



**INTERNATIONAL AND NATIONAL REGULATION OF
INTENTIONAL VESSEL-SOURCE POLLUTION IN
ARCTIC ICE-COVERED AREAS**

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Abbreviations

ACIA	Arctic Climate Impact Assessment
AEPS	Arctic Environmental Protection Strategy
AMAP	Arctic Monitoring and Assessment Programme
AMSA	Arctic Marine Shipping Assessment
ASPPR	Arctic Shipping Pollution Prevention Regulations
AWPPA	Arctic Waters Pollution Prevention Act
CDEM	Construction, Design, Equipment and Manning
CSA	Canada Shipping Act
EEZ	Exclusive Economic Zone
GAIRAS	Generally Accepted International Rules and Standards
GESAMP	UN Joint Group of Experts on the Scientific Aspects of Marine Pollution
ICJ	UN International Court of Justice
ICLQ	International and Comparative Law Quarterly
IMO	UN International Maritime Organization
IWC	International Whaling Commission
LOSC	1982 UN Convention on the Law of the Sea (Montego Bay)
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, London, 2 November 1973, as modified by the 1978 Protocol and the 1997 Protocol and as regularly amended
MOU	Memorandum of Understanding on Port State Control
NOAA	National Oceanic and Atmospheric Administration
NSIDC	National Snow and Ice Data Center
NSR	Northern Sea Route
NWP	Northwest Passage
PAME	Protection of Arctic Marine Environment
PSSAs	Particular Sensitive Sea Areas

SOLAS	International Convention for Safety of Life at Sea, 1 November 1974 and as regularly amended
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 7 July 1998 and as regularly amended
UNCLOS III	Third United Nations Conference on the Law of the Sea 1973- 1982

CHAPTER I – INTRODUCTION

1. Objective

It is now generally accepted that the impacts of climate change in the Arctic Ocean will, over the next decades, determine its transformation from a permanently ice-covered and virtually untraversable area into a seasonally navigable sea¹ subject to the increase of commercial navigation opportunities.²

This increase of both intra- and trans-Arctic shipping, specifically through Arctic ice-covered areas, poses great pressures and risks in terms of impacts to the Arctic marine environment, its living resources and its biodiversity.

Preventive action that has thus far been undertaken, both on an international and national level, to minimize these risks focuses mostly on implementing requirements and measures to ensure the safety of navigation and avoid accidental pollution from vessels (e.g. structural and equipment requirements for vessels navigating in Arctic ice-covered waters, specific crew training, etc).

Despite this focal attention given to accidental vessel-source pollution and apart from specific locations where accidents have occurred (e.g. Prince William Sound in the *Exxon Valdez* incident), intentional vessel-pollution's cumulative effects are deemed to be far more adverse to marine environment.³

Thus, the objective of this thesis is to examine international and national regulation of intentional vessel-source pollution in Arctic ice-covered areas and assess if, considering

¹ Berkman, P. A. and Young, O. R., Science and Government: Governance and Environmental Change in the Arctic Ocean, *Science*, 324, 17 April 2009, pp. 339-340, available at www.sciencemag.org (viewed on 20.05.2010).

² ACIA, *Scientific Report*, Cambridge University Press, 2005, Ch. 06, p. 195, available at http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch06_Final.pdf.

³ See GESAMP Report No. 39, *The State of Marine Environment*, <http://gesamp.karma.tibetserver.com/publications/publicationdisplaypages/rs39> (viewed 05.08.2010) and, *inter alios*, Brubaker, D., *Marine Pollution and International Law: Principles and Practice*, London, Belhaven Press 1993, p. 11 and Molenaar, E.J., *Coastal State Jurisdiction over Vessel-Source Pollution*, The Hague/Boston/London, Kluwer Law International 1998, p. 19.

the increase of vessel traffic and the impact of climate change in those areas, it is adequate to protect the marine environment, living resources and biodiversity of the Arctic.

Specifically, the thesis is aimed at discussing the following research questions:

- Which international and national legislation is applicable to intentional vessel-source pollution in Arctic ice-covered areas?
- Does the international and national framework cover all types of intentional pollution?
- Is the applicable legal framework adequate to protect the marine environment, living resources and biodiversity in Arctic ice-covered areas?

2. Scope delimitation and outline

The thesis will solely analyse regulation of intentional pollution from vessels in Arctic ice-covered areas that qualify as such under article 234 of the LOSC⁴ and under the IMO's 2009 Polar Shipping Guidelines.⁵

As regards intentional pollution, it will comprise all forms of vessel-source pollution not accidental in nature that are incidental and resulting from the normal operational use of the vessel.

For this purpose, dumping operations as defined in Article 1(5) of the LOSC and introduction of alien species (not viewed as pollution *per se* by Article 196 of the LOSC and treated separately from pollution in IMO instruments) will not be considered.

For the purpose of this thesis, public vessels entitled to sovereign immunity and vessels covered by SOLAS will be considered given their overall significance for Arctic shipping.⁶

As for regulation to be examined, it is necessary to underline that the existing legal framework covering Arctic shipping is complex and consists of a plethora of different

⁴United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982, www.un.org/Depts/los.

⁵ Polar Shipping Guidelines adopted by IMO Assembly Resolution A.1024(26), 2 December 2009.

⁶ See *AMSA 2009 Report*. Arctic Council, April 2009, second printing, pp. 74-95, available at http://www.pame.is/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf on current circumpolar shipping (viewed on 27.05.2010) and see Hubert, R., and Yeager, B., *A new sea: the need for a regional agreement on management and conservation of the Arctic marine environment*, WWF International Arctic Programme, Oslo, Norway, January 2008, p. 13, available at http://assets.panda.org/downloads/a_new_sea_jan08_final_11jan08.pdf, on interests in operating government vessels in Arctic waters (viewed on 27.05.2010).

types: global instruments, bilateral agreements, non-legally binding instruments (e.g. outputs from the Arctic Council) and national legislation. An analysis of the entirety of applicable regulation though undeniably interesting is manifestly impossible within the context of this thesis.

Thus, only the main applicable regulation, respectively pursuant provisions from the LOSC, IMO instruments and national legislation from Canada and the Russian Federation (the two most stringent sets of national laws and regulations covering Arctic ice-covered areas) will be focused on. Although the role of the Arctic Council is of pivotal importance to issues concerning the Arctic it will not be addressed in this study as it has no legal powers to implement or enforce rules and legislation. References to regulation other than the main one under examination will be casuistic and to foster an understanding of topics being discussed.

As regards the outline, the thesis consists of four parts.

Part 1 comprising chapters II and III has the objective to contextualize the reader and briefly discuss navigation in Arctic ice-covered areas (spatial definition, current and prospective navigation and types of vessels operating in those areas) and to discuss the definition of intentional pollution for the purposes of the thesis.

Part 2 comprising chapters IV and V has for objective to examine *lex lata* viz. the main international and national regulations covering intentional vessel pollution from ships with specific focus to Arctic ice-covered areas.

Part 3 comprising chapter VI will, based on the regulations examined in Part 2, identify and discuss selected shortcomings and challenges of/for the regulation of intentional vessel pollution in Arctic ice-covered areas, containing considerations both on *lex feranda* and policy.

Finally Part 4 comprising chapter VII contains the conclusions.

3. Legal sources and method

Given the objective of the thesis, a primary role was given to the method of analyzing legal sources as identified in Article 38 of the Statute of the International Court of Justice.

With special focus on the pertinent international and national legal instruments, legal theory, State practice, jurisprudence and the *travaux préparatoires* of UNCLOS III (regarding article 234 of the LOSC) were also considered.

As the scope of the thesis verses on intentional vessel-source pollution and its impacts to the Arctic marine environment, living resources and biodiversity, sources from natural sciences and policy documents have also been used in order to support premises made.

The mentioned sources have been treated throughout the thesis using both a descriptive and analytical method.

PART 1

CHAPTER II – NAVIGATION IN ARCTIC ICE-COVERED AREAS

1. Introduction

The nature of navigation in the Arctic has changed considerably throughout history.⁷ The improvements on the construction and operation of vessels and their gradual adaptation to navigation in Arctic ice covered areas has facilitated the evolution from navigation mostly used for the sustainability of local indigenous peoples, (re)supply of coastal communities and exploration towards navigation that is more oriented at intensive scientific research, commercial transportation of goods, fishing, tourism and has also re-triggered the pursuit of trans-Arctic navigation through the much discussed Northwest Passage (NWP) and Northern Sea Route (NSR).

In this chapter a general overview of navigation in Arctic ice-covered areas is provided with the objective not only to identify the areas which fall under the scope of this thesis but also the current and prospective status of navigation in those areas.

This background on Arctic navigation also contributes to the comprehension of the pressures that the Arctic and especially Arctic ice covered areas will face in the next decades and that will be further discussed in Chapter III of this thesis.

2. Identification of Arctic ice-covered areas

Prior the geographical identification of the areas under consideration it is first necessary to provide a definition of ‘Arctic’ and a definition to which areas can be deemed as ‘ice-covered’.⁸

⁷ *AMSA 2009 Report*. Arctic Council, April 2009, second printing, p. 36.

⁸ For further information on the status of ice in international law see Joyner, Christopher C., “The Status of Ice in International Law” in Elferink A.G. Oude and Rothwell, D.R. (eds.), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Martinus Nijhoff Publishers: 2001), pp. 23-48.

There is no single definition of “Arctic”. It varies based on the context it is used (e.g. geographical characteristics, climatic conditions, political considerations). Also the Arctic States – Canada, Russian Federation, United States of America, Norway, Denmark, Finland, Iceland and Sweden have adopted different definitions.⁹

Hence, other than the basic definition of the “Arctic” as the areas lying north of the Arctic Circle at 66°33’ north latitude, there are several others that can be mentioned. In *figure 1*¹⁰, for instance, are identified the most common forwarded definitions for “Arctic”: areas where the average July temperature is below 10°C, areas above the tree line which marks the northernmost limit at which trees grow and the areas under the scope of AMAP.

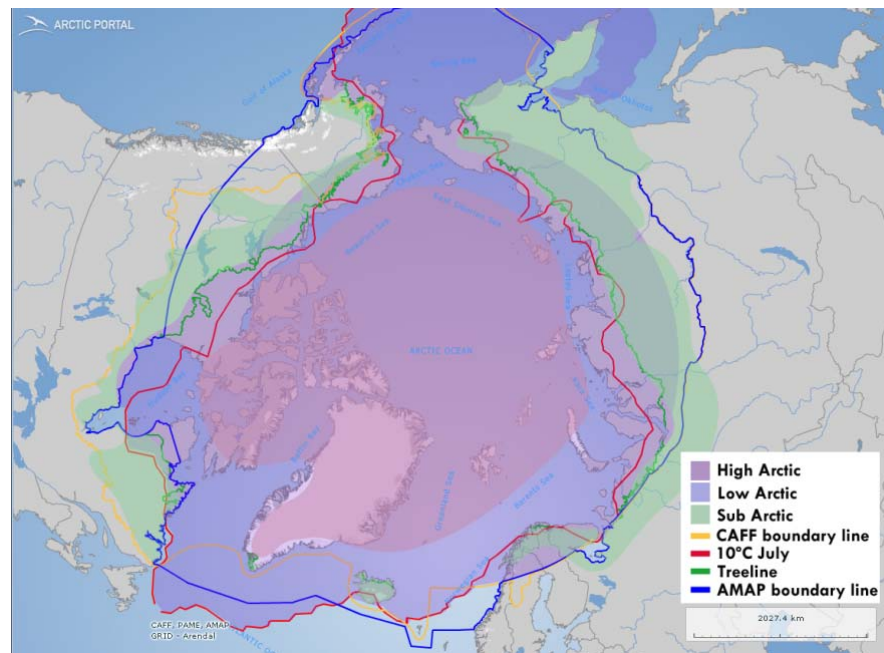


Figure 1: Arctic Boundaries

⁹ Vidas, Davor, *Protecting the Polar Marine Environment: Law and Policy for Pollution Prevention*, Cambridge University Press 2000, pp. 4-5.

