50 km wide, but restricted by islands, extensive shoaling.</p> <p><b>Rae Strait:</b> 20 km wide, with limiting depths of between 5-18 m in mid channel.</p> <p><b>Simpson Strait:</b> about 3 km wide at narrowest point, most hazardous navigation area in 3B route.</p>	The route of Roald Amundsen. Also route of the <i>MS Explorer</i> , in 1984, the first cruise ship to navigate the Northwest Passage.
4	Similar to 3A. Rather than following Peel Sound on the west side of Somerset Island, the route passes to the east of the island through Prince Regent Inlet and Bellot Strait.	<p><b>Prince Regent Inlet:</b> 80 km wide, free of islands, deep.</p> <p><b>Bellot Strait:</b> short and very narrow, strong currents, limiting depth of 22 m.</p>	Route of <i>St. Roch</i> in 1940-42 on easterly transit.

<p><b>5</b></p>	<p>Hudson Strait – Foxe Channel – Foxe Basin – Fury and Hecla Strait – Gulf of Boothia – Bellot Strait – remainder via routes 3A, 3B or 4.</p>	<p><b>Hudson Strait:</b> 100 km wide, 650 km long, deep, also serves as entrance to Hudson Bay and Churchill port.  <b>Foxe Channel:</b> 130 km wide, deep, with limiting shoal in the middle that can be avoided.  <b>Foxe Basin:</b> very large, many islands in northern end.  <b>Fury and Hecla Strait:</b> 160 km long, very narrow with fast current.  <b>Gulf of Boothia:</b> very large waterway connecting to Prince Regent Inlet to the north (see route 4). No problems for navigation except at exit of Fury and Hecla Strait where Crown Prince Frederick Island is to be avoided.</p>	<p>Not generally considered a viable commercial passage for moderate to deep draft ships.</p>
-----------------	--	---	---

**Annex 2 - Polar Class General Description**

**PC 1** Year-round operation in all Polar waters

**PC 2** Year-round operation in moderate multi-year ice conditions

**PC 3** Year-round operation in second-year ice which may include multi-year ice inclusions

**PC 4** Year-round operation in thick first-year ice which may include old ice inclusions

**PC 5** Year-round operation in medium first-year ice which may include old ice inclusions

**PC 6** Summer/autumn operation in medium first-year ice which may include old ice inclusions

**PC 7** Summer/autumn operation in thin first-year ice which may include old ice inclusions

Annex 3 – Map of the Shipping Safety Control Zones