¹⁰ Figure 1 - Map of Arctic Boundaries - source: Arctic Portal Interactive Mapping System - <http://www.arcticportal.org/interactive-data-map> (viewed on 03.08.2010).

As to the context of navigation in the Arctic, IMO further provides a definition of ‘Arctic waters’ in provision G-3.3 of the (non legally binding) Guidelines for Ships Operating in Polar Waters¹¹ and as illustrated in *figure 2*.¹²

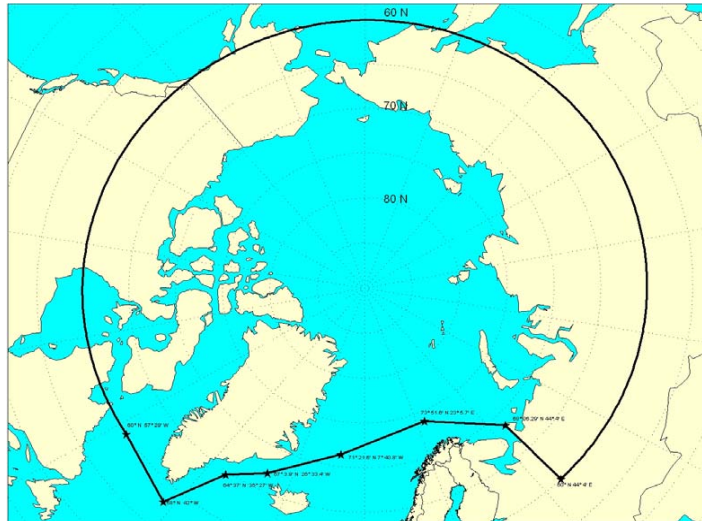


Figure 2: Maximum extent of Arctic waters application.

To what concerns definitions enabling the identification of zones which may be construed as Arctic ice-covered areas, article 234 of the LOSC and provision G-3.5 of the IMO Guidelines for Ships Operating in Polar Waters are the two principal provisions to be considered.¹³

Article 234 of the LOSC, which constitutes *lex specialis* to limitations of the Coastal State jurisdiction, provides coastal states with prescriptive and enforcement jurisdiction for the prevention, reduction and control of marine pollution in cases when the conditions provided in the article are met. From these conditions derives the definition of ice-covered areas:

‘... ice-covered areas within the limits of the exclusive economic zone, 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, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance...’

¹¹ Polar Shipping Guidelines adopted by IMO Assembly Resolution A.1024(26), 2 December 2009.

¹² Figure 2 - Maximum extent of Arctic waters application – source: IMO Arctic Shipping Guidelines 2009.

¹³ See Chapter IV for further considerations on article 234 of LOSC and IMO Guidelines for Ships Operating in Polar Waters.

Consequently, Arctic ice-covered areas which fall under the scope of this article are those that, in conjunction, lie within the EEZ of an Arctic Coastal State, have ice coverage for most of the year creating obstructions or exceptional hazards to navigation and where the pollution of the marine environment could cause major harm or irreversible disturbances.

An interpretation of the expression ‘most of the year’ allows the conclusion that only areas covered by ice for more than six months fall under the scope of article 234 of the LOSC.¹⁴

From the analysis of the NSIDC monthly sea ice extent index charts for the year of 2009¹⁵, it is inferable that areas currently qualifying under article 234 of the LOSC (to what concerns ice coverage for most of the year) correspond to the Canadian Maritime Arctic, Russian Federation Maritime Arctic and Greenland/Denmark, Alaska in United States of America, northern part of Svalbard in Norway and the high seas.¹⁶

As to the definition of ‘ice-covered’ in the IMO Guidelines for Ships Operating in Polar Waters provision G-3.5 establishes that “*Ice-covered waters* means polar waters where local ice conditions present a structural risk to a ship”.

Contrary to the 2002 Guidelines for Ships Operating in Arctic Ice-Covered Waters¹⁷ the 2009 Guidelines do not objectively identify what exactly can be considered as ice conditions presenting a structural risk to a ship. Nevertheless, because the 2002 Guidelines have not been revoked and both guidelines are thus simultaneously applicable, the criteria of sea ice concentrations of 1/10 coverage set in the 2002 Guidelines can also be used.

From the geographical identification of ice-covered areas above, it is relevant to note that these areas overlap with zones of crucial importance for intra and trans-Arctic navigation, namely the NWP and the NSR.

¹⁴ See Chapter IV for further discussion of the impact of ice recession on the legal grounds for applicability of this provision.

¹⁵ See individual monthly sea ice index extent charts of 2009, National Snow and Ice Data Center – NSIDC BIST Compare Data, <http://nsidc.org> (viewed on 03.05.2010).

¹⁶ Note however that, for the purposes of Article 234 of the, the United States are not yet party to the Convention and the legitimacy of Norway to establish maritime zones (EEZ) around Svalbard remains questioned.

¹⁷ Adopted by IMO MSC/Circ. 1056, MEPC/Circ. 399, of 23 December 2002.

3. Current and prospective navigation in Arctic ice-covered areas

3.1 Current Navigation

Navigation in the Arctic has faced numerous technical and operational challenges mostly due to the unique inhospitable characteristics of that region such as ice coverage, harsh climate conditions and remoteness. For this reason, not only navigation in the Arctic has until recently been limited to (re)supply of coastal communities, fishing, and some scientific operations but has it also been limited in its time frame as it has mostly been seasonal.

Navigation between the months of October and June is still virtually impossible for ships other than some icebreakers.¹⁸ Summer navigation is also not risk free as along the navigation routes some areas remain ice-covered or with ice-bergs (amongst other risks). Furthermore, the ability to navigate ice-covered areas also depends on the nature of sea ice. While navigation through young ice and first-year ice is, in normal conditions, possible for ice-strengthened ships, navigation through old ice and icebergs is much more complicated.

Currently the shipping operations in the Arctic are mostly still connected to import and export of products to and from the Arctic (such as re-supply goods and export of natural resources) through ships transporting general, bulk cargo and containers. Besides commercial shipping other maritime operations in the Arctic include fisheries, scientific research, tourism cruises, icebreaking and tug assistance services in the areas illustrated in *figure 3*.¹⁹

¹⁸ Jensen, Øystein, *The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?*, The Fridtjof Nansen Institute, FNI-rapport 2/2007, p.2.

¹⁹ Figure 3- Current Arctic Marine Use – source: Brigham, Lawson W. Arctic Marine Shipping Assessment of the Arctic Council, Conference of Arctic Parliamentarians, Fairbanks, Alaska, 12 August 2008, PowerPoint presentation (viewed on 14.06.2010) and available at http://www.Arcticparl.org/_res/site/file/files%20from%208th%20conference/080812LawsonBrigham1.pdf

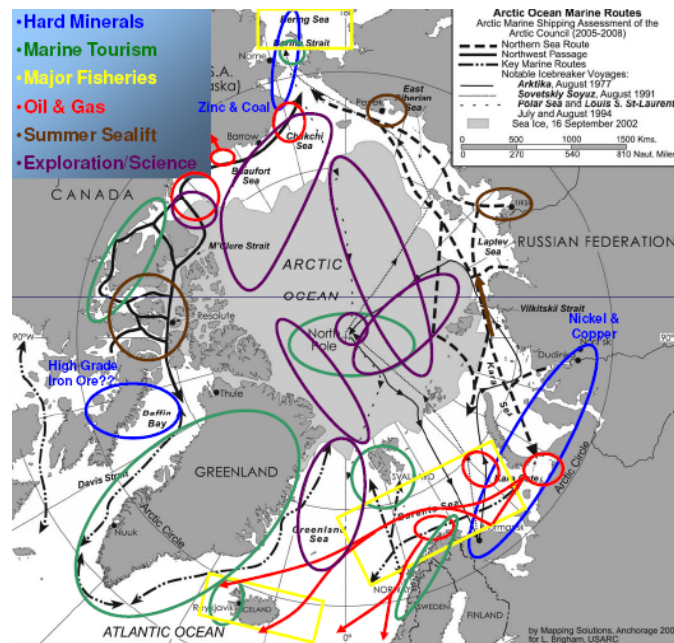


Figure 3: Current Arctic marine use.

The usage of Arctic shipping routes for mere transit as an alternative to the Panama and Suez canals is still commercially and technically complex despite the diminished length of the Arctic navigational routes, the existing strain on both canals reaching their limit capacity and present piracy threats to the intercontinental shipping routes. Of the two main navigational routes in the Arctic, namely NWP and NSR, it is the latter that registers a more intense traffic year-round transportation of cargo between the ports of Murmansk, Dudinka and Vladivostok.²⁰ As for summer transport of general and bulk cargo its majority is done within Canadian marine Arctic.²¹ Navigation in the central permanently ice-covered Arctic Ocean has been limited to few trips by nuclear ice-breakers for research and tourism purposes.

²⁰ Ho, Joshua, *The implications of Arctic Sea –Ice Decline on Shipping*, Marine Policy 34 (2010), Elsevier, pp.713-715.

²¹ Norwegian Maritime Directorate, *PAME Snap Shot Analysis*, Report No. 2000-3220, http://www.pame.is/images/stories/AMSA/Snapshot_analysis_final.pdf (viewed on 03.08.2010).

An analysis of *figure 4* illustrates constrain in navigation in NWP, NSR and Arctic central ocean (subject to ice-cover) as in comparison to navigation in the peripheral Arctic ocean.²²

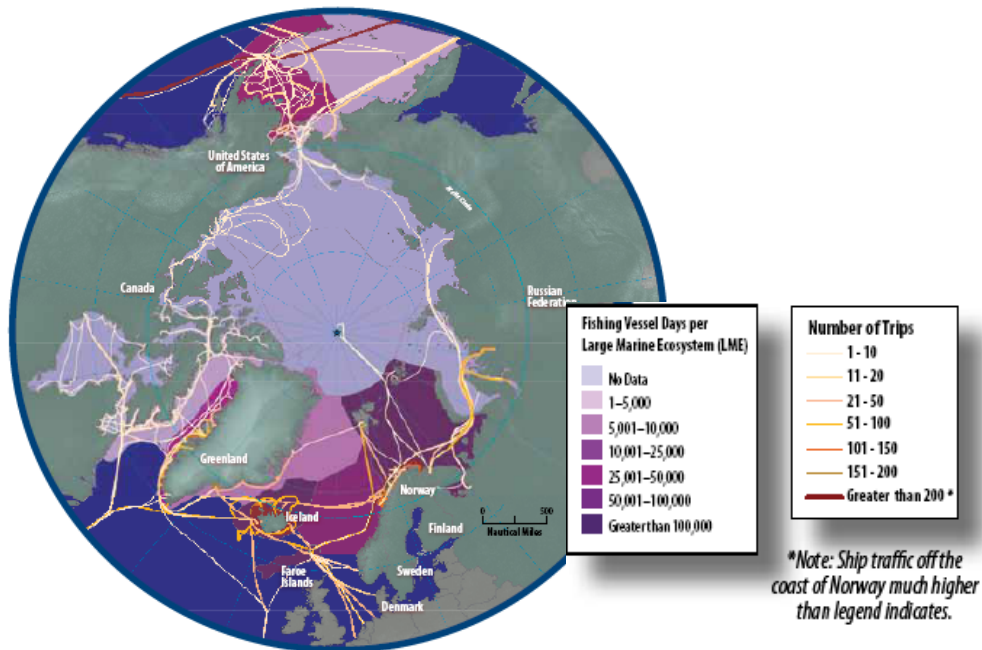


Figure 4: Overview of all vessel activity for 2004, including fishing vessels.

3.2 Prospective Navigation

The Arctic Ocean ice extent in the summer has been gradually declining over the past decades with a reduction trend in the month of September of about 100,000Km² per year and a record minimum value in September of 2007.²³ As for ice extent in the winter, it has also been pointed out that it is “growing back less and less”.²⁴

To what concerns the thickness of the ice and despite some inconclusive data on its overall general decrease, studies have forwarded that thickness in central Arctic ocean has

²² Figure 4 - Overview of all vessel activity for 2004, including fishing vessels – source: AMSA.

²³ Serreze, M.C., M.M. Holland, and J. Stroeve, 2007. *Perspectives on the Arctic's shrinking sea-ice cover*, *Science*, vol. 315, pp. 1533-1536, DOI: 10.1126/science.1139426:

<http://www.sciencemag.org/cgi/content/full/315/5818/1533> (viewed on 05.08.2010).

²⁴ National Snow and Ice Data Center:

http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html (Viewed on 05.08.2010).

reduced by 15% per decade since 1958²⁵ and satellite data from 1978 to 2003 shows a decrease in old thick ice coverage.²⁶

The implications of Arctic sea ice decline for shipping and considering technical advances in ship construction are the consequent pressures for regular trans-Arctic summer transport. Navigation in the Arctic is gradually expanding due to the increasing interest in exploiting Arctic natural resources and maximizing gains in shorter maritime routes. Tourism in the Arctic has also demonstrated to be a growing market, particularly over the past recent years.

Catalyst factors for the development of navigation in the Arctic were recently pondered by Arctic Council's working group for Protection of Arctic Marine Environment (PAME) in the 2009 AMSA Report. Different key uncertainties that may influence the future of Arctic navigation relating to global trade dynamics, governance and legal framework, conflicts of interest and maritime disputes (among other factors) have been pondered in a projection²⁷ with four possible scenarios for navigation in the Arctic which oscillate between minimal Arctic traffic and a high variety of marine activity.

Nonetheless there is a general assumption that navigation in the Arctic will increase mostly to what concerns the export of petroleum and gas products, cargo transports linked to the supply and maintenance of those industries, tourism and, in correlation with this traffic increase, the icebreakers and tugs operations.

4. Vessels operating in Arctic ice-covered areas

The PAME working group conducted for the AMSA report an extensive data study on the vessels operating in the Arctic providing ample information such as the IMO number of vessels, their type, transported cargo, operational routes and other.²⁸

*Table 1*²⁹ provides an indication of the vessels currently operating in the Arctic.

²⁵ Rothrock, D.A., Y. Yu, and G.A. Maykut (1999): "Thinning of the Arctic Sea-Ice Cover", *Geophysical Research Letters*, 26 (23):3469-3472.

²⁶ C. Fowler, W. J. Emery, J. A. Maslanik, *Satellite-Derived Evolution of Arctic Sea Ice Age: October 1978 to March 2003*, *IEEE Geoscience and Remote Sensing Letters*, Vol. 1, N^o. 2, April 2004, p.74.

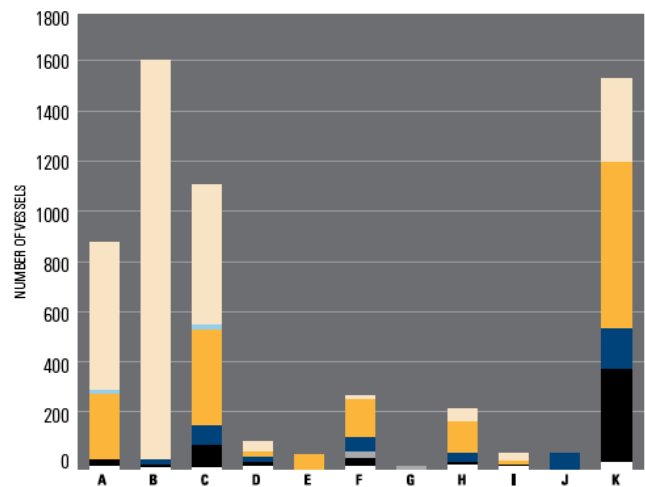
²⁷ *AMSA 2009 Report*. Arctic Council, April 2009, second printing, pp. 92-105.

²⁸ See *Vessels Master list* available at AMSA shipping database - <http://www.Arcticdata.is/data-download/file/30-master-list-of-Arctic-vessels> (viewed on 01.08.2010).

²⁹ Table 1 - Vessels reported in the Circumpolar North Region 2004 – source: *AMSA 2009 Report*. Arctic Council, April 2009, second printing, p. 71.

COUNTRY	VESSEL TYPE
USA	A Bulk Carrier
Russian Federation	B Container Ship
Norway	C General Cargo Ship
Iceland	D Government Vessel
Greenland	E Oil/Gas Service & Supply
Faroe Islands	F Passenger Ship
Canada	G Pleasure Craft
	H Tanker Ship
	I Tug/Barge
	J Unknown
	K Fishing Vessel

Table 1: Vessels reported in the Circumpolar North Region – 2004.



Of the circa 6000 vessels operating in the Arctic marine areas, bulk carriers, container ships, general cargo ships and fishing vessels represent the majority. On the characteristics of these vessels, contained in AMSA shipping data base, it is also pertinent to mention that the majority of vessels was constructed in the decades of 1970 and 1980, the fuels predominantly used are diesel oil, high viscosity fuel and intermediate fuel oil and that the ice class is in great part unknown, a fact that raises some concerns as to the adequacy and safety of the vessels currently operating in the Arctic.

As for the apparent reduced number of governmental vessels (83 reported) as part of overall traffic in the Arctic, it cannot however be interpreted as less important. Notwithstanding the fact that many government vessels have not been disclosed by Arctic countries in this study (respectively governmental vessels as defined in article 29 of the LOSC which conduct military and survey operations in the Arctic) the reported governmental vessels operating in the Arctic carry out invaluable missions in scientific research, search and rescue, icebreaking and escort in ice conditions, specifically in ice-covered areas.

Also the relevance of governmental vessels in the context of vessel-source marine pollution in the Arctic lies within the fact that, unlike other vessels operating in that area and subject to pollution provisions contained in conventions such as the LOSC and MARPOL 73/78³⁰, public governmental vessels not engaged in commercial activities have

³⁰ International Convention for the Prevention of Pollution from Ships, London, 2 November 1973, as modified by the 1978 Protocol and the 1997 Protocol and as regularly amended.

sovereign immunity. According to this undisputed principle of customary international law, these vessels are generally immune from jurisdiction of another sovereign State.³¹

³¹ See Chapter IV for issues concerning the application of national regulations of other sovereign States concerning marine pollution to vessels entitled to sovereignty immunity.

CHAPTER III – INTENTIONAL VESSEL-SOURCE POLLUTION

1. Introduction

The Arctic has a unique and vulnerable ecosystem which has remained virtually undisturbed by significant local and direct human activity until recent decades.

Although when in comparison with other forms of global marine pollution vessel-source accounts for a reduced part, the vulnerability and special characteristics of the Arctic combined with a growing awareness of public opinion give way to considerations on the impacts of vessel-source pollution to the Arctic.

This chapter provides an analysis of what constitutes ‘intentional vessel-source pollution’ for the purpose of the thesis and identifies main concerns and possible impacts on the Arctic marine environment, living resources and ecosystem.

2. Definition of intentional vessel-source pollution and impacts on the marine environment, living resources and biodiversity of the Arctic

Before an identification and analysis of ‘intentional vessel-source pollution’ it is pertinent to provide on a first instance the definition of marine pollution.

Although it is possible to encounter different concepts, the definition most commonly accepted for marine pollution is the one contained in Article 1(4) of the LOSC. According to this provision ‘pollution of the marine environment’

“...means the introduction by man, directly or indirectly of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to

human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality of use of sea and water and reduction of amenities”.

This provision contains therefore three important factors pertaining classification of marine pollution: human factor, type of pollutants and causation of consequences.

For the identification of what is considered as ‘intentional vessel-source pollution’ in this thesis the above mentioned provision, particularly the types of pollutants (substances and energy) play a pivotal role.

2.1 Operational discharges

For operational discharges it is understood for the purpose of this thesis all intentional discharges related or incidental to the normal functioning of a vessel or resulting from illegal conduct.³² As per the notion of discharges, other than the elements contained in Article 1(4) of the LOSC, it is within Article 2(3)(a) of MARPOL 73/78³³ that a more comprehensive definition can be found. According to the provision referred to, ‘discharge’ related to harmful substances and effluents means “...any release howsoever caused from a ship and includes any escape, disposal, spilling, leaking, pumping, emitting or emptying;”.

Operational discharges vary both in accordance with the type of vessel (e.g. passenger, tanker, container ships) and the cargo it transports (e.g. chemicals, oil). The most common operational discharges include fuel/oil, bilge water, oily water from tank wash, deck wash down water, sewage (black water), garbage and grey water.

To what concerns impacts of operational discharges to the Arctic marine environment, living resources and ecosystem, the main problems that can be identified are, in short, the loss of insulation of polar bears and seals fur and marine birds feathers; contamination of food which affects all Arctic species highly dependent on seasonal feeding; contamination of food chain affecting not only animals but also humans,

³² Birnie, Patricia; Boyle, Alan E.; Redgwell, Catherine, *International Law & the Environment*, Oxford University Press, 3rd. ed., 2009, p. 399.

³³ See Chapter IV for further discussion of MARPOL 73/78.

introduction of bacteria and diseases into the ecosystem, entrapment of animals in plastic packaging, amongst others.³⁴

2.2 Noise pollution

There has been an increasing scientific interest in noise pollution affecting the marine environment, especially in anthropogenic noise sources deriving from activities related to the exploitation of natural marine resources and navigation.³⁵ The projected increase of such activities in the marine Arctic, specifically in Arctic ice-covered areas, has also reinforced preoccupations manifested by scientists on the ominous impacts of noise in the fragile Arctic ecosystem and its living marine resources.

Nevertheless, before mentioning any deleterious effects that may result from noise it is necessary to address two preliminary issues, respectively as to the definition of sound and noise and whether it can be considered as a pollutant of the marine environment in the context of the pertaining legal framework.

As for the first preliminary question, in physics sound can be described as “a flow of acoustic energy”³⁶ and noise as an unwanted or harmful sound.

Article 1(4) of the LOSC providing a definition of what can be considered as ‘pollution of the marine environment’ contains an expression of pivotal importance for the present discussion, respectively the term “energy”. Although this provision was not initially drafted with the intention to include noise pollution *per se*, it seems to be generally accepted by doctrine³⁷ in this particular area, and correctly so, that it is admissible to

³⁴ For further information on operational discharges and impacts see *AMSA 2009 Report*. Arctic Council, April 2009, second printing, pp. 134-141 and *inter alios* Churchill, R.R. and Lowe, A.V., *The Law of the Sea*, 3rd ed., Manchester University Press, 1999, pp. 328-339 and Brubaker, D., *Marine Pollution and International Law: Principles and Practice*, London, Belhaven Press 1993, pp. 12-29, 34.

³⁵ See Chapter VI for further discussion on the regulation of vessel-source noise pollution.

³⁶ Scott, Karen N., “International Regulation of Undersea Noise”, *ICLQ* vol. 53, April 2004, pp. 287-324.

³⁷ See Dottinga, Harm M., Alex G. Oude (2000), “Acoustic Pollution in the Oceans: The Search for Legal Standards”, *Ocean Development & International Law*, 31:1, pp.151 – 182; McCarthy, Elena M., “International Regulation of Transboundary Pollutants: The Emerging Challenge of Ocean Noise” (2001) 6 *Ocean & Coastal Law Journal*, pp. 257-292 and Scott, Karen N., “International Regulation of Undersea Noise”, *ICLQ* vol. 53, April 2004, pp. 287-324.

interpret “energy” as including noise in accordance with Article 31 of 1969 Vienna Convention on the Law of the Treaties.³⁸

In spite of the lack of scientific data on the actual pervasive impacts of noise on marine living resources and ecosystems, it has none-the-less been sustained that casuistically noise generated by vessels does affect the marine environment, namely noise cumulatively produced by shipboard machinery, sonar, propeller, water flow around the vessel and discharges from the hull.³⁹

Scientific data on the impacts of sonar use by military vessels on hydrographic and scientific surveys is, on the other hand, widely documented, especially in connection with stranding and injuring of marine mammals.⁴⁰ The IWC Scientific Committee for instance considered that there was compelling evidence that military sonar has direct impact on marine mammals and is a cause for serious concern as to the animals’ wellbeing.⁴¹

As for the impacts itself, it is reported that noise can disturb communications between marine species, impair their ability to find food or anticipate the presence of a predator and in some extent also produce physical injuries.⁴²

In Arctic ice-covered areas there is a particular preoccupation with the significant noise icebreakers produce while conducting their operations and with the increase of noise from growing shipping activities as navigational routes coincide with marine mammal migration corridors and respective feeding areas.⁴³

2.3 Air pollution

Vessel emissions fall under the definition of “discharge” under article 2(3)(a) of MARPOL 73/78 and there is currently no doubt as to their considerable detrimental

³⁸ Vienna Convention on the Law of the Treaties of 23 May 1969.

³⁹ ICES. 2005. Report of the Ad-hoc Group on Impacts of Sonar on Cetaceans and Fish (AGISC) CM 2006/ACE:06, (viewed on 24.06.2010) and available at http://ec.europa.eu/environment/nature/conservation/species/whales_dolphins/docs/ices_second_report.pdf.

⁴⁰ Papanicolopulu, Irini, “Warships and Noise Regulation: The International Legal Framework”, *Marine Pollution Bulletin* (2010) and Parsons, E.C.M. et al, “Navy sonar and cetaceans: just how much does the gun need to smoke before we act?”, *Marine Pollution Bulletin* 56 (2008), pp.1248-1257.

⁴¹ IWC Scientific Committee, Report of the Scientific Committee, IWC56, 12.2.5 (2004), available at http://iwcoffice.org/_documents/sci_com/SCRepFiles2004/56SCrep.pdf (viewed on 08.10.2010)

⁴² *AMSA 2009 Report*. Arctic Council, April 2009, second printing, pp. 145-146; Final Report of the National Oceanic and Atmospheric Administration (NOAA) International Symposium, “Shipping noise and marine mammals: a forum for science, management, and technology”, 18-19 May Virginia, available at http://www.nmfs.noaa.gov/pr/pdfs/acoustics/shipping_noise.pdf (viewed on 15.07.2010).

⁴³ Erbe, Christine and Farmer, David M., “Zones of impact around icebreakers affecting beluga whales in the Beauford sea”, *Acoustical Society of America*, 108 (3), Pt.1 September 2000, pp. 1332-1340.

impact on marine and atmospheric pollution, global climate change and human and animal health. The most important pollutant emissions resulting from ships combustion of fuels and operation are carbon dioxide (CO₂), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x) and particles.⁴⁴

Vessel emissions vary in accordance with several factors such as vessel type, size, main engine power, speed, and especially the type of fuel used. As regards vessel fuels, economic gain maximization of ship-owners still tends to dominate environmental concerns. Heavy oil and high viscosity fuel which are commonly used contain higher level of substances prone to originate significant amounts of the above mentioned pollutants as well as black smoke.⁴⁵

The impacts of vessel source pollution in the Arctic ice-covered areas are even more alarming. Notwithstanding the fact that in theory the use of the shorter trans-Arctic navigational routes could reduce the amount of overall emissions from vessels, there is a direct and preoccupant correlation between vessels black carbon and acceleration of melting of ice and snow.⁴⁶ In fact, the deposit of black carbon in ice-covered areas leads to the absorption of sunlight which reduces the albedo effect (reflectivity of ice and snow) thus resulting in the increase of melting ice and snow.

Note also that, as previously mentioned, the most frequent fuels used in vessels currently operating in the Arctic consist of high viscosity fuels and heavy fuel oil which present a propensity to produce higher levels of black carbon.⁴⁷

⁴⁴ Volker, Matthias et al., "The contribution of ship emissions to air pollution in the North Sea regions", *Environmental Pollution* 158 (2010), pp. 2241-2250.

⁴⁵ Lin, Bin and Lin, Cherng-Yuan, "Compliance with international emission regulations: Reducing the air pollution from merchant vessels", *Marine Policy* 30 (2006), pp. 220-225.

⁴⁶ For further reading on Arctic vessel emissions see Corbett, J.J. et al., "Arctic Shipping Emissions Inventories and Future Scenarios", *Atmospheric Chemistry and Physics*, 10 (2010), pp.10271-10311.

⁴⁷ See note 25.

PART 2

CHAPTER IV – INTERNATIONAL REGULATION OF INTENTIONAL VESSEL-SOURCE POLLUTION IN ARCTIC ICE-COVERED AREAS

1. Introduction

The purpose of this Chapter is to summarily analyze the main international legal regulations concerning intentional vessel-source pollution and specifically to portray the relevant provisions which can be applicable in arctic ice-covered areas.

A special focus is thus given to the LOSC provisions containing the jurisdictional framework⁴⁸ regarding the protection of the marine environment from vessel-source pollution and special regimes applicable to ice-covered areas, to MARPOL 73/78 jurisdictional framework and discharge/emission standards and the IMO 2009 Polar Shipping Guidelines.

Considerations on the actual implementation by the States of the above mentioned international framework will be made in Chapter VI.

2. LOSC Provisions

Although the applicability of the LOSC to the Arctic Ocean has been questioned in the past⁴⁹ and the fact that more recently the Arctic Ocean has been inaccurately portrayed

⁴⁸ For further reading on flag, coastal and port State Jurisdiction see, *inter alios*, Molenaar, E.J., *Coastal State Jurisdiction over Vessel-Source Pollution*, The Hague/Boston/London, Kluwer Law International 1998; Churchill, R.R. and Lowe, A.V., *The Law of the Sea*, 3rd ed., Manchester University Press, 1999, Tan, Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006 and Jensen, Øystein, *Coastal State Jurisdiction and Vessel Source Pollution: The International Law of the Sea Framework for Norwegian Legislation*, The Fritjof Nansen Institute, FNI-rapport 3/2006.

⁴⁹ For this discussion see Vukas, Budislav, *United Nations Convention on the Law of the Sea and the polar marine environment* in Vidas, Davor, *Protecting the Polar Marine Environment: Law and Policy for Pollution Prevention*, Cambridge University Press 2000, pp. 35-37.

by the media as an area somewhat void of international regulation⁵⁰, it is generally accepted by legal doctrine that the Arctic Ocean and marine activities there occurring do fall under the scope of the LOSC. In fact, not only the wording of the preamble of the LOSC confirms its global scope by including all oceans without any negative discrimination, but also Article 234, containing specific regulation for ice-covered waters, points in that direction. Moreover, five Arctic States have acknowledged the applicability of the LOSC to the Arctic Ocean in the Ilulissat Declaration⁵¹ even though it does not refer to the LOSC expressly but to “law of the sea”⁵² instead.

As regards protection and preservation of the marine environment from vessel-source pollution it is mostly within Part XII of the LOSC that one can find the main core general provisions and jurisdictional framework containing the rights and obligations of flag, coastal and port States which result from a careful balance between navigational rights and the concerns with protection of the marine environment and the safety of navigation. There are, however, other provisions intrinsically connected with this subject in Parts I to IX pertaining the different maritime zones of interest for this thesis (internal waters, territorial sea, EEZ and high seas).

2.1 General provisions on the protection and preservation of the marine environment

The main general provisions with interest for the regulation of intentional vessel-source pollution in arctic ice-covered waters are Articles 192 and 194 which place upon the States the obligation not only to protect and preserve the marine environment from pollution but also to take all necessary measures to prevent, reduce and control such pollution. Within said measures it is important to underline in Article 194(3)(c) the specific coverage of intentional discharges by vessels and in number (5) of said Article the special reference to rare or fragile ecosystems, a category in which the Arctic can be included given its characteristics.

⁵⁰See e.g. Graff, James, “Fight for the Top of the World”, *Time Magazine*, Vol. 170, No. 13, October 2007 and Funk, McKenzie, “Arctic Landgrab”, *National Geographic*, Vol. 215, No. 5, May 2009.

⁵¹ Ilulissat Declaration, adopted at the Arctic Ocean Conference, Ilulissat, Greenland, 28 May 2008, available at http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf (viewed 10.08.2010).

⁵² *Ibid.*

Note also that however vague the wording of these two Articles may appear, its importance lies on the fact that it establishes the general foundation for the remainder of the provisions containing the broader structure of prescriptive and enforcement jurisdiction over pollution, definition of international standards and levels of cooperation.⁵³

2.2 Flag State Jurisdiction

2.2.1 Prescriptive Jurisdiction

Prescriptive jurisdiction of the flag State is foreseen in Article 211(2) which establishes the obligation of the flag State to adopt laws and regulations for the prevention, reduction and control of vessel-source pollution of the marine environment. Moreover, this article also provides that the laws and regulations adopted by the Flag State are to have, at least, the same effect as the generally accepted international rules and standards (GAIRAS) that are established under the auspices of the competent international organization (in this particular case the IMO)⁵⁴ or general diplomatic conference.

To what concerns intentional vessel-source pollution this means, in practical terms, that because this provision does not define the precise content of the laws and regulations to be adopted by the Flag States these latter ones can discretionally apply to vessels registered in their territory or flying their flag higher standards than the GAIRAS which are set, *inter alia*, in MARPOL 73/78 (namely in all the Annexes which have entered into force).

Finally, Article 212 also imposes the obligation on the Flag State to adopt laws and regulations applicable to the vessels with their registry or flag to protect the marine environment from pollution through the atmosphere which encompass emissions from vessels.

⁵³ Boyle, Alan E., "Marine Pollution under the Law of the Sea Convention", *The American Journal of International Law*, Vol. 79, 1985, p. 350.

⁵⁴ Report of the UN Secretary General, "Impact of the entry into force of the 1982 United Nations Convention on the Law of the Sea on related, existing and proposed instruments and programmes", UN Doc. A/52/491, 20 October 1997, section J paragraphs 8 and 9, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N97/278/42/PDF/N9727842.pdf?OpenElement> (viewed on 13.08.2010).

2.2.2 Enforcement Jurisdiction

Intrinsically connected with the obligation to prescribe laws and regulations concerning vessel-source pollution is the consequential obligation to ensure their enforcement. Under Article 217, Flag States are compelled to ensure the implementation of the national and international laws and regulations and the compliance of such norms by their vessels in whichever maritime zone they might be. Article 94(1) also reinforces the obligation impending on the Flag State to effectively exercise its jurisdiction and control over its vessels. Among the enforcement measures to be applied by the Flag States and set within Article 217 are the establishment of suitable penalties to discourage violations, the investigation and follow up of suspected violations, the prevention of ships from sailing unless they comply with international rules and standards and the regular inspections of ships. Finally, Article 222 also provides for the Flag State's obligation to take the necessary enforcement measures and implement the pursuant international regulations concerning the protection of the marine environment from pollution through the atmosphere.

2.3 Coastal State Jurisdiction

2.3.1 Prescriptive Jurisdiction

In balancing the interests of both the shipping and Coastal States, the LOSC grants the latter the right to prescribe laws and regulations concerning vessel-source pollution which varies in function of their different maritime jurisdictional zones. In doing so and by limiting the absolute freedom of navigation and the exclusivity of Flag State jurisdiction, the LOSC procures to ensure a higher level of efficient vessel-source pollution prevention and control.

In internal waters the Coastal State enjoys, under its sovereignty, prescription jurisdiction limited only by the obligation of giving due publicity to said laws and regulations (Articles 2(1) and 211(3)). This provision can be invoked to sustain both Canada's and the Russian Federation's adopted laws and regulations for control of vessel-source pollution in some parts of their respective NWP and NSR. However such a claim by

these countries cannot be without controversy given current disputes as to whether those areas fall under the regime of internal waters or internal straits.⁵⁵

Within the territorial waters and according to Articles 21(1)(f) and 211(4) the Coastal State prescriptive jurisdiction is limited to the obligations of not hampering innocent passage of foreign vessels, not applying discriminatory rules and giving due publicity to said rules. Note however that, contrary to Flag State prescriptive jurisdiction, the LOSC does not set any minimum level of standards that must be observed by the Coastal State. In fact, it does not require Coastal State's laws and regulations to observe at least GAIRAS nor does it establish any maximum threshold for that matter. Also, the obligations established in Article 212, concerning marine pollution through the atmosphere (e.g. emissions from vessels) must be observed by the Coastal State.

In straits where the regime of transit passage is applicable, the Coastal State's prescriptive jurisdiction is not as ample as in the innocent passage regime. Article 42(1) restricts Coastal State's prescriptive jurisdiction to the adoption of laws and rules giving effect to GAIRAS regarding discharge of oil, oily wastes and other noxious substances (aside from the obligations of not hampering innocent passage of foreign vessels, not applying discriminatory rules and giving due publicity to said rules). This restricted jurisdiction justifies, in part, both Canada's and Russian Federation's vigorous objection to the application of the Straits regime in parts of their respective NWP and NSR.⁵⁶

As for prescriptive jurisdiction in the EEZ, Article 211(5) provides that the Coastal State 'may' adopt laws and regulations concerning vessel-source pollution as long as they conform and give due effect to GAIRAS. One of the exceptions to this particular provision is found in Article 234 which allows Coastal States to adopt legislation (in this particular case discharge and emission standards) stricter than GAIRAS in EEZ ice-covered waters.

Furthermore, there is also the possibility under Article 211(6) for the Coastal State, in respect of its EEZ where rules and standards foreseen in Article 211(1) are insufficient and special mandatory measures for vessel-source pollution are required due to special oceanographic and ecological conditions, to adopt additional norms after following the consultation procedure described in the aforementioned provision. This particular

⁵⁵ For further reading on this issue see Rothwell, Donald R. "The Canadian-U.S. Northwest Passage Dispute: A Reassessment", *Cornell International Law Journal*, Vol. 26, 1993; Brubaker, Douglas R., "Straits in the Russian Arctic", *Ocean Development & International Law*, 32: 263-287, 2001; Pharand, Donat, "The Arctic Waters and the Northwest Passage: A final revisit", *Ocean Development & International Law*, 38:1, 3-69, 2007.

⁵⁶ See note 53.

provision is of relevance to Arctic Coastal States which can procure to adopt further legislation on vessel-source pollution given the special conditions faced by navigation in their EEZ but which do not satisfy the requisites of Article 234 (even though in this circumstance they would have to obtain previous IMO approval).

2.3.2 Enforcement Jurisdiction

Enforcement jurisdiction of the Coastal State concerning vessel-source pollution is limited to particular circumstances interconnected with the specificities of the various maritime zones in which a violation may occur.

With regards to the territorial sea, according to Article 220(2) the Coastal State can only take up enforcement measures (physical inspection of the vessel, institution of proceedings and detention of the vessel) if it has “clear grounds” which allow it to believe that a ship has violated the laws and regulations concerning vessel-source pollution (both national and international) during its passage through this maritime zone. The adoption of such enforcement measures must nonetheless observe the limitations imposed by Part II section 3 and Part XII section 7. Finally, Article 222 also provides for the Coastal State’s obligation to take the necessary enforcement measures and implement the international regulations concerning the protection of the marine environment from pollution through the atmosphere.

In Straits the Coastal State is only allowed to enforce appropriate measures against vessels when the requirements of Article 233 are met, namely when in transit a vessel has violated the applicable anti-pollution rules and regulations and such violation causes or threatens to cause a major damage to the Straits marine environment.

Enforcement of national and international regulations in the EEZ is even more restrictive. According to Article 220(3) and (5) the Coastal State can only undertake physical inspection of a vessel provided it has “clear grounds to believe” that a particular vessel has committed an infraction, that such infraction had caused or threatened to cause significant pollution to the marine environment, that the infringing vessel refuses or fails to provide the necessary information requested in Article 220(3) and when specific contours of the case so justify. As for more stringent enforcement measures such as the institution of

proceedings and the arrest of the vessel, the Coastal State can only adopt such measures when it has “clear objective evidence” regarding the infraction (Article 220(6)).

2.4 Port State Jurisdiction

2.4.1 Prescriptive Jurisdiction

Port State’s prescriptive jurisdiction can be found within Articles 2(1), 25(2) and 211(3) in which the sovereignty rights of the State are implicitly fully acknowledged. A Port State can thus prescribe laws and regulations regarding the conditions for entry of vessels in its ports⁵⁷, provided only that those rules are dully publicized, and non-discriminatory.

2.4.2 Enforcement Jurisdiction

To what concerns enforcement jurisdiction, the Port State can, foremost, prevent ships which have violated rules pertaining the conditions of entry into port as established under Article 25(2) from accessing its ports. However, the most noticeable provision concerning Port State jurisdiction, and in fact the only one in the LOSC that expressly refers to Port State, is Article 218 which grants the Port State the right to institute legal proceedings against a vessel which encounters itself voluntarily in one of its ports and that allegedly has discharged pollutants outside the port State’s maritime zones in violation of international rules and standards. This provision is thus one of the exceptions to the primacy of flag State jurisdiction on the high seas, even though it involvement in-port enforcement and not enforcement on the high seas. Furthermore, according to Article 219, when the Port State verifies that a determinate vessel in its port does not comply with international rules and standards regarding seaworthiness posing, therefore, a threat to the marine environment it must, as far as possible, take the necessary administrative measures to prevent that vessel from sailing until the causes of infringement are remedied.

⁵⁷ The right of port States to grant or deny entry into their ports is a customary international right which has been recognized by the ICJ in the *Nicaragua Case* (Nicaragua v. United States), Judgment of 27 June 1986, *ICJ Reports* 1986.

Given the difficult conditions of enforcement on vessels navigating in ice-covered waters Port State enforcement in those areas will assume a prominent role.

2.5 Special regime of Article 234

The adoption by Canada of the 1970 Arctic Waters Pollution Prevention Act (AWPPA) as a response to the voyage of the S.S. Manhattan tanker in the NWP raised many objections (particularly from the United States⁵⁸) regarding the Act's compliance with international law⁵⁹. This controversial issue was debated at UNCLOS III where Canada procured to ensure the adoption of a provision concerning ice-covered areas in view of its vital interests, respectively the acceptance of the AWPPA and the expansion of jurisdiction over its Arctic waters and NWP.⁶⁰

The final and approved text of Article 234, also known as the "Canadian Clause" or "Arctic Exception" establishes that:

"Coastal states have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, 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, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence."

Article 234 is thus an exception to the general rule of Coastal State's prescriptive and enforcement jurisdiction over vessel-source pollution and basically entails that the laws and regulations adopted by the Coastal State under this provision can be more stringent than GAIAS and can also regulate CDEM standards as there are no limitations or

⁵⁸ See Roach, Ashley J. and Smith, Robert W., *United States Responses to Excessive Maritime Claims*, Martinus Nijhoff Publishers (The Hague/Boston/London), 1992, Second edition, pp. 339-353.

⁵⁹ See *inter alios* McRae, D.M. and Goundrey, D.J., "Environmental Jurisdiction in arctic waters: the extent of article 234", *University of British Columbia Law Review*, Vol. 16:2, 1982, and Hubert, R. "Article 234 and Marine Pollution Jurisdiction in the Arctic" in Oude Elferink A.G. and Rothwell, D.R. (eds.), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Martinus Nijhoff Publishers: 2001), pp.249-267.

⁶⁰ McRae, D.M., "The Negotiation of Article 234" in Griffiths, F. (ed.) *Politics of the Northwest Passage* (1987), pp. 98-114.

maximum thresholds linked to international standards or instruments.⁶¹ Still, what appears to be a broad attribution of jurisdictional powers to the Coastal State is nonetheless limited as the laws and regulations adopted cannot be discriminatory, must have due regard to navigation (which also implies that the principle of reasonability must be observed), must be based on best available scientific evidence and are limited to the ice coverage/hazard conditions requirements.

There has been much debate on the interpretation of Article 234 having this provision been inclusively characterized as “probably the most ambiguous, if not controversial, clause in the entire treaty”.⁶² Even through the analysis of the *travaux préparatoires* it is not easy to ascertain the clear applicability of this provision.⁶³ Among the issues most discussed are the applicability of Article 234 in the territorial sea, the extent of the concept of “due regard for navigation” namely if unilateral stricter CDEM standards, transit fees, mandatory icebreaker escort and other measures hinder navigation, the controversy between Article 234 and the regime of transit passage contained in Part III, section 2, and the dispute over a broad interpretation of Article 234 which allows an all year round enforcement of measures in areas which can be ice-covered versus a more restrictive interpretation which only allows enforcement when the ice conditions set in the article are met and in no circumstance when the waters are ice-free. It is also necessary to underline that the issue pertaining the applicability of Article 234 is bound to gain further interest as climatic changes affect the duration and extent of arctic ice-covered areas, specifically when the requirement of ice coverage “for most of the year” can no longer be met. The drastic reduction of sea ice predicted for future decades shall, even though some areas will still have ice coverage, come to determine the inapplicability of Article 234 and consequently the inapplicability of national legislation adopted under its scope due to the lack of their legal base.

The answers to these questions are mostly two sided with countries that have adopted special legislation under this provision, namely Canada and the Russian Federation, opposing States seeking to gain navigational access through the arctic without the burden

⁶¹ Tan, Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006, p.234.

⁶² Lamson, Cynthia, “Arctic Shipping, Marine Safety and Environmental Protection”, *Marine Policy*, Vol.11, 1987, p.3 and Jensen, Øystein, *The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?*, The Fritjof Nansen Institute, FNI-rapport 2/2007, p.7.

⁶³ Nordquist, Myron H., *United Nations Convention on the Law of the Sea, 1982: A Commentary*, University of Virginia, Center for Oceans Law and Policy, Vol. 3, pp.392-398.

of too many restrictions. Diplomacy between involved parties (especially between Canada, the United States and Russian Federation⁶⁴) has thus far to an extent of success managed to address these issues, however, new players seeking to expand navigation through the Arctic such as the EU and China⁶⁵ must also be considered.

3. IMO instruments

As portrayed above, the LOSC provides for the general jurisdictional framework concerning regulation of vessel-source pollution, including for ice-covered areas. As for the operationalisation of those provisions IMO plays a fulcrum role⁶⁶. The existence of varying requirements among States concerning CDEM, navigation and discharge standards poses some difficulties for ships which must thus comply with a multitude of requirements. Hence IMO has sought in its instruments to harmonize such requirements in view of the overall commercial, safety and environmental objectives inherent in international shipping.

Specifically to what concerns intentional vessel-source pollution MARPOL 73/78, which has global application, is the most relevant IMO instrument dealing directly with discharge and emission standards. Furthermore and in view of ice-covered areas it is also important to consider the Polar Shipping Guidelines.

3.1 MARPOL 73/78

MARPOL 73/78, currently the main convention regulating on the prevention of pollution of the marine environment from vessel-source pollution given its scope and applicability to all vessels flying the flag or under the authority of a State party (with exception of public vessels entitled to sovereignty immunity),⁶⁷ contains in its annexes prohibitions and limits concerning discharge and emission of pollutants, respectively in Annex I on the prevention of pollution by oil, Annex II on control of pollution by noxious

⁶⁴ See note 57, pp. 328-338 (Northeast Passage) 339-353 (Northwest Passage).

⁶⁵ Byers, Michael, "China is coming to the Arctic", *Ottawa Citizen*, March 29, 2010, available at <http://byers.typepad.com/arctic/2010/03/china.html#more> (viewed 15.08.2010).

⁶⁶ See note 53 and Chapter VI for further analysis on IMO's role.

⁶⁷ Article 3 of MARPOL 73/78.

liquid substances in bulk, Annex IV on prevention of pollution by sewage from ships, Annex V on prevention of pollution by garbage from ships and Annex VI on the prevention of air pollution from ships. Furthermore, MARPOL 73/78 also provides in Annexes I, II and V the possibility to establish ‘special areas’ and ‘Sox emission control areas’ where the particular sensitivity justifies the application of more restrictive discharge and emission standards. The wide ratification of MARPOL 73/78 Annexes by Arctic countries indicates that there has been an effort to harmonize discharge and emission standards.⁶⁸

However it is important to note that Canada has expressly excluded MARPOL 73/78 application in the Arctic north of 60° N latitude and both Canada and the Russian Federation have adopted for those areas more stringent regulation under the terms of article 234 of the LOSC. Thus, in addition to provisions and standards of MARPOL 73/78 applicable in ice-covered areas those States require the compliance of stricter standards.

Moreover it has been pointed out as a major omission the fact that, unlike the Antarctica, no part of Arctic has yet been declared as a ‘special area’ or ‘Sox emission control area’ for the purposes of special protection under MARPOL 73/78 which would reinforce the protection of the marine environment in Arctic ice-covered areas specifically in those lying in ABNJ.

Finally, notwithstanding being the main instrument for prevention of the marine environment from vessel-source pollution it does not cover noise pollution even through its CDEM standards.

3.2 IMO Polar Shipping Guidelines

In the Polar Shipping Guidelines, whose spatial scope encompass arctic ice-covered areas,⁶⁹ it is acknowledged that in the Arctic region there is a lack of waste reception facilities and that both the polar environment and the special navigation conditions in ice-covered water impose additional demands to shipping other than the normal standards

⁶⁸ Canada, Denmark and Norway have ratified all annexes, United States has ratified all but annex IV and Russian Federation has ratified all but annex VI. As for other shipping tonnage representative countries, Panama, China, Greece and Liberia have adhered to all Annexes. Status of Conventions available at http://www.imo.org/Conventions/mainframe.asp?topic_id=248.

⁶⁹ See note 11 and Chapter II.

prescribed in other IMO instruments. Specifically to what concerns the protection of the polar marine environment from vessel-source pollution it is ascertained in provision P-2.10 that the guidelines have the intention of providing high standards of environmental protection to in order to deal with both accidents and normal operations from ships.

Notwithstanding the above and being portrayed as “an important step towards improved regulatory framework for an emerging segment of global shipping, the ice-infested waters”⁷⁰, the guidelines non-legally binding nature and limited regulation on environmental protection set no obligation on the States in attention to intentional vessel-source pollution and special particularities in ice-covered areas.

In fact, the guidelines contain only one provision dealing directly with the protection of the environment, respectively provision 16.3, which limits itself to remit to national and international rules regulating discharges and emissions from ships but adds no specific standards which take in consideration the particular impacts of vessel-source intentional pollution in arctic ice-covered areas.

Considering that the Arctic has no ‘special areas’ or ‘Sox emission control areas’ under MARPOL 73/78 the Polar Shipping Guidelines with this simple remission adds no particular reinforcement to the protection of the Arctic marine environment. Moreover, even in the CDEM standards prescribed in the guidelines there are no indirect consequences for the prevention of some sources of intentional vessel-source pollution which could have resulted for instance if the fuel content (emission pollution) or propulsion equipments (noise pollution) had been further regulated.

⁷⁰ Jensen, Øystein, *The IMO Guidelines for Ships Operatinf in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection?*, The Fritjof Nansen Institute, FNI-rapport 2/2007, p.22.

CHAPTER V – NATIONAL REGULATION OF INTENTIONAL VESSEL-SOURCE POLLUTION IN ARCTIC ICE-COVERED AREAS

1. Introduction

In general, the prevention of marine pollution by intentional vessel-source pollution through an effective and harmonized legal framework can only be attained if the provisions set in the LOSC, in IMO instruments and in the legislation unilaterally adopted by the States are adequately implemented and enforced by these latter ones.

This chapter will thus portray the national regulation of intentional vessel-source pollution in Arctic ice-covered areas, unilaterally adopted or implementing international rules and standards, of both Canada and the Russian Federation which are the two most important sets of rules and regulations pursuant Arctic ice-covered areas.

2. National relevant provisions

2.1 Canada

Since the 1970s Canada has developed extensive policy strategies, measures and legislation for the protection of the Arctic marine environment. Following the initiatives of the Arctic Marine Conservation Strategy and Canada's *Green Plan* in the 1980s and 1990s current Canada's Northern Strategy,⁷¹ Ocean Act⁷² and Canadian Environmental Protection Act⁷³, recognizing the Arctic as common heritage of the Canadian people, set the grounds for a comprehensive protection of the Arctic marine environment, resources and ecosystem based on the principles of sustainable development, integrated management of activities and the precautionary approach.

⁷¹ <http://www.northernstrategy.ca/index-eng.asp>.

⁷² Oceans Act, S.C. 1996, c. 31, available at <http://laws.justice.gc.ca/PDF/Statute/O/O-2.4.pdf>.

⁷³ Canadian Environmental Protection Act, S.C. 1999, c. 33, available at <http://laws.justice.gc.ca/PDF/Statute/C/C-15.31.pdf>

Specifically to what concerns the regulation of intentional vessel-source pollution in ice-covered areas, legislation adopted by Canada (even legislation previous to entry into force of the LOSC) presently falls within the broad jurisdictional umbrella of article 234 of the LOSC which serves as a buffer provision for some criticism that has been directed at the stringent Canadian rules and regulations.

The AWPPA⁷⁴ and regulations adopted there under such as the Arctic Shipping Pollution Prevention Regulations (ASPPR)⁷⁵ are the main regulatory instruments to what concerns discharges from vessels in the Arctic. Other than these two, the Canada Shipping Act 2001 (CSA)⁷⁶ and regulations adopted there under, the Migratory Birds Convention Act 1994⁷⁷ and the Fisheries Act 1985⁷⁸ also contain provisions concerning vessel-source pollution.⁷⁹

Adopted in 1970 the AWPPA sought to protect the Arctic waters and marine environment through the establishment of a 100 nautical mile pollution prevention zone in Canadian Arctic waters. Shipping safety control zones were also instated by regulation adopted under AWPPA. Under the auspices of Canada's Northern Strategy and in view of the assumed role of stewardship Canada has recently approved the extension of the spatial scope of AWPPA from 100 to the 200 nautical mile limit⁸⁰ as well as the correlative extension of the shipping safety control zones.⁸¹

Section 4 of AWPPA, aims for a zero discharge policy as it is prohibited to deposit any type of waste into the waters (as defined in Section 2) except if otherwise authorized by regulations adopted under AWPPA. To what concerns enforcement powers, whilst AWPPA bestows very comprehensive powers to pollution prevention officers it only

⁷⁴ Arctic Waters Pollution Prevention Act, R.S., 1985, Ch. A-12, available at <http://www.tc.gc.ca/media/documents/acts-regulations/A-12-acts.pdf>.

⁷⁵ Arctic Shipping Pollution Prevention Regulations, C.R.C. Ch. 353, available at http://laws.justice.gc.ca/PDF/Regulation/C/C.R.C.,_c._353.pdf.

⁷⁶ Canada Shipping Act, 2001 S.C., ch.26, available at <http://www.tc.gc.ca/media/documents/acts-regulations/C-10.15-acts.pdf>.

⁷⁷ Migratory Birds Convention Act, S.C., 1994, Ch. 22, available at <http://laws.justice.gc.ca/PDF/Statute/M/M-7.01.pdf>.

⁷⁸ Fisheries Act, R.S., 1985, C.F-14, available at <http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf>.

⁷⁹ VanderZwaag, David L. *Canada and Marine Environmental Protection: Charting a Legal Course Towards Sustainable Development*, Kluwer Law International, London, 1995, pp. 339-361.

⁸⁰ Bill C-3 Act to amend AWPPA received Royal Assent on 11.06.2009 and came into force on 01.08.2009. <http://www2.parl.gc.ca/Sites/LOP/LEGISINFO/index.asp?Language=E&Session=22&query=5652&List=toc> (viewed 22.08.2010).

⁸¹ Order amending the Shipping Safety Control Zones Order, *Canada Gazette Part II, Vol. 144, No. 13 — June 23, 2010*, SOR/2010-131 June 10, 2010, CIF June 10, 2010, available at <http://www.gazette.gc.ca/rp-pr/p2/2010/2010-06-23/pdf/g2-14413.pdf>

contains one enforcement provision pertaining to vessel discharges. Section 23(1)(a) empowers the pollution prevention officers to seize a vessel and its cargo whenever there are suspicions or reasonable grounds that any provision of AWPPA or regulations adopted there under have been breached, namely Section 4 of AWPPA and ASPP Regulations.

ASPPR contain, pursuant the prohibitions Section 4 of AWPPA, special permissions to what concerns only sewage and oil discharges which means for instance that the disposal of garbage or other noxious substances in arctic waters is not allowed. Albeit the restrictive character of Canadian norms Section 28 of ASPPR does not provide for limitations on the discharge of sewage generated on board ship in Arctic waters which is problematic especially considering the increase of large cruise vessels in arctic and ice-covered waters. On the contrary, Section 29(c) allows the discharge of oil only under very restricted circumstances such as those pertinent to the safety of lives or the vessel and to the normal operation of the engine or its components in so far as such discharges are minimal and unavoidable. As for further enforcement measures, Section 17(2) of ASPPR also allows the invalidation of a ships Arctic pollution certificate if, upon inspection, the ship is in danger of discharging or actually discharging waste into Arctic waters in violation of Section 4(1) of AWPPA.

CSA and associated regulations such as the Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals⁸² constitute the main instrument regulating overall marine transportation in Canada including vessel-source pollution. Through these instruments Canada further implements MARPOL 73/78 Annexes II (noxious liquid substances), IV (sewage), V (garbage) and VI (air emissions). However, the discharge provisions provided for in the Pollution Prevention Regulation Sections 40 (oily mixtures), 82, 83 and 108 (noxious liquids and pollutants), 128 (sewage and sewage sludge), 139 (garbage) are not applicable to arctic waters *viz* ice-covered areas as safety control zones are expressly excluded.⁸³ In fact, this has been made clear in the Regulatory Impact Analysis Statement pursuant these Regulations: “Arctic waters are regulated pursuant to the *Arctic Waters Pollution Prevention Act* and the *Arctic Shipping Pollution Prevention Regulations*. Discharges in Arctic shipping safety control zones are addressed

⁸² Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals SOR/2007-86, available at <http://laws-lois.justice.gc.ca/PDF/Regulation/S/SOR-2007-86.pdf>.

⁸³ Clark, Lee, “Canada’s Oversight of Arctic Shipping: The need to reform”, *Tulane Maritime Law Journal*, Vol. 33:79, 2008, p.100.

separately from this initiative”.⁸⁴ Only the provisions concerning prohibitions of air emissions from ships set in Division 6 of the Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals are applicable to Arctic waters as there is no exclusion for safety control zones.⁸⁵

Furthermore, Canadian arctic waters including ice-covered areas are also particularly known for the abundance of bird communities, marine mammals, the migration routes and spawning areas hence the Migratory Birds Convention Act and the Fisheries Act are also of relevance. The Migratory Birds Convention Act, applicable to arctic ice-covered areas (Section 2), prohibits vessel-source discharge of any substances in the waters frequented by migratory birds or that can enter those waters and that are harmful to them (Section 5.1(1) and (2)). Similarly, the Fisheries Act also contains provisions pertaining to the protection of Canadian fishing waters from vessel-source pollution discharges, namely Section 36(3) which prohibits the deposit of any deleterious substance in waters that are frequented by fish.

It is also important to mention that, although to the present date no arctic waters have been declared as marine conservation areas under Canada National Marine Conservation Act⁸⁶, the necessary studies and procedures have already commenced for some specific arctic zones which will inevitably come to have impacts to vessel-source discharges as within these areas not only shipping can be controlled but discharges of pollutant substances are also forbidden (Section 14(1))⁸⁷.

Finally, it is important to mention that Canada has also elaborated additional sets of non-legally binding Guidelines in view of furthering the prevention of vessel-source pollution such as the Guidelines for the Operation of Tankers and Barges in Canadian Arctic Waters and Arctic Waters Oil Transfer Guidelines dealing with oil pollution prevention and guidelines concerning cruise vessel operations⁸⁸ given the increasing traffic of such vessels in Arctic waters and the specificity of their activity.

⁸⁴ Regulatory Impact Analysis Statement, Canada Gazette, Vol. 140, n° 24, June 17, 2006, p. 1642, available at <http://www.gazette.gc.ca/archives/p1/2006/2006-06-17/pdf/g1-14024.pdf>.

⁸⁵ See note 79.

⁸⁶ Canada National Marine Conservation Act, S.C. 2002, c.18, available at <http://laws.justice.gc.ca/PDF/Statute/C/C-7.3.pdf>.

⁸⁷ See http://www.pc.gc.ca/progs/amnc-nmca/systemplan/itm1-/arc_e.asp on arctic marine conservation areas.

⁸⁸ Pollution Prevention Guidelines for the Operation of Cruise Ships under Canadian Jurisdiction, TP 14202E, 2009, 3rd Edition, available at <http://www.tc.gc.ca/publications/EN/TP14202/PDF/HR/TP14202E.pdf>

2.2 Russian Federation

After the end of the cold war, Gorbachev's *perestroika policy* marked a change in geo-politics and economic objectives of Russia providing favorable conditions for the opening of navigation in the NSR to foreign vessels (which would come to happen only in 1991).⁸⁹ In the wake of this change, the Russian Federation has sought since then to consolidate its interests and sovereignty in the Arctic both through policy and improvement of the legal regime pertaining to activities in the Arctic, especially navigation in the NSR.⁹⁰

Without entering into the main controversial aspects of Russian legislation pursuant navigation in the NSR (such as unlawful curtail of navigational rights), which fall outside the scope of this thesis, the regulation of environmental standards pursuant vessel-source pollution are based upon and comply with international fundamental instruments as the LOSC (with particular focus on article 234 whose broad scope is the basis for the Russian more stringent laws and regulations) and as MARPOL 73/78 (Russia has adhered to all annexes with exception of annex VI).

Russian current legislation pursuant navigation in the Arctic and prevention of vessel-source pollution concerns mostly the NSR. Nonetheless, some instruments do encompass the Arctic waters and ice-covered areas as a whole. Some of the relevant legal documents are now included in the Guide to Navigation through the Northern Sea Route⁹¹ which is a comprehensive instrument with all relevant aspects concerning navigation in the NSR. Russian legislation is extensive and dispersed, for which reason only the main pursuant legal instruments are briefly described hereunder.

The Federal Law on the Internal and Territorial Marine Waters, Territorial Sea and the Adjacent Zone⁹² establishes the basic provisions for the prevention of pollution of marine environment. Article 37 provides the definition of the concepts 'harmful

⁸⁹ Brubaker, Douglas R. *Regulation of Navigation and Vessel Source Pollution in the Northern Sea Route: Article 234 and State Practice*, in Vidas, Davor, *Protecting the Polar Marine Environment: Law and Policy for Pollution Prevention*, Cambridge University Press 2000, p. 221.

⁹⁰ Kovalev, Aleksandr A. And Butler, William, *Contemporary Issues of the Law of the Sea: Modern Russian Approaches*, Eleven International Publishing, 2004, p. 180.

⁹¹ 1996 Guide to Navigating through the Northern Sea Route, Head Department of Navigation and Oceanography of the Ministry of Defense of the Russian Federation, Notice to Mariners 81-84 (July 13, 1996).

⁹² Federal Law of 31 July 1998, available at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/RUS_1998_Act_TS.pdf

substances’, ‘discharge’ and ‘pollution of the marine environment’, stipulates that the discharge from vessels of harmful substances in these areas are forbidden and determines that operational discharges from vessels cannot exceed the permissible concentrations provided for in other federal legislation.

The Federal Law on the Exclusive Economic Zone of the Russian Federation⁹³ is drafted with a similar structure as the latter Federal Law repeating in Article 4 the same concepts. Of interest for vessel-source pollution in Arctic ice-covered areas are the Articles 32 and 33 which take in consideration the particularities of navigation under such conditions and the special environmental characteristics of the Russian Arctic and provide for the creation of specially protected areas. As to enforcement, Article 36 (iv) grants the right to halt and detain a ship when there are sufficient grounds to believe it has discharged illegal substances in the EEZ.

The Regulations for Navigation on the Seaway of the Northern Sea Route⁹⁴, providing the identification of NSR (which are variable rather than fixed routes) contain mostly the conditions for navigating in the NSR aiming at the prevention, control and reduction of the pollution of the marine environment from vessels given the severe ice and climatic conditions that affect the NSR. These regulations other than allowing inspections when there is a risk of pollution also provide for the possibility of establishing specially protected areas within ice-covered areas.

With regards to the discharge of pollutants by vessels in the NSR the most relevant instruments are the Regulations for Preventing the Pollution of Offshore Waters, Sanitary Regulations and Norms Preventing the Pollution of Offshore Waters in Water Supply Areas which establish that the discharge of oil must comply with the requirements of MARPOL 73/78 for special areas, the prohibition of garbage disposal at sea and the prohibition of discharge of pollutants and waste in ice-covered areas.⁹⁵ Complementing this legislation are various other specific Government Resolutions.⁹⁶ To what concerns

⁹³ Federal Law of 17 December 1998, available at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/RUS_1998_Act_EZ.pdf

⁹⁴ Regulations of 14 September 1990, available at www.morflot.ru.

⁹⁵ Kitagawa, Hiromitsu, *The Northern Sea Route: The shortest sea route linking East Asia and Europe*, The Ship and Ocean Foundation, Tokyo, 2001, pp. 127-128, available at http://www.sof.or.jp/proj/pdf/rp_ar0103e.pdf.

⁹⁶ E.g. Russian Federation Government Resolution N° 251 of 24.03.2000 approving the list of denied toxic substances into the EEZ from ships and other floating equipment, aircraft, artificial installations or structures and Russian Federation Government Resolution N° 208 of 10.03.2000 establishing rules for the development and approval of norms of maximum permissible concentrations of harmful substances and permissible impacts on the marine environment and natural resources of internal waters and territorial sea - Source: Mihrin, L.M., *Prevention of Marine Pollution from Ships and Offshore Structures, Key International and*

operational discharges it already contains more stringent standards than MARPOL 73/78, however, it still lacks in sufficient protection from vessel air emissions and noise pollution.

As for other environmental regulation which can impact vessel-source pollution in Arctic ice-covered areas it is possible to point out the Law of the Russian Federation on Environmental Protection⁹⁷, which provides for the basis for environmental regulation and enforcement and seeks to ensure the conservation of the marine environment (Article 2); the Water Code of the Russian Federation⁹⁸ which grants under Article 36(5)(5) the powers to conduct inspections and detain vessels which cause contamination (contamination which may result inclusively of normal operational discharges) of water bodies or fail to prevent such contamination; and finally the Government Decree on Red Book of the Russian Federation⁹⁹ which establishes the basis for the listing of endangered species that under Article 2 of the Red Book are subject to special protection (in this book are included species of whales that can be encountered in the NSR).

The Russian Federation is, in accordance with its Maritime Doctrine and State Principles for the Arctic¹⁰⁰ objective of improving its legal framework, undergoing substantial regulatory changes, updating its 'Arctic legislation' to correspond to the emergent pressures in the Arctic waters (e.g. draft Federal Law on the Arctic Zone of the Russian Federation initially submitted to the State Duma in 1998 and now revived).¹⁰¹

Russian Documents on the Prevention of Marine Pollution from Ships and Offshore Structures, Book 1, 2005 (Russian version only).

⁹⁷ Federal Law on Environmental Protection of January 10, 2002, N 7-FZ, available at http://www.icfinternational.ru/doc_files/oops.pdf, (viewed on 26.08.2010, Russian version only).

⁹⁸ Water Code of the Russian Federation of June 3, 2006, N 74-FZ, available at http://www.icfinternational.ru/doc_files/vodn_kodeks.pdf, (viewed on 26.08.2010, Russian version only).

⁹⁹ Russian Federation Government Decree on Red Book (Endangered Species List) of the Russian Federation of February 26, 1996, N 158, available at http://www.icfinternational.ru/doc_files/158.pdf (viewed on 26.08.2010, Russian version only).

¹⁰⁰ Maritime Doctrine of Russian Federation 2020, approved by President Vladimir Putin on 27.06.2001, available at http://www.oceanlaw.org/downloads/arctic/Russian_Maritime_Policy_2020.pdf (viewed 26.08.2010) and Basic Principles of the State Principles of Russian Federation in the Arctic up to 2020 and longer Term, approved by President Medvedev on 18.09.2009, available at http://www.scrf.gov.ru/documents/98.html#** (viewed 26.08.2010, Russian version).

¹⁰¹ Franckx, Erik, "The Legal Regime of Navigation in the Russian Arctic", *Journal of Transnational Law & Policy*, Vol. 18.2, Spring 2009, pp. 341-342.

PART 3

CHAPTER VI – SHORTCOMINGS AND CHALLENGES REGARDING INTERNATIONAL AND NATIONAL REGULATION OF INTENTIONAL VESSEL-SOURCE POLLUTION IN ARCTIC ICE-COVERED AREAS

1. Introduction

To what concerns environmental protection of the Arctic from shipping activities it has been repeatedly stated that the legal regime currently applicable is not adequate for the specific characteristics and risks that Arctic shipping entail. For instance, paragraph 4.2 of AEPS expressly adopted this position and inclusively urged Arctic States to implement stricter standards through IMO.¹⁰²

While this is true in many aspects of Arctic shipping, the analysis of the legal framework portrayed in chapters IV and V demonstrates that there has been in the recent decades a serious effort to effectively regulate intentional vessel-source pollution and that such framework does provide for a solid basis for the protection of the Arctic marine environment including in ice-covered areas. The LOSC provides for ample jurisdictional powers to the Coastal States specifically concerning ice-covered areas and Port State jurisdiction while MARPOL 73/78 provides for stricter discharge/emission standards in special areas, covers the majority of pollutants in its Annexes and has a wide level of adherence by the major shipping countries (e.g. Panama, China, Greece, Liberia, Singapore, United Kingdom, Japan and Marshal Islands are parties to all Annexes and Bahamas and the United States are parties to all but Annex IV¹⁰³).

Note however that although it is here sustained that the regulatory framework in place provides solid grounds to the protection of Arctic ice-covered areas from vessel-source pollution, it does not mean that there are no gaps or challenges to be overcome. For instance, it has already been pointed out in previous chapters that although MARPOL 73/78 provides for special discharge/emission standards in special areas there is currently

¹⁰² Arctic Environmental Protection Strategy, 14 of June 1991, p. 24, available at http://arctic-council.org/filearchive/artic_environment.pdf.

¹⁰³ See note 68.

no part of the Arctic under that particular regime, nor have there been created any PSSA for the Arctic, neither does the existing legal framework address noise pollution and its impacts to the Arctic ecosystem and some living marine resources, nor is there specific regulation covering cruise vessels which pose a particular problem to sewage and garbage discharge.

Even though the regulation of substantive standards regarding intentional vessel-source pollution is important it does not constitute at present the major issue. Implementation and enforcement of such laws and regulations continue to pose a greater challenge.

Given length restraints, the present Chapter will thus only skim the surface on the problem of State implementation and enforcement and the role of IMO to what concerns enforcement while attempting to put forward some views on mechanisms to achieve an enhanced protection of Arctic ice-covered areas.

2. Implementation and enforcement of international discharge/emission standards

In principle, when a State ratifies or accedes to a treaty it does so with the intention of complying with the obligations assumed there under thus observing the principle of *pacta sunt servanta*. However, implementation and enforcement prove to be, for numerous reasons (such as lack of administrative capacity, economic factors or the fact that IMO has no provisions to ensure that States comply with their obligations) a difficult task.

In the case of discharge/emission standards there has been a wide adherence to MARPOL 73/78 by a representative shipping tonnage and a high degree of effective implementation by the Arctic States in their capacity of Coastal, Port and Flag States which quickly recognized the importance in protecting their interests in the Arctic and taking the necessary measures to ensure that actors operating under their jurisdiction would comply with the aforementioned standards.

The major problem lies, however, with the Flag States (in particular with those that are flags of convenience) that have no particular will, capacity or incentives¹⁰⁴ to duly implement and enforce the relevant legal instruments against infringing vessels navigating

¹⁰⁴ Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006, p. 203.

under their flag or registry. The benefits Flag States attain, for instance, from the tax revenues generated by vessels under their registry still constitute a main reason for them to put economic gains ahead of environmental concerns.¹⁰⁵ Also in direct correlation the ship owners are more prone to violate discharge/emission standards when they are aware that no sanctioning action will be taken against them by their Flag States.

In view of the above, mechanisms need to be put into place to modify the omissive/missive behavior of the Flag States, obliging them to comply with their enforcement obligations such as monitoring the compliance of the vessels navigating under their flag and registry, investigating alleged violations of such vessels, instituting legal proceedings against offenders and sanctioning them with penalties of dissuasive effect.

To what concerns attaining this compliance by the Flag States, reporting to the IMO continues to be the major instrument. In general, it is understood that this reporting system, which places the States under the scrutiny of the international community, creates the conditions for States to be more prone to comply as it's their interest to be "member in good standings of the international system".¹⁰⁶

Albeit, when considering the mandatory reporting to IMO of discharges, as required under the terms of MARPOL 73/78, the above mentioned theory seems all too optimistic. In fact, according to paragraph 4.4 of the Report to the Maritime Safety Committee and the Marine Environment Committee on 17th Session of Sub-Committee on Flag State Implementation, the rate of reporting by parties for the year 2007 was a mere 22.1%.¹⁰⁷ Hence, further measures other than mere reporting have to be instated, following either a regime of further incentives in the line of what IMO has already started to undertake (e.g. know-how support, public listing of complying vessels, etc.), a regime of confrontational sanctioning taking in consideration important factors of global interdependence and the concept of sanction such as removal of benefits¹⁰⁸, or a balanced use of both types.

With the present inability of Flag States to ensure compliance and enforcement it is up to the Arctic States in their capacity of Coastal and Port States to enforce compliance of

¹⁰⁵ Becker, Rebecca, "MARPOL 73/78: An Overview of International Environmental Enforcement", *The Georgetown International Environmental Law Review*, Vol. 10:625, 1998, p. 632.

¹⁰⁶ Chayes, A. And Chayes, A. Handler, *The New Sovereignty: Compliance with International Regulatory Agreements*, (1995), p. 28, cited in Brunnée, Jutta, *Enforcement Mechanisms in International Law and International Environmental Law, in Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academy*, Edited by Beyerlin, U., Stoll, P.T. and Wolfrum, R., Koninklijke Brill NV, 2006, p.11.

¹⁰⁷ IMO Document, FSI 17/20 24 April 2009, available at <http://www.uscg.mil/imo/fsi/docs/fsi17-report.pdf>, (viewed 28.08.2010).

¹⁰⁸ On different concepts of sanction: Downs, S.G., "Enforcement and the Evolution of Cooperation", in *Mich. J. Int'l. L.* 19 (1998) p. 319, cited in Brunnée, Jutta see note 106.

discharge/emission standards by foreign vessels. It is important to underline, though, that States in this complementary role do not have *carte blanche* as they must conform their actions within the limits of Articles 211, 218, 219 and 234 of the LOSC as well as other international legal instruments.

On another note, as mentioned in Chapter IV, as ice-coverage in the Arctic Ocean decreases so do the grounds for Coastal States to rely on Article 234 of the LOSC. Hence the importance of additional measures such as establishing the marine Arctic or parts of it as ‘special area’ under MARPOL 73/78 in order to ensure global acceptance of stricter discharge/emission standards which are not confined to the extent of ice-coverage.

Also, given the higher difficulties and risks that enforcement at sea in ice-covered waters entails, it is of particular relevance the action of Arctic States in their capacity of Port States and especially the adoption by the Arctic States of a cooperative and coordinated approach to Port State control. Such approach has inclusively been endorsed by the IMO in its Assemble Resolution A.682(17) of 1991 in which States were invited to enter into regional agreements for the application of Port State control measures.¹⁰⁹

To the moment no MOU concerning Port State control has been developed in the Arctic region so there is the possibility of Arctic Port States to create a new regional MOU improving the measures established under the Paris or Tokyo MOU, benefiting from the monitoring capabilities of each State, establishing incentives for vessels with good compliance records (such as reducing the number of time-consuming inspections or reduction of port charges as already being practiced by the United States)¹¹⁰ or resorting to more original methods such as requiring ships to dispose all types of pollutants in port before departing as to ensure they will not conduct any illegal discharge in Arctic waters.¹¹¹ Conversely, the latter measure would also entail for the Arctic States the obligation to better comply with the obligation established under MARPOL 73/78 of ensuring in their ports the existence of proper disposal facilities, a burden which would invariably be placed upon the final consumers.

¹⁰⁹ 1991 IMO Assembly Resolution A.682(17), available at http://www.imo.org/includes/blastDataOnly.asp/data_id%3D24510/A682%2817%29.pdf.

¹¹⁰ Tan, Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006, p. 368.

¹¹¹ As already implemented by the EU in article 7 of the Directive 2000/59/EC, of 27 November 2000 (*OJ* 2000 L 332/81), available at http://eur-lex.europa.eu/LexUriServ/site/en/oj/2000/l_332/l_33220001228en00810089.pdf.

3. IMO's role and enforcement powers

Mandated by the United Nations as the sole agency with powers to adopt conventions, agreements and other instruments in view of securing global standards for safe and secure commercial shipping and the protection of the marine environment¹¹², the IMO has, notwithstanding, no enforcement powers which means that compliance by States of its instruments rests almost exclusively in the State's good faith.

One of the biggest challenges at present for the IMO is precisely the lack of implementation and compliance of its standards and regulations by Flag States which exposes IMO to both questioning of its effectiveness and to the undermining of its role. As a consequence of the lack of IMO's capability to do so, combined with the increased concern for the implementation of measures to protect the marine environment, States have undertaken unilateral actions (e.g. in the aftermath of the *Exxon Valdez* and *Prestige* incidents).¹¹³ This sort of unilateral activity clearly undermines the role of the IMO and endangers the uniformity and stability required by the shipping industry as it is "only through world-wide applicable international requirements can a conflict-free interaction between flag, coastal and port State jurisdiction be put in place in order to make possible the harmonious development of sea-borne international trade".¹¹⁴

In view of the above, radical suggestions to improve enforcement of the protection of the marine environment within IMO have been made, such as transforming IMO into a single enforcement agency which would ensure enforcement amongst all ports and the development of a centralized record keeping.¹¹⁵ This solution however is both unrealistic as States would not relinquish their rights to that extent nor would it be structurally feasible. Hence a more pondered approach is recommendable where a moderate relinquish of enforcement powers to the IMO would be beneficial to the effective compliance of its rules¹¹⁶ (as it was in the case of the 1995 Protocol to the STCW Convention).¹¹⁷ Note

¹¹² See Articles 1 and 2 of Convention on the International Maritime Organization, adopted by the United Nations Maritime Conference in Geneva on 6 March 1948 and as subsequently amended., available at http://www.imo.org/conventions/mainframe.asp?topic_id=771.

¹¹³ See note 104, p. 347.

¹¹⁴ Blanco-Bazán, Agustín, *The Environmental UNCLOS and the Work of IMO in the Field of Prevention of Pollution from Vessels*, in *International Marine Environmental Law: Institutions, Implementation and Innovations*, International Environmental Law & Policy Series, Vol. 64, Edited by Kirchner, Andree, Kluwer Law International, 2003.

¹¹⁵ Becker, Rebecca, "MARPOL 73/78: An Overview of International Environmental Enforcement", *The Georgetown International Environmental Law Review*, Vol. 10:625, 1998, p. 639.

¹¹⁶ Alan Khee-Jin, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation*, Cambridge University Press, 2006, p. 356.

however, that such enforcement would not necessarily have to be strictly punitive or coercive. From IMO's point of view and given its mandate it would be far more constructive for it to be able to enforce encouraging and non-confrontational measures against non-compliant States.¹¹⁸

¹¹⁷ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, in force since 1978 and as subsequently amended., further details available at http://www.imo.org/conventions/contents.asp?doc_id=651&topic_id=257.

¹¹⁸ On the balance between confrontational and non-confrontational enforcement mechanisms see Di Pepe, Lorenzo Schiano, *Port State Control as an Instrument to Ensure Compliance with International Marine Environmental Obligations*, p.150, in *International Marine Environmental Law: Institutions, Implementation and Innovations*, International Environmental Law & Policy Series, Vol. 64, Edited by Kirchner, Andree, Kluwer Law International, 2003.

PART 4

CHAPTER VII – CONCLUSIONS

This thesis sought to examine three questions: i) which is the international and national legal framework applicable to intentional vessel-source pollution in Arctic ice-covered areas, ii) if such framework covers all types of intentional pollution and iii) if it is adequate to protect the marine environment, living resources and biodiversity in Arctic ice-covered areas.

From the research undertaken it is first and foremost conclusive that there is currently in place a complex intricate legal regime applicable to intentional vessel-source pollution which is also applicable to ice-covered areas. On the international level the LOSC and IMO are the main instrument and organization laying down the jurisdictional framework, State's obligations and the substantive standards to deal with intentional vessel-source pollution in the Arctic. Despite the existence of some discrepancies and ambiguities in the analyzed international legal framework (most likely inherent from the balancing of rights between coastal, flag and port States) it has sufficiently established the legal grounds for the adequate protection of the marine environment. The actual use of those legal bases is, on the other hand, a different question. For instance whilst both Canada and the Russian Federation have adopted discharge/emission standards more stringent than GAIRES making use of the special prescriptive and enforcement jurisdiction bestowed by Article 234 of the LOSC, the Arctic has not been established as a 'special area' under MARPOL 73/78 even though that possibility exists.

Also as regards international regulation, there is one particular area which falls outside the scope of the LOSC and IMO instruments which is the regulation of vessel-source pollution from public vessels entitled to sovereign immunity. In the Arctic this question assumes a level of some relevance given the fact that the majority of scientific vessels, icebreakers and search and rescue vessels operating in Arctic ice-covered areas are entitled to sovereign immunity and so it falls within the exclusive sovereignty of

the State to regulate their discharge/emission standards as well as the assessment of their compliance and other enforcement action.

Furthermore, to what concerns the regulation of pollutant substances pertaining intentional vessel pollution, there is currently a satisfactory coverage by both MARPOL 73/78 standards and national practice of Canada and the Russian Federation. The two main types of pollutants that require further regulation are sewage (in particular to what concerns sewage of cruise vessels) and noise pollution affecting some marine species. With regards to this latter one, further regulatory effort should be undertaken applying the precautionary approach given the lack of sufficient and certain scientific data on the matter.

As per the question if the current legal framework is adequate or sufficient to ensure the protection of the marine environment, living resources and biodiversity the answer is intrinsically connected with the matter of implementation, enforcement and compliance which is not a problem exclusive to the Arctic area. Even with a high regulation of pollution standards by the IMO and the adhesion by the Arctic Coastal States and major maritime countries in terms of tonnage there is always the difficulty of securing adequate implementation, compliance and enforcement from Flag States, especially from States that are flags of convenience. The international legal framework establishes mechanisms contributing to the resolution of this problem namely Port State Control. From the analysis of the national legislation of both Canada and Russia it is clear that there is legislation put into place concerning their enforcement powers as Port States. However, there is still no regional cooperation system with regards to this matter which would ensure an enhanced monitoring capability, the application of uniform standards and foster the compliance by vessels. Also in connection with this issue, a moderate enlargement of IMO's role by attributing it some enforcement powers against State's lack of will or means could prove to be advantageous in the plight of non-compliance.

In conclusion, in spite the standards and legislation concerning the protection of the Arctic marine environment, living resources and biodiversity from intentional vessel-source pollution in Arctic ice-covered areas being satisfactory, there are still some gaps and challenges that require decisive action and that need to be addressed both on the international level within IMO and on the national level by all Arctic States and Flag States whose vessels intend to engage in intra or trans-arctic navigation.

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